

Knowledge, Attitude and Practice towards Childhood Immunization among Teenage Mothers in Nairobi Slums

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Declaration

This is my original work, and it has not been presented anywhere else.

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LIST OF ACRONYMS

DTP – Diphtheria Tetanus Pertussis

EPI - Expanded Program on Immunization

EPI – Expanded Program on Immunization

GPEI – Global Polio Eradication Initiative

KDHS – Kenya Demographic Health Survey

KEPI – Kenya Expanded Program on Immunization

KNH – Kenyatta National Hospital

MKN – Mukuru Kwa Njenga

MOH – Ministry of Health

NCPD – National Council for Population and Development

SDG - Sustainable Development Goals

SDG – Sustainable Development Goals

SPSS – Statistical Package for Social Science

UHC – Universal Health Care

UNITID – University of Nairobi Institute of Tropical and Infectious Diseases

UON – University of Nairobi

WBG – World Bank Group

WHO – World Health Organization

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Abstract

Background

Vaccine-preventable diseases are a significant burden in public health and the economy, especially in developing countries. Teenage pregnancy is on the rise especially among teenagers in the urban slums and rural settings, posing a threat to childhood immunization coverage and increases the risk of acquiring infectious diseases. This study aimed at determining the level of knowledge, attitude, practice, barriers, and facilitators among teenage mothers towards childhood immunization compared to adult mothers in selected Nairobi slums.

Objective

To assess the knowledge, attitude and practice of teenage mothers in Kibera and Mukuru slums on KEPI vaccines and find out barriers and facilitators to following the vaccination schedule; compared to adult mothers, between October and November 2019.

Methodology

This was a cross-sectional study carried out at Kibera and Mukuru health centre among teenage mothers and adult mothers. A total of 262 participants were consecutively recruited over a two-month period. A standard questionnaire was used to collect participants' information on the level of knowledge, attitude, practice, barriers, and facilitators to childhood immunization. Data collected was keyed in Microsoft Excel and imported to IBM SPSS version 21 for analysis.

Results

Out of 262 participants recruited, 119 (46%) and 79 (30%) were from Kibera health centre and Mukuru Kwa Njenga health centre respectively. One hundred and seventy five (68%) were teenage mothers. Among these, 102 (58%) were single. The mean age of the study participants and teenage mothers was 19.9 (SD 3.4) and 18.2 (SD 0.9) respectively. Most of the teenage mothers were Protestants (81%), had one child (78%), were unemployed (64%) and had at least secondary education (55%). The level of knowledge about childhood immunization among teenage mothers was moderate, 43%. There was no significant association between age, child's gender, educational level and marital status to the knowledge among teenage mothers. However, teenage mothers who had more than one child had more knowledge on childhood immunization than those who had one child ($p < 0.05$). Majority of the teenage mothers had positive attitude and good practice (96%) on childhood immunization. Nearly all the teenage mothers (99%) felt the vaccine are safe for their children. The main barriers reported by the teenage mothers were poor accessibility of the health facility and shortage of health care workers.

Conclusion and Recommendation

Despite moderate level of knowledge on childhood immunization among teenage mothers, attitude and practices were satisfactory. There is need to introduce or strengthen community health workers programme, increase the number of health staff and outreach child immunization clinics. We also recommend educational programmes and awareness session with teenage mothers.

1.0 INTRODUCTION

1.1 Background information

Childhood immunization is one of the strategies used by the World Health Organization (WHO) to prevent or eliminate spread of infectious diseases such as polio, measles, and smallpox. It's one of the safest, most effective and efficient interventions that ensure healthy living and promotion of well-being, an essential goal in the Sustainable Development Goals (SDGs) Vaccine-preventable diseases and the memory of their occurrence for the past years has faded (Abdullah, Nor, and Rosliza, 2018; Joseph and Ajani, 2017; Adeyinka *et al.*, 2010).

According to the WHO, every year, an estimated 3.2 million lives are saved from death and vaccine-preventable diseases through the current immunization programs. Another 1.7 million could be saved by full utilization of the existing vaccines. By the year 2000, the WHO - Expanded Program on Immunization (EPI) and Health for All programs had shown a significant increase in immunization coverage in most parts of the world. However, despite the positive advances in health promotion, an estimated 22 million infants are missing necessary vaccines worldwide. Over 3 million children less than five years die every year and an additional 3 million become permanently disabled especially in Africa and Asia due to vaccine-preventable illnesses. (Bofarraj, 2011; Al-ayed, 2005).

Global vaccination coverage for the past years has remained significantly the same. Worldwide, approximately 85% of infants (116 million) received the three doses of diphtheria-tetanus-pertussis (DTP3) vaccine in 2017, and only 123 countries attained the 90% DTP3 coverage. In Africa, the DTP3 vaccine coverage has remained 72% since 2010. The sustainability of the coverage level has been attributed to the target population growth as 3.2 million infants received the services. An estimated 19.9 million infants did not access the routine immunization services out of which, 60% of the infants originated from low and middle-income countries, humanitarian settings and countries affected by conflict and insecurity. (WHO, 2018; Awosan *et al.*, 2018). In Kenya, children who did not receive any vaccines accounted for 2% with fully vaccinated children accounting for 68% (KDHS, 2015).

Misinformation and lack of personal experience with vaccine and vaccine-preventable diseases such as measles have led to more parents refusing vaccinations. Also, more parents focus on adverse effects rather than the benefit associated with the vaccine and vaccination

(Abdullah, Nor, and Rosliza, 2018). Vaccination uptake is still an area that presents with a lot of challenge in public health despite the government, health care workers and community leaders patronizing on the core health promotion. According to previous studies, vaccination uptake depends on many factors which may include mothers' knowledge and attitude towards the process of vaccination, accessibility to the vaccination clinic, time and cost involved in the process, safety and availability of hospital consumables for example syringes and needles (Awodele *et al.*, 2005).

Different studies assessing the knowledge and attitude of mothers on childhood vaccination have reported a significant difference between parents' knowledge and attitude towards childhood vaccination (Abdullah, Nor, and Rosliza, 2018). A recent study conducted in the United States assessing knowledge between two cohorts of parents revealed that a significant difference exists between parents who refused or delayed vaccinations and parents who did not. In Iraq, a cross-sectional retrospective study showed a significant association between knowledge on childhood vaccination among parents and completion of vaccination scheduled (Al-lela *et al.*, 2014). In most African countries, especially Nigeria, on perception and attitude, a majority of the mothers from the northern part believed measles, one of the vaccine-preventable diseases was contagious and caused by evil spirit, heat, and witch-craft (Adeyinka *et al.*, 2010). Kenya, like any other country, is fighting vaccine-preventable diseases through vaccination surveillance and campaigns. An estimated 350,000 adolescent girls (10-19 years) presented with pregnancy in health facilities across Kenya, especially in the rural setting and urban slums exposing the country to an economic burden and unnecessary health risk (NCPD, 2017). Teenage mothers face social and psychological challenges (KNBS, 2009) which may hinder childhood vaccination. The lower the immunization coverage can increase the risk of developing and spreading vaccine-preventable diseases. This study was, therefore, aimed at determining the level of knowledge, attitude, practice, barriers and facilitators among teenage mothers towards childhood immunization, compared to adult mothers, in selected Nairobi slums.

2.0 LITERATURE REVIEW

2.1 Introduction

Vaccination is the administration of harmless specific antigenic component to induce protective immunity against a particular infectious agent, while immunization is the process where the body's immune system is stimulated by a vaccine making the person immune or resistant to an infectious disease. Vaccination and immunization are common terms used interchangeably in the field of infectious diseases (MOH, 2013). Vaccination stimulates an individual's immune system to produce antibodies and cells that protect from consequent infection or illness when exposed to the causative agent (Njidda *et al.*, 2017). According to the World Bank Group (WBG), childhood immunization has received strong support as increasing vaccine access is important in the elimination of infectious diseases and achievement of Universal Health Care (UHC) (World Bank, 2000).

The World Health Organization (WHO) focuses on reducing illness, hospitalization, and death from vaccine-preventable diseases and other infectious diseases; expanding surveillance is crucial to those ends. Further efforts to improve disease surveillance will allow for earlier detection of the emergence and spread of diseases. Increased surveillance will save lives by allowing the maximum time possible for public health responses, including vaccine production and development of evidence-based recommendations on disease prevention and control. Surveillance enables rapid information sharing and facilitates the timely identification of people in need of immediate treatment (WHO, 2019b; MOH, 2013)

Immunization averts 2 to 3 million deaths each year, and it has been proven to be a tool in control and elimination of life-threatening illness that are of infectious origin (WHO, 2019a). The most cost-effective health investment is immunization; it has strategies that have been proved to improve its access to vulnerable population and most areas that are hard to reach (Abidoye and Odeyemi, 2013). There is no requirement for a lifestyle change for vaccination; the target groups are clearly defined, and outreach activities can be a tool of its effective delivery to the population (Aziz *et al.*, 2018).

2.2 Immunization coverage

Globally, immunization coverage has significantly increased since the Expanded Program for Immunization by the World Health Organization was begun in 1974. In 2010, it was estimated that globally, 85% of children under the age of one had received; at least three DTP vaccine (DTP3) (World Health Organisation, 2013). This level was up from 20% in 1980. Those living in urban slums, remote locations, displaced populations, and those communities living along the borders are among those who miss out in routine vaccination programs. There are also those who have various social barriers or lack of motivation to be vaccinated and those who intentionally decline vaccination. In 2002 it was estimated that 2.1 million people in the world died of vaccine-preventable diseases. Of this figure, 1.4 million were children under five years; the childhood deaths were caused by measles (500,000 deaths), *Haemophilus influenza* (400,000 deaths), pertussis (300,000 deaths) and neonatal tetanus (180,000 deaths) (Njidda *et al.*, 2017).

The WHO and its partners in 1988 launched the Global Polio Eradication Initiative (GPEI), since then there has been a drop in polio infections by 99% averting five million cases of paralysis. Deaths from measles between the years 2000 and 2008 have dropped worldwide, greater than 78%, with some regions setting targets of measles elimination (World Health Organisation, 2013).

Currently there is a significant progress in immunization coverage with the proportion of fully immunized children reaching 83%. However, in some Sub-Saharan countries, some countries are lagging behind with coverage less than 50%. Studies have reported inequalities in fully immunized children among sub populations as well as locality i.e. between rural and urban areas. Generally, immunization coverage has increased in many countries but children living in urban informal settlements areas record the lowest immunization coverage (Egondi *et al.*, 2015).

The Kenya Ministry of Health (MOH) established the KEPI (Kenya Expanded Program on Immunization) in 1980. KEPI was modeled from the global Expanded Program on Immunization (EPI) whose aim was to control and eradicate the six childhood vaccine-preventable diseases (Ministry of Health Republic of Kenya, 2013). Its aim is to prevent vaccine-preventable diseases that are capable of reducing life expectancy within the first year of life. The diseases vaccinated against include tetanus, measles, pertussis, diphtheria, polio,

and tuberculosis. Kenya later added rotavirus, hepatitis B, *Haemophilus influenza* type b and pneumococcal vaccine to the schedule.

Full childhood immunization according to the World Health Organization is achieved when the child has received Bacille Calmette Guerin (BCG), three doses of pentavalent vaccine (that contain diphtheria, pertussis, tetanus vaccine, hepatitis B and Haemophilus influenza type B), three polio vaccine doses and at least one dose of measles vaccine within the first year of life (KDHS, 2015). In the Kenyan immunization program, a fully immunized child should receive all the necessary vaccinations, plus three doses of pneumococcal vaccination (MOH, 2013).

The basic vaccine coverage had declined in Kenya since 2008-09 when it was at 77% to 71 % in 2014. Only 2% of children had not received any of the vaccines. Vaccination coverage was seen to decline with subsequent doses with a dropout rate of 8% for pentavalent vaccine, 17% for polio vaccine and 9% for pneumococcal vaccine. Of those aged between 12-23 months, 68% had been fully vaccinated with BCG, pentavalent, pneumococcal, measles and polio vaccine. On specific vaccine coverage, 97% of the children received BCG vaccine, 98% got the first dose of pentavalent, and 97% received their first dose of polio, and 94% received the first pneumococcal vaccine dose. At least 87% of children were vaccinated against measles, 90% of the children got the three recommended pentavalent doses, 81% received all three polio vaccine doses and 85% received the three-pneumococcal vaccine doses (KDHS, 2015).

2.3 Teenage pregnancies

Teenage pregnancy is a significant public health problem in low- and middle-income countries (LMICs) (WHO, 2014). Worldwide, it is estimated that around 16 million girls aged 15 to 19 or 1 million girls under 15 give birth every year (accounting for 11% of birth worldwide) (UNFPA, 2013). Additionally, babies born to adolescent mothers have a much higher likelihood of dying and are exposed to other life-threatening conditions including vaccine preventable diseases (Mumah *et al.*, 2014; WHO, 2014). Teenage pregnancy and pregnancy complications during childbirth are the major contributors to mortality among 15–19-year-old adolescents and young women (UNFPA, 2013). Child mortality in LMICs, lack of resources and poverty add to the cycle of poor health (WHO, 2014).

Children of a mother between the age 15-49 years with some level of education and from wealthy households were more likely to receive the recommended vaccines. There was a high level of full immunization coverage among the children whose mothers had attended secondary school (74%) or in households with high wealth quartile (71%) (KDHS, 2015).

Globally, there is variation on the average age at which mothers give birth to their first child; this ranges from 18 to slightly above 30 years of age, with countries such as Greece, Australia and South Korea recording an average age of 30 years. Kenya recorded an average mother's age of 20 years for first birth and an estimated 15% of teenage mothers aged between 15 to 19 years had given birth. The parity of women increases exponentially with increase in age with women aged 15 recording 3% while those aged 19 recording 40% (KDHS, 2015). There is little difference in the rural-urban setting in terms of early childbearing age. In Kenya, Narok and Homabay County recorded the highest prevalence in early childbearing followed by West Pokot and Tana River counties; Muranga and Nyeri counties reported least prevalence. Approximately 33% of the women aged 15 to 19 who had no education had started childbearing in comparison to 12% in those with secondary or higher education levels (Beguy, Mumah and Gottschalk, 2014). Teenagers from wealthier households were less likely to have begun childbearing than those from poor families. There was no change in the proportion of teenagers who had started childbearing since 2008-2009 compared to 2014 (Chartmix, 2013; KDHS, 2015).

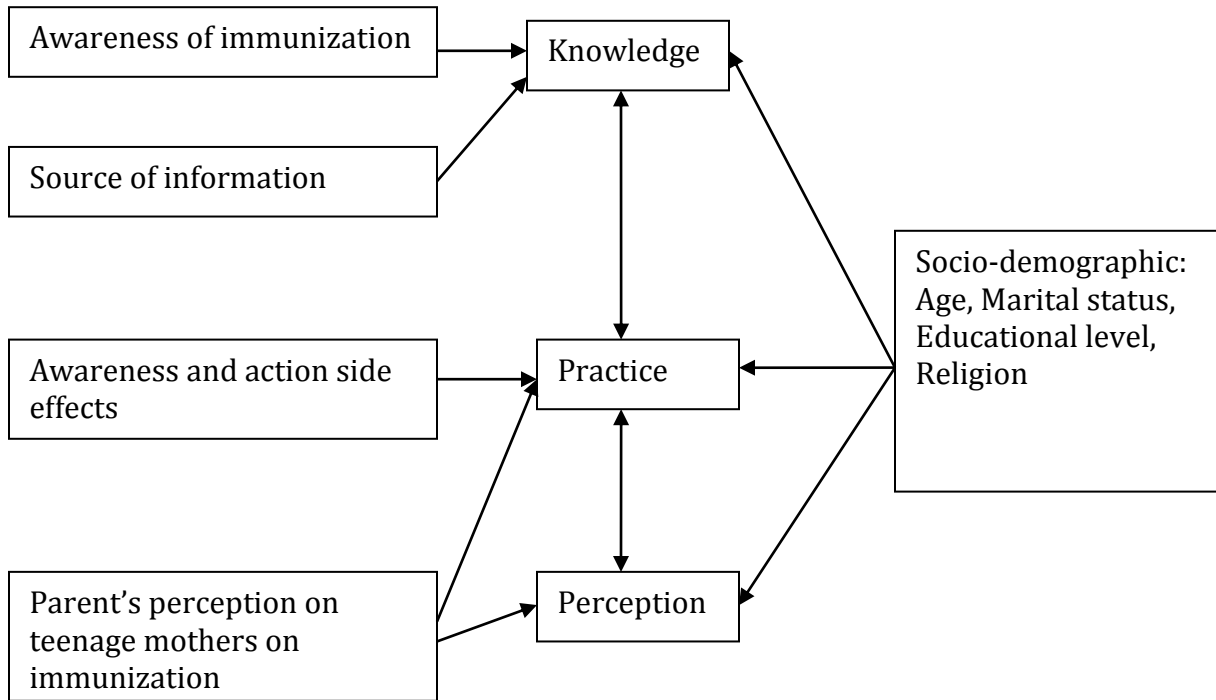
2.4 Conceptual framework

The conceptual framework demonstrates the interlinkage between the independent and dependent variables, the knowledge level of childhood immunization among teenage mothers and practice determines the accessibility of the primary health care services among children.

Knowledge, positive attitude and practices towards childhood immunization determine the prevention of infectious diseases, reduction in healthcare cost and increase in immunization coverage. Source of information, lack of awareness and negative attitude towards childhood immunization among teenage mothers determine their level of interest for attending primary healthcare facilities for services.

Finally, perceived barriers for the childhood immunization among the teenage mothers influence their choice to attend the primary healthcare facilities for services.

Figure 1: Conceptual framework



(Njidda *et al.*, 2017; Imenda, 2014)

2.5 Justification

Immunization against vaccine-preventable diseases is the most effective health intervention geared towards health promotion of an individual, family and the entire community (Njidda *et al.*, 2017). Lack of immunization is a risk factor of vaccine-preventable diseases, and it's an economic burden to the country. Parents are obliged with general care of children, and therefore they decide on their behalf including whether to be vaccinated or not (Angelillo *et al.*, 1999). Among parents, vaccine hesitancy has led to the re-emergence of diseases that can be prevented by vaccination for example measles (Asim *et al.*, 2012).

Globally, the stigma associated with teenage motherhood, peer influence, and ill or misinformation on vaccination hinders teenage mothers' adherence to childhood vaccination

(Masadeh *et al.*, 2014). Parent knowledge on risk and benefits of vaccination is crucial in increasing vaccination coverage. Teenage pregnancy is on the rise especially within the slums and the rural areas in Kenya (APHRC, 2012) and Kenya has had no studies evaluating teenage mothers' reasons for incomplete or delayed childhood vaccination (Asim *et al.*, 2012).

To our knowledge, in Kenya, there is no available data on knowledge, attitude, and practice among teenage mothers towards childhood vaccination. Therefore, this study aimed to assess the knowledge, attitude and practice of teenage mothers in Kibera and Mukuru slums on KEPI vaccines and find out barriers and facilitators to following the vaccination schedule, while comparing level of knowledge among adult and teenage mothers on KEPI vaccination.

Results from this study may be used to ascertain the level of knowledge/understanding among teenage mothers about childhood vaccination. This may guide policy makers in determining any trends and redesigning strategies to increase immunization acceptance and coverage hence reducing vaccine-preventable diseases and associated health costs.

2.6 Research question

1. What is the level of knowledge on KEPI vaccines among teenage mothers in Kibera and Mukuru slums of Nairobi, Kenya?
2. What is the attitude and practice of KEPI vaccination among teenage mothers in Kibera and Mukuru slums?
3. What are the barriers and facilitators to compliance to KEPI vaccination schedule among the teenage mothers in Kibera and Mukuru slums?
4. What is the difference in the level of knowledge among adult and teenage mothers on KEPI vaccination in Kibera and Mukuru slums?

2.7 Broad objective

To assess the knowledge, attitude and practice of teenage mothers in Kibera and Mukuru slums on KEPI vaccines and find out barriers and facilitators to following the vaccination schedule; compared to adult mothers between October and November 2019.

2.8 Specific objective

1. To assess the knowledge on the KEPI vaccines among teenage mothers in Kibera and Mukuru slums.
2. To assess the attitude and practice towards KEPI vaccination among teenage mothers in Kibera and Mukuru slums.
3. To identify the barriers and facilitators to compliance to KEPI vaccine schedule among the teenage mothers in Kibera and Mukuru slums.
4. To compare the level of knowledge among adult and teenage mothers on KEPI vaccination in Kibera and Mukuru slums.

3.0 METHODOLOGY

3.1 Study design

This was a cross-sectional study conducted among teenage mothers and adult mothers at households and two health facilities in selected 2 slums in Nairobi.

3.2 Study site

The study was carried out at Kibera Health Centre and Mukuru Health Centre, which are the main health facilities in this region providing immunization services and selected households in Mukuru Kwa Njenga and Kibera slums based on referral. Kibera and Mukuru Kwa Njenga slums are the main urban slums in Nairobi with teenagers representing half the population (50%). These are areas of low socio-economic status with a high incidence of teenage pregnancy (Erulkar and Matheka, 2007). Kibera slum is the largest slum in Nairobi and lies on the southeast side of Nairobi while Mukuru Kwa Njenga is a slum in the East side of Nairobi with an estimated population of one million and more than one hundred thousand respectively (Erulkar and Matheka, 2007; NCPD, 2017).

3.3 Study population

Teenage mothers between the age of 13 and 19 and adult mothers 20 years or older, with child/children less than 18 months old attending postnatal and immunization clinic at the selected health facilities and (or) in referred households during the months of October and November 2019.

3.3.1 Inclusion criteria

- Teenage mothers aged 13 to 19 years
- Mothers with a child/children less than 18 months
- Adult mothers aged 20 years and above

3.3.2 Exclusion criteria

- Mothers with adopted children and mothers not living in Kibera and Mukuru Kwa Njenga slums.

3.4 Sample size

The sample size was calculated using Fisher's formula (Israel, 1992). According to the NCPD, the estimated prevalence of teenage pregnancies in Kenya was 18% (NCPD, 2017).

$$n = \frac{Z^2 P (1-P)}{e^2}$$

Where:

n= minimum desired sample size

Z = Confidence interval at 95% (1.96)

P= proportion of teenage pregnancies in Kenya 18% (NCPD, 2017).

e= degree of freedom

$$n = \frac{1.96^2 * 0.18 (1-0.18)}{0.05^2}$$

$$= 227$$

3.5 Sampling technique

Mixed sampling technique was used. Participants in the selected health center were recruited into the study using consecutive sampling technique. Household selection was done using snow balling sampling technique targeting teenage mothers who are not accessed from the health facility. Upon signing an informed consent (Appendix 1), meeting the inclusion/exclusion criteria participants were enrolled until the desired sample size is achieved.

3.6 Variables

The independent variables included age, marital status, ethnicity, occupation, residence, educational status, religion, place of delivery and type of teenager's family structure.

Dependent variables were knowledge, attitude and uptake of child immunization.

3.7 Data collection procedures

Structured questionnaire (Appendix 2) entailing five main sections i.e. Socio-demographics, Knowledge and Attitude, Mothers practice, barriers and facilitators to childhood immunization was used to collect information from the study participants. The principal investigator and (or)

the research assistant/trained nurse explained to the participants what the study entailed, the risks, benefits and voluntary participation. Those willing to participate signed the informed consent and proceeded to answer the 5 sections of the questionnaire through a face to face interview guided by the research assistant until the sample size was achieved. The questionnaires were coded to maintain confidentiality

3.8 Ethical consideration

The study was reviewed and approved by KNH-UON Ethics and Research Committee. Informed signed consent was sought from each participant.

3.9 Data management

Data generated from the questionnaires were cleaned and counter checked by the PI; keyed into Microsoft Excel sheet in a password-controlled computer ensuring security and privacy. The filled questionnaires were kept under lock and key. For back up, a USB drive dedicated to the principal investigator was used.

The data from Microsoft Excel was imported to and analyzed using IBM SPSS Statistics Version 21. In Univariate analysis assessing categorical variables such as education status and level of knowledge of vaccination, frequency distributions and proportions was done. Mean as measures of central tendency was carried out for numerical variable i.e. age. In bivariate analysis, chi-square assessed the association between dependent and independent categorical variables such as gender, age. In numerical variables, the t-test determined the association between the numerical variables. Charts and graphs were used to present the data collected.

4.0 RESULTS

4.1 Socio-demographics of the study participants

A total of 262 mothers drawn from Kibera Health Centre, Mukuru Kwa Njenga Health Centre (MKHC) and Mukuru Kwa Njenga Community (MKNC) were recruited. Majority of the study participants were recruited from Kibera Health Centre (46%, n=119) and Mukuru Kwa Njenga Health Centre (30%) (Figure 1).

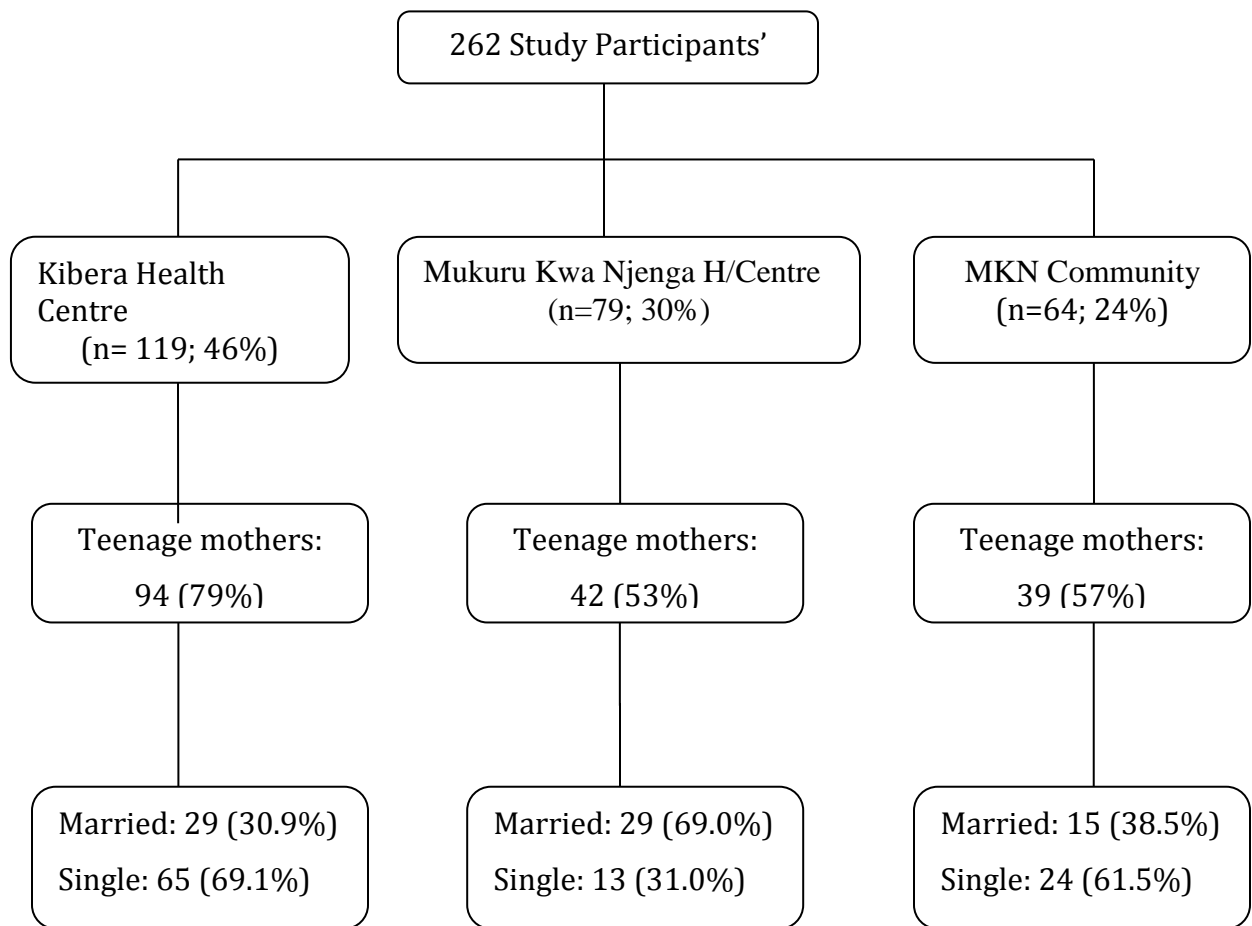


Figure 1. A flow diagram showing the different geographical regions we recruited the study participants from in relation to the frequency per region and marital status of the participants

One hundred and seventy five (68%) of the study participants were teenage mothers while 87 (33%) were adult mothers. Among the teenage mothers, 54% and 24% were recruited from Kibera H/Centre and MKN Centre respectively and 22% from MKN Community. Forty two percent (n=73) of the teenage mothers were married.

Majority of the teenage mothers (55%) had secondary education with 33% having attained primary education. Eighty one percent were Protestants, 14% Catholic and 5% Muslim. Most of the teenage mothers (78%) gave birth at public hospital and had one child, 17% private/mission hospital and 5% from home (Table 1).

Table 1: Socio-demographic characteristics of teenage mothers

| Characteristics | | Study Region n (%) | | | Total |
|---------------------------|--------------------------|--------------------|---------------|--------------|-----------|
| | | Kibera H/Centre | MKN Community | MKN H/Centre | |
| Age (years) | <18 | 50 (53) | 17 (44) | 20 (48) | 87 (50) |
| | 19 | 44 (47) | 22 (56) | 22 (52) | 88 (50) |
| Marital status | Married | 29 (31) | 15 (39) | 29 (69) | 73 (42) |
| | Single | 65 (69) | 24 (62) | 13 (31) | 102 (58) |
| Education | Primary | 36 (38) | 13 (33) | 9 (21) | 58 (33%) |
| | Secondary | 45 (48) | 25 (64) | 26 (62) | 96 (55%) |
| | Tertiary | 13 (14) | 1 (3) | 3 (7) | 17 (10%) |
| | Informal | 0 (0) | 0 (0) | 4 (10) | 4 (2%) |
| Religion | Protestant | 77 (82) | 25 (64) | 40 (95) | 142 (81%) |
| | Muslim | 69 (6) | 1 (3) | 2 (5) | 9 (5%) |
| | Catholic | 11 (12) | 13 (33) | 0 (0) | 24 (14%) |
| Number of children | One | 64 (68) | 36 (92) | 36 (86) | 136 (78%) |
| | Two | 28 (30) | 3 (8) | 5 (12) | 36 (20%) |
| | Three | 2 (2) | 0 (0) | 1 (2) | 3 (2%) |
| Occupation | Unemployed | 14 (15) | 27 (69) | 22 (52) | 63 (36%) |
| | Employed | 46 (49) | 8 (21) | 9 (21) | 63 (36%) |
| | Student | 34 (36) | 4 (10) | 11 (26) | 49 (28%) |
| Child's gender | Male | 43 (46) | 16 (41) | 19 (45) | 78 (45%) |
| | Female | 51 (54) | 23 (59) | 23 (55) | 97 (55%) |
| Place of delivery | Home | 2 (2) | 3 (8) | 3 (7) | 8 (5%) |
| | Public hospital | 73 (78) | 32 (82) | 32 (76) | 137 (78%) |
| | Private/Mission hospital | 19 (20) | 4 (10) | 7 (17) | 30 (17%) |

The age of the study participants was distributed as shown in figure 2. The mean age of the study participants was 19.9 years (SD, 3.4). Teenage mothers in Kibera Health Centre (n= 94) and Mukuru Health Centre (n=42) had an average age of 18.1 years (SD, 1.0) and 17.9 years (SD, 3.0) respectively. Those in MKN Community had a mean age of 18.4 years (SD, 0.7).

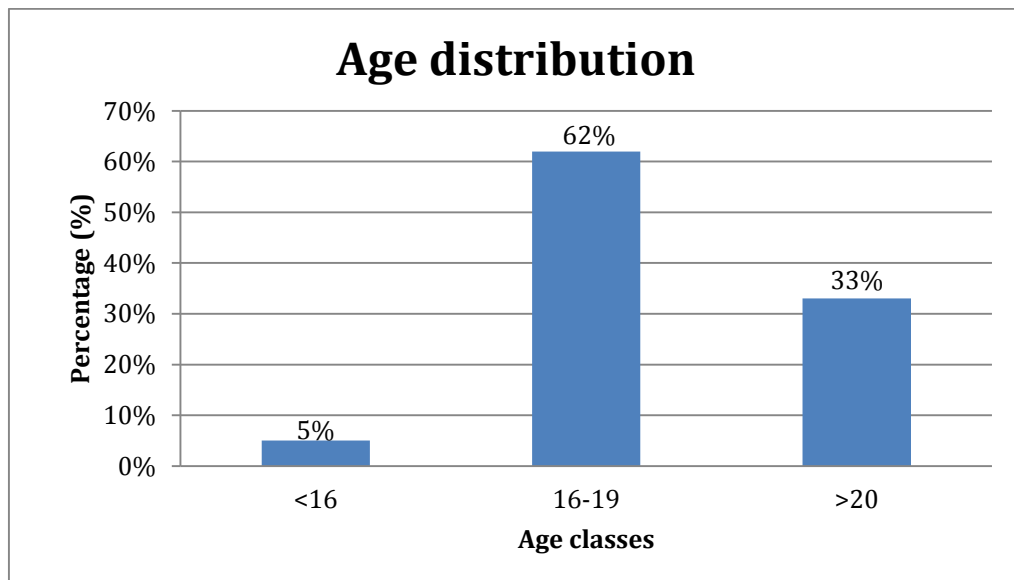


Figure 2. Age distribution of study participants

4.2 Knowledge of childhood immunization among teenage mothers

Of the 175 teenage mothers recruited for the study, 125 (71%) had heard information about vaccination. Healthcare workers (98%) were the primary source of information about vaccination and immunization, followed by parents of the teenage mothers (10%), media (6%), and neighbors (5%). Nearly all (98%) teenage mothers knew immunization prevents different types of disease; first vaccination doses are given at birth and the service is offered free in public hospitals through the KEPI program. Generally, 76 (43%) of the teenage mothers had adequate knowledge on childhood immunization while 99 (57%) were not familiar with most of the aspects related to childhood immunization.

Table 2: Knowledge on childhood immunization among teenage mothers

| Characteristics | n (%) |
|---|--------------|
| Source of information | |
| H/workers | 125 (71) |
| Neighbors' | 9 (5) |
| Parents | 17 (10) |
| Other sources | 10 (6) |
| H/workers/Neighbors/Parents | 14 (8) |
| Immunization cures diseases | |
| Yes | 81 (46) |
| No | 91 (52) |
| I don't know | 3 (2) |
| Immunization prevents diseases | |
| Yes | 172 (98) |
| No | 2 (1) |
| I don't know | 1 (1) |
| There are different types of disease | |
| Yes | 161 (92) |
| No | 3 (2) |
| I don't know | 11 (6) |
| First vaccination dose is given at birth | |
| Yes | 168 (96) |
| No | 4 (2) |
| I don't know | 3 (2) |
| Most vaccination given in combination | |
| Yes | 122 (70) |
| No | 8 (5) |
| I don't know | 45 (25) |
| Healthy children do not need vaccination | |
| Yes | 35 (20) |
| No | 135 (77) |
| I don't know | 5 (3) |
| KEPI vaccination is free | |
| Yes | 172 (98) |
| No | 3 (2) |

Table 3: Association between demographic characteristics toward knowledge on vaccination among teenage mothers

| Characteristic | n | Knowledge toward vaccination | | P value |
|--------------------------|-----|------------------------------|------------|---------|
| | | Good | Poor | |
| Age (years) | | | | |
| <18 | 87 | 37 (42.5%) | 50 (57.5%) | 0.811 |
| 19 | 88 | 39 (44.3%) | 49 (55.7%) | |
| Marital status | | | | |
| Married | 73 | 30 (41.1%) | 43 (58.9%) | 0.598 |
| Single | 102 | 46 (45.1%) | 56 (54.9%) | |
| Education | | | | |
| Primary/Informal | 62 | 28 (38.5%) | 34 (54.8%) | 0.126 |
| Secondary | 96 | 37 (38.5%) | 59 (61.5%) | |
| Tertiary | 17 | 11 (64.7%) | 6 (35.3%) | |
| No. of children | | | | |
| 1 | 137 | 49 (35.8%) | 88 (64.2%) | <0.05 |
| >1 | 38 | 27 (71.1%) | 11 (28.9%) | |
| Occupation | | | | |
| Unemployed | 112 | 44 (39.3%) | 68 (60.7%) | 0.140 |
| Employed | 63 | 32 (50.8%) | 31 (49.2%) | |
| Childs' gender | | | | |
| Male | 78 | 30 (38.5%) | 48 (61.5%) | 0.235 |
| Female | 97 | 46 (47.4%) | 51 (52.6%) | |
| Place of delivery | | | | |
| Home | 8 | 1 (12.5%) | 7 (87.5%) | 0.149 |
| Public hospital | 137 | 61 (44.5%) | 76 (55.5%) | |
| Private/Mission hospital | 30 | 14 (46.7%) | 16 (53.3%) | |

Teenage mothers who had more than one child had more knowledge on childhood immunization than those who had only one child ($p < 0.05$). There was no significant difference in the level of knowledge between married and single, employed and unemployed. Similarly, there was no significant association between knowledge and age, child's gender and educational level.

Table 4: Association between demographic characteristics and child immunization status on vaccination among teenage mothers

| Characteristic | n | Immunization status | | P value |
|--------------------------|-----|---------------------|-------------|---------|
| | | Full | Partial | |
| Age (years) | | | | |
| <18 | 87 | 23 (26.4%) | 64 (73.6%) | 0.055 |
| 19 | 88 | 22 (25.0%) | 66 (75.0%) | |
| >20 | 87 | 35 (40.2%) | 52 (59.8%) | |
| Marital status | | | | |
| Married | 73 | 27 (37.0%) | 46 (63.0%) | 0.004 |
| Single | 102 | 18 (17.6%) | 84 (82.4%) | |
| Education | | | | |
| Primary/Informal | 62 | 20 (32.3%) | 42 (67.7%) | 0.194 |
| Secondary | 96 | 23 (24.0%) | 73 (76.0%) | |
| Tertiary | 17 | 2 (11.8%) | 15 (88.2%) | |
| No. of children | | | | |
| 1 | 137 | 38 (27.7%) | 99 (72.3%) | 0.245 |
| >1 | 38 | 7 (18.4%) | 31 (81.6%) | |
| Occupation | | | | |
| Unemployed | 112 | 32 (28.6%) | 80 (71.4%) | 0.249 |
| Employed | 63 | 13 (20.6%) | 50 (79.4%) | |
| Childs' gender | | | | |
| Male | 78 | 23 (29.5%) | 55 (70.5%) | 0.306 |
| Female | 97 | 22 (22.7%) | 75 (77.3%) | |
| Place of delivery | | | | |
| Home | 8 | 5 (62.5%) | 3 (37.5%) | 0.050 |
| Public hospital | 137 | 33 (24.1%) | 104 (75.9%) | |
| Private/Mission hospital | 30 | 7 (23.3%) | 23 (76.7%) | |

There was a significant association between marital status and the immunization status. Similar association was also noted between place of delivery and immunization status ($p=<0.05$). However, there was no significant relationship between the immunization status and age, education level, number of children, occupation status and child's gender ($p=>0.05$).

4.3 Attitude on childhood immunization among teenage mothers

Almost all (99%) teenage mothers agreed that vaccines are safe, strengthens the immune system and protect against contagious infectious agents. Half of the target study participants were neutral on whether to associate vaccines with any side effects with 17% disagreeing that

vaccines have side effects. Most of the teenage mothers (84-87%) were satisfied with the Ministry of health and nursing services through which vaccines are introduced.

Table 5: Attitude of teenage mothers on childhood immunization

| Characteristic | | n (%) |
|--|----------|--------------|
| Child fully immunized by age | Yes | 45 (26) |
| | No | 130 (74) |
| Vaccines are safe, strengthens immune system and protect against contagious infectious agents | Agree | 173 (99) |
| | Disagree | 2 (1) |
| I think vaccine have side effects | Agree | 60 (34) |
| | Disagree | 29 (17) |
| | Neutral | 86 (49) |
| If there is an alternative to protect my child from vaccination, I will not give the vaccine | Agree | 21 (12) |
| | Disagree | 39 (22) |
| | Neutral | 115 (66) |
| I am satisfied with the Ministry of Health vaccination | Agree | 147 (84) |
| | Disagree | 28 (16) |
| I am satisfied with the nursing services through which vaccines are introduced | Agree | 152 (87) |
| | Disagree | 19 (11) |
| | Neutral | 4 (2) |
| More than one vaccine at the same time have no impacts on child immunity | Agree | 106 (61) |
| | Disagree | 22 (13) |
| | Neutral | 47 (27) |
| It is important to follow the vaccination schedule | Agree | 169 (97) |
| | Disagree | 6 (3) |
| Mothers should be allowed to send their child to school even if not immunized | Agree | 30 (17) |
| | Disagree | 49 (28) |
| | Neutral | 96 (55) |

4.4 Practice of mothers towards childhood immunization

Out of 175 teenage mothers, 25% had children who had been fully vaccinated, while some of the 75% had children less than 9 months hence incomplete immunization. Ninety six percent of the teenage mothers had KEPI vaccination cards and 38% reported a history of vaccine related side effects. The most common side effects were fever (9%), rash (4%) and general pain (3%).

Table 6: Practice of teenage mothers on childhood immunization

| Characteristics | | n (%) |
|---|--------------|----------|
| Vaccination up to date | Yes | 44 (25) |
| | No | 131 (75) |
| Availability of KEPI card during vaccination | | |
| | Yes | 168 (96) |
| | No | 7 (4) |
| Did side effects appear | | |
| | Yes | 66 (38) |
| | No | 109 (62) |
| | Fever | 15 (9) |
| | Pain | 5 (3) |
| | Rash | 7 (4) |
| Did you inform the healthcare worker and (or) use analgesics for swelling and pain after vaccination | | |
| | Yes | 38(22) |
| | No | 74 (42) |
| Will you search for other available vaccines | | |
| | Yes | 44 (25) |
| | No | 68 (39) |

4.5 Barriers to childhood immunization among teenage mothers

Out of all the teenage mothers interviewed, 59% (101/172) cited at least one barrier hindering adherence to childhood vaccination and schedule. The most common of these was poor accessibility of the facility (21%), shortage of healthcare workers (19%) and lack of information and awareness (13%).

Less prominent barriers which represented other factors (11%) included stigma, finance, time, distance, school attendance, and side effect associated with the vaccine. Sixteen percent of the respondents' had no reason not to bring their children for vaccination (Figure 3).

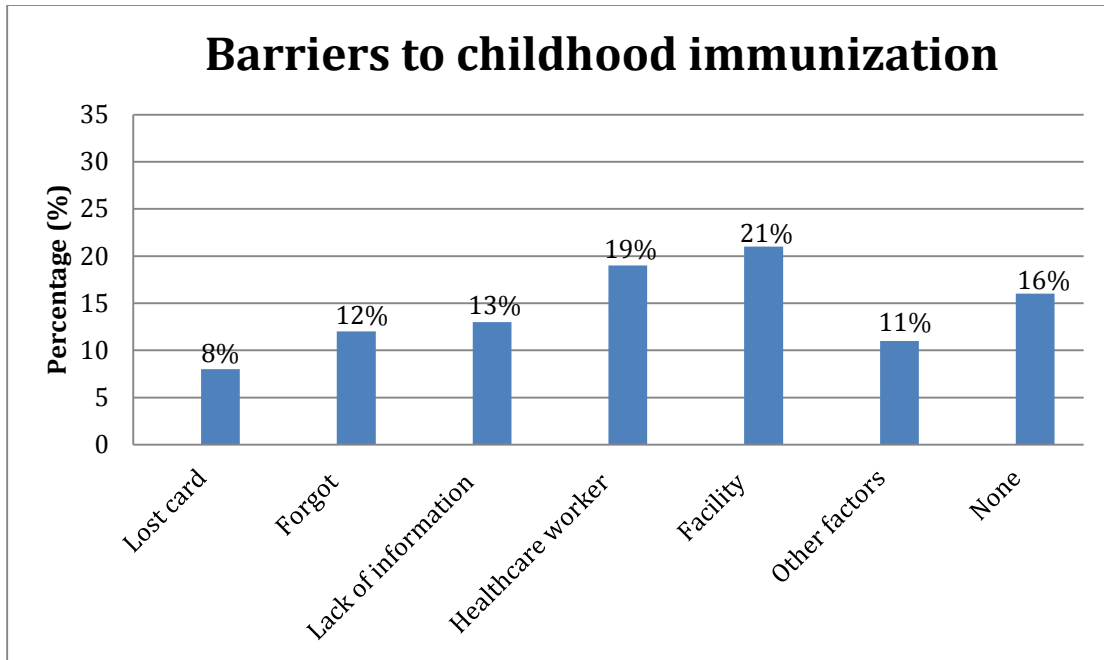


Figure 3. Barriers to childhood immunization among teenage mothers

4.6 Facilitators to childhood immunization among teenage mothers

Majority of the respondents were driven by the information (20%) to be acquired, positive attitude of the healthcare workers (19%) and the wellbeing of their children (20%). Other factors included finances (4%), distance to be covered from home to the healthcare facility (4%) and facility (8%) providing child vaccination.

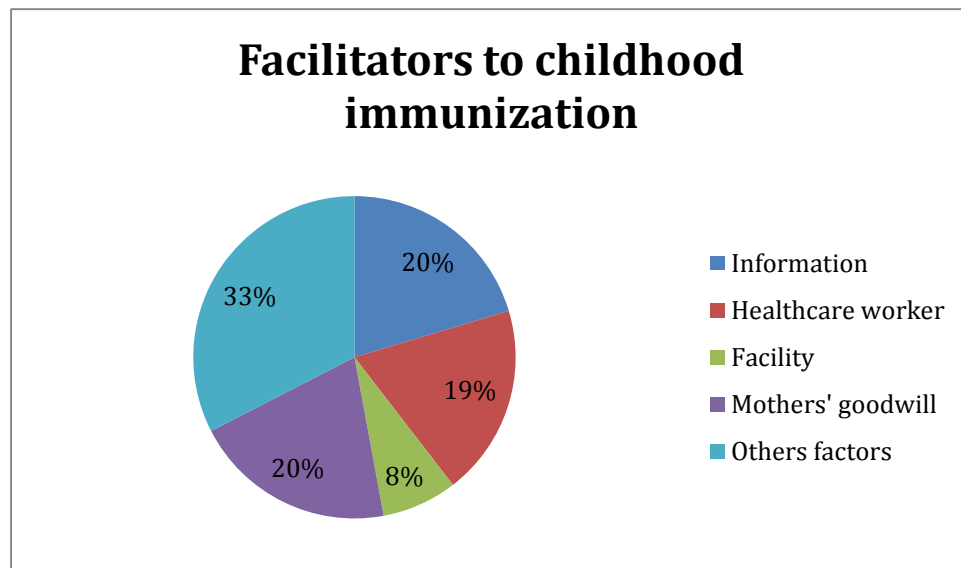


Figure 4. Facilitators to childhood immunization among teenage mothers

4.7 Level of knowledge among adult and teenage mothers on KEPI vaccination in Kibera and Mukuru slums

Seventy six (43%) of the teenage mothers and 37 adult mothers (43%) had good knowledge on childhood immunization. There was no significant difference in the level of knowledge among teenage and adult mothers ($P=0.890$).

5.0 DISCUSSION

This study aimed to assess the level of knowledge, attitude, practice, barriers and facilitators among teenage mothers towards childhood immunization, compared to adult mothers, in selected Nairobi slums.

Almost three quarters of teenage mothers in our study were aware of infant immunization and the significance attributed to the process of immunization. Majority had access to the information from healthcare workers. Although there was no significant association between the level of knowledge and age, education level, place of delivery, marital and occupation status; teenage mothers who had more than one child were more knowledgeable. This may be attributed to the hospital visits made by the mothers during their antenatal clinic for checkups in the previous pregnancies. In addition, nursing mothers also receive adequate information from health education and talks conducted by healthcare workers during hospital and home visits (Abdullah, Nor and Rosliza, 2018). Our findings concur with those from similar studies done in other parts of the world. Abdullah et al in Malaysia reported that 87% of 860 teenage mothers had heard of childhood immunization. (Abdullah, Nor and Rosliza, 2018). Al-Lela et al in Iraq similarly reported 67% of the teenage mothers interviewed had heard information about childhood immunization and primarily from healthcare professionals (Al-lela *et al.*, 2014). Information awareness among teenage mothers on childhood immunization in this study by Al-Lela et al are inconsistent with previous similar studies done Malaysia and Ethiopia which reported slightly lower rates (44-55%) (Aziz *et al.*, 2018; Birhanu *et al.*, 2016).

Similar to studies done in India and Nigeria, our study found that most of the teenage mothers were aware there are different types of vaccines, given in combination and the first vaccination dose is given at birth (Awodele *et al.*, 2005); (Habib *et al.*, 2018). In contrast to our findings, only 7% of the mothers studied in Ethiopia knew first vaccination dose was given at birth and could mention the different types of vaccines (Etana and Deressa, 2012). This discrepancy could be due to difference in information, education and communication between the mothers and primarily the healthcare workers. Overall, teenage mothers in this study had adequate knowledge on childhood immunization (43%) which was lower than studies done in India, Lithuanian and Ethiopia (55-70%) (Seskute, Tamuleviciene and Leviniene, 2018; Etana and Deressa, 2012; Devi, Smitta and Vishvendra, 2017). High scores, contrary to our findings, have

been reported in other studies. Mahalingam et al in India, Habib et al in Saudi Arabia and Birhanu et al in Ethiopia reported knowledge score of 76% and 87% respectively among the teenage mothers on childhood immunization (Mahalingam *et al.*, 2014; Habib *et al.*, 2018).

Our study finding on attitude is comparable to similar studies done in Congo and Ethiopia (Birhanu *et al.*, 2016; Mapatano *et al.*, 2008). In these studies, almost all teenage mothers who responded to the study questionnaire had positive attitude about childhood immunization considering safety of the vaccines, strengthening of the immune systems and protection of the child against contagious infectious agent. This observation implies childhood immunization coverage could significantly increase. In concurrence to our study, 80-84% of the teenage mothers in Congo and Ethiopia were satisfied with their vaccination services provided (Birhanu *et al.*, 2016; Mapatano *et al.*, 2008). These findings contrast with results from previous similar studies among teenage mothers done in developing countries where attitude towards vaccines was low. According to unpublished dissertation work by Taiwo, a postgraduate student at Ahmadu Bello University in Nigeria 2016, 69% of the teenage mothers had a positive attitude on children immunization against vaccine preventable diseases. Majority of the respondents (72%) indicated that their problem was malaria and not immunization (Taiwo, 2016). Verulava et al in United States of America reported 66% of the 188 mothers showed a positive attitude towards immunization (Verulava *et al.*, 2019). Phounphenghack et al in Thailand reported negative attitude (20%) among teenage mothers whose children had incomplete vaccination as per their government immunization schedule (Phounphenghack, 2007). Based on the respondents' practice on childhood immunization, almost all mothers interviewed had KEPI vaccination card. Our study reported good practice (96%) on childhood immunization among the teenage mothers similar to findings observed in studies done in India, Nigeria and Congo (Mapatano *et al.*, 2008; Abidoye and Odeyemi, 2013; Joseph *et al.*, 2015). This observation is contrary to what was noted in a comparative study in India where they reported a lower percentage (73%) in practice among the mothers (Mahalingam *et al.*, 2014). The percentage reported in India on practice may be due to socio-cultural differences among the study population (Joseph *et al.*, 2015). This may also be due to lack of awareness, sick child and forgetfulness (Mahalingam *et al.*, 2014). In our study, positive attitude and good

practice among the respondents may be attributed to the educational campaigns by the government both in print and social media creating awareness on childhood vaccination.

More than half of the respondents' in our study cited they encounter at least one barrier while seeking childhood immunization services. The barriers reported were poor accessibility to the facility and shortage of healthcare workers. Similar observations were noted in India, Nigeria and Congo where poor access to the facility was reported as the most common barrier in seeking childhood immunization services (Adeyinka *et al.*, 2010; Patil, Maheshwari and Patel, 2018; Mapatano *et al.*, 2008). In contrast, Bofarraj in Libya reported forgetfulness among the mothers as the main barrier hindering childhood immunization (Bofarraj, 2011). In a similar study, Otubor et al in Nigeria showed religion as the main the hindrance in seeking childhood immunization services (Otubor *et al.*, 2015). Most of the urban slums have poor road network which hinder the access of people to healthcare facility for immunization services. In some regions of Nigeria, women are not permitted to freely interact with the society through the practice of "purdah". This hinders the creation of awareness and acquisition of relevant information (Otubor *et al.*, 2015).

Most of the teenage mothers in our study felt the general wellbeing of their children, attitude of the healthcare workers, information and knowledge acquired from the healthcare workers was a motivator for seeking childhood immunization services. This observation has been noted in similar studies done in different parts of the world. Yousif et al in Saudi Arabia, Konwea et al and Adeyinka et al in Nigeria reported positive attitude among the healthcare workers and child wellbeing as the most prominent motivators among the teenage mothers seeking child immunizations services (Yousif *et al.*, 2013; Konwea *et al.*, 2018; Adeyinka *et al.*, 2010). Contrary to our findings, Devkota et al in Nepal and Joseph et al in India reported availability of the vaccine and socio-economic status of the parent as the facilitators for seeking child immunization services (Devkota *et al.*, 2013; Joseph *et al.*, 2015).

Our study showed no significant difference on childhood immunization knowledge between adults and teenage mothers (43.4% versus 42.5%, $p=0.890$). This is likely due to the availability of information on immunization from healthcare workers among both groups during antenatal clinics. This is similar to findings of a pilot study among mothers in Saudi Arabia that noted no significant difference in the level of knowledge on childhood immunization among teenage and adult mothers (Yousif *et al.*, 2013).

The main limitation in our study was the inability to access all teenage mothers at their homes due to poor road network and unavailability of key informants, particularly in Kibera slums.

6.0 CONCLUSION

Our study highlights the knowledge, attitude and practice of childhood immunization among teenage mothers. In this study, almost half of the teenage mothers' interviewed had good knowledge on childhood immunization, positive attitude and good practice on aspects related to childhood immunization. Nearly all the teenage mothers (99%) felt vaccination is safe for their children. The main barriers reported by the teenage mothers were poor accessibility of the health facility and shortage of healthcare workers. We also noted antenatal clinic and healthcare workers were the main source of information. There was no significant difference in the level of knowledge among teenage and adult mothers.

7.0 RECOMMENDATION

Based on the findings of this study, we propose introduction or increase in numbers of community health workers (CHW) and healthcare workers (staff) to create awareness and strengthen immunization clinics and existing outreach child immunization clinics within the urban slums. We also recommend use of educational programmes and introduction/strengthening of special sessions/meetings with teenage mothers during antenatal clinics and postnatal clinics to create awareness, positive attitude and good practice towards childhood immunization.

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APPENDICES

- 1a. Information and Consent Form – English
- b. Information and Consent Form – Swahili
2. Questionnaire

APPENDIX 1a: Information and Consent Form – English

Title of the study: Knowledge, Attitude and Practice towards Childhood Immunization among Teenage mothers in Nairobi Slums

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Co-Investigators: Dr. Gloria Omosa-Manyonyi (Department of Medical Microbiology, UON), Prof. Joyce Olenja (Department of Community Health, UON)

Introduction:

I would like to tell you about a study being conducted by the above-listed researchers. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the study or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent.' Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES / NO

WHAT IS THIS STUDY ABOUT?

The researchers listed above are interviewing mothers who have children undergoing KEPI immunization. The purpose of the interview is to find out the level of knowledge, attitude, and practices among teenage mothers towards childhood immunization. Participants in this research study will be asked questions about socio-demographics and vaccine-preventable diseases. There will be approximately 400 participants in this study randomly chosen. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen:

You will be interviewed in a private area where you feel comfortable answering questions. The interview will last approximately 10 – 15 minutes. The interview will cover topics such as vaccine-preventable diseases.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is the loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be secure, so it is still possible that someone could find out you were in this study and could find out information about you.

Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview or any questions asked during the interview.

It may be embarrassing for you to give some private information. We will do everything we can to ensure that this is done in private. Furthermore, all study staff and interviewers are professionals with special training in these examinations/interviews.

If any discomfort is experienced during the interview, inform the study staff immediately.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

You may benefit by receiving free health information about vaccine-preventable diseases. We will refer you to a hospital for care and support where necessary. Also, the information you provide will help us better understand the level of knowledge, attitude and practice among teenage mothers towards childhood immunization. This information is a contribution to science and will aid in preventing vaccine-preventable diseases.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

The study will cost you nothing but just 10 – 15 minutes of your time.

WILL YOU GET REFUND FOR ANY MONEY SPENT AS PART OF THIS STUDY?

There will be no refund as no expense will be involved in participating in this study.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the study staff Nida Okumu 0723458288.

For more information about your rights as a research participant, you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

The study staff will pay you back for your charges to these numbers if the call is for study-related communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study, and you can withdraw from the study at any time without injustice or loss of any benefits such as care, treatment, and immunization needed.

CONSENT FORM (STATEMENT OF CONSENT)

Participant’s statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with study staff. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my identity confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: **Yes** **No**

Participant printed name: _____

Participant signature / Thumb stamp _____ **Date** _____

Researcher’s statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and as willingly and freely given his/her consent.

Researcher’s Name: _____ **Sign:** _____ **Date:** _____

Role in the study: _____

Witness (*If witness is necessary, A witness is a person mutually acceptable to both the researcher and participant*)

Name _____ **Contact information** _____

Signature /Thumb stamp: _____ **Date;** _____

Appendix 1b: Information and Consent Form – SWAHILI

MAELEZO KUHUSU UTAFITI/WARAKA WA IDHINI

Maarifa, Tabia na Mazoezi ya Uchangaji wa Watoto kati ya mama mchanga katika Vitogoji duni jijini Nairobi

Mtafiti mkuu: Dkt. Okumu Nida (Chuo Kikuu cha Nairobi)

Watafiti weza: Dkt. Gloria Omosa-Manyonyi (Chuo Kikuu cha Nairobi), Profesa Joyce Olenja

UTANGULIZI

Ningependa kukueleza juu ya utafiti unaofanywa na watafiti waliotajwa hapo juu. Madhumuni ya fomu hii ya idhini ni kukupa maelezo unayohitaji ili kukusaidia uamuzi ikiwa Utahusishwa kwa utafiti huu au la. Jisikie huru kuuliza maswali yoyote kuhusu madhumuni ya utafiti, kinachotokea ikiwa unashiriki katika utafiti, hatari na faida iwezekanavyo, haki zako kama kujitolea, na kitu kingine chochote kuhusu utafiti au fomu hii ambayo haijulikani. Tunapojibu maswali yako yote kwa kuridhika kwako, unaweza kuamua kuwa katika utafiti au la. Utaratibu huu unaitwa 'kibali cha habari'. Mara unapoelewa na kukubali kuwa katika utafiti, nitakuomba kusaini jina lako kwenye fomu hii. Unapaswa kuelewa kanuni za jumla ambazo zinatumiwa kwa washiriki wote katika utafiti wa matibabu: i) Uamuzi wako wa kushiriki ni kikamilifu kwa hiari ii) Unaweza kujiondoa kwenye utafiti wakati wowote bila ya kutoa sababu ya uondoaji wako iii) Kukataa kushiriki katika utafiti hauathiri huduma unazostahili kwenye kituo hiki cha afya au vifaa vingine. Tutakupa nakala ya fomu hii kwa rekodi zako.

Naweza kuendelea? NDIO/LA

UTAFITI HUU UNAUSU NINI?

Mtafiti aliotajwa hapo juu atawaoji akina mama wachanga. Lengo la utafiti ni kutambua marifa, tabia na mazoezi kwa chanjo za watoto. Karibu wagonjwa 400 wa ugonjwa wa mguu wa kisukari waliochaguliwa kwa nasibu watashiriki katika utafiti huu. Tunaomba ridhaa yako kufikiria kushiriki katika utafiti huu.

NI NINI KITAKACHO FANYIKA UKIAMUA KUHUSIKA KWA UTAFITI HUU?

Ikiwa unakubali kushiriki katika utafiti huu, mambo yafuatayo yatatokea:

Utashughulikiwa na mhojiwaji mwenye mafunzo katika eneo la kibinafsi ambako unajisikia kujibu maswali. Mahojiano itaendelea dakika takriban tano ama dakika kumi. Mahojiano itafikia mada kama vile aina ya ugojwa unao zuiwa na chanjo, umri.

Baada ya mahojiano, atakupea mafunzo kuhusu chanjo zinazo idhinishwa na shirika la chanjo.

KUNA MADHARA YOYOTE YANAYOTOKANA NA UTAFITI HUU?

Utafiti wa matibabu una uwezo wa kuanzisha hatari za kisaikolojia, kijamii, kihisia na kimwili. Jitihada zinapaswa kuwekwa daima ili kupunguza hatari. Hatari moja ya kuwa katika utafiti ni kupoteza faragha. Tutaweka kila kitu unachotuambia kama siri iwezekanavyo. Tutatumia namba ya nambari ili kukutambua kwenye darasani ya kompyuta iliyohifadhiwa na nenosiri na tutahifadhi rekodi zote za karatasi kwenye baraza la mawaziri lililofungwa. Hata hivyo, hakuna mfumo wa kulinda siri yako inaweza kuwa salama kabisa, kwa hiyo bado inawezekana kwamba mtu anaweza kujua wewe ulikuwa katika utafiti huu na anaweza kupata habari kukuhusu.

Pia, kujibu maswali katika mahojiano inaweza kuwa na wasiwasi kwako. Ikiwa kuna maswali yoyote utaki kujibu, unaweza kuruka. Una haki ya kukataa mahojiano au maswali yoyote yaliyoulizwa wakati wa mahojiano.

Inaweza kuwa aibu kwa wewe kutoa maelezo ya kibinafsi. Tutafanya kila kitu tunaweza kuhakikisha kuwa hii imefanywa kwa faragha. Zaidi ya hayo, wafanyakazi wote wa utafiti ni wataalamu wenye mafunzo maalum katika mitihani/mahojiano haya.

Unaweza kujisikia wasiwasi wakati wa mahojiano, mwambie mtafiti.

KUNA MANUFAA YOYOTE KWA KUHUSIKA KWA UTAFITI HUU?

Manufaa ya utafiti huu si ya moja kwa moja kwa mtu binafsi, ila itawezesha kujua ukosefu wa maarifa kuhusu chanjo ya watoto. Taarifa hii ni mchango kwa sayansi na msaada katika kuelimisha kina mama wachanga kuhusu chanjo na magonjwa yanayo zuiwa na chanjo.

KUHUSIKA KWA UTAFITI HUU KUTAGHARIMIA CHOCHOTE?

Kujihusisha na utafiti huu hautakugarimu chochote il muda wako kama dakika kumi hadi kumi na tano.

UTAPATA MALIPO YOYOTE AU FIDIA?

Hakuna malipo au fidia yoyote kwa kujiusisha na utafiti huu

UKITAKA KUULIZA SWALI BAADAYE KUHUSU UTAFITI HUU?

Wasiliana na Mtafiti mkuu, Dkt. Okumu Nida kwa nambari ya simu: +254 723 458 288. Ama mwenyekiti au katibu msimamizi, utafiti, Hospitali ya Kitaifa ya Kenyatta na Chuo kikuu cha Nairobi kupitia nambari 2726300/44102; au kwa anuani uonknh_erc@uonbi.ac.ke. Watafiti watakurejeshea pesa zilizotumika kwa mawasiliano kuhusu utafiti huu

HUNA HIARI GANI?

Uamuzi wako wa kushiriki katika utafiti ni wa hiari. Una uhuru wa kushiriki katika utafiti na unaweza kujiondoa kwenye utafiti wakati wowote bila mateso yoyote mabaya. Utaendelea kupata huduma na matibabu zinahitajika hata kama hutaki kushiriki katika utafiti huu.

IDHINI

Nimesoma au kusomewa waraka huu na nimweulewa kabisa. Nimepata nafasi ya kujadiliana na mtafiti na akajibu maswali yangu kwa lugha ninayoelewa. Nimearifiwa kuhusu faida na madhara ya utafiti huu na kwamba nitapewa nakala ya waraka huu baada ya kutia sahihi. Pia naelewa kuwa nahusika kwa hiari yangu na ninaweza kujitoa kwa utafiti huu wakati wowote. Kwa kusaini fomu hii ya kibali, sijaacha haki yoyote ya kisheria niliyoshiriki katika utafiti huu.

Nakubali kushiriki katika utafiti huu:

Ndio

La

Jina la kuchapishwa la Mshiriki: _____

Sahihi ya Mshiriki: _____ Tarehe: _____

KAULI YA MTAFITI

Nimemueleza mhusika taarifa zinazofaa kuhus utafiti huu na naamini kuwa ameelewa vyema na kukubali kuhusika kwa hiari yake.

JINA: _____ **TAREHE:** _____ **SAHIHI:** _____

UKUMU LAKO KWA UTFITI HUU: _____

SHAHIDI (*Ikiwa atahitajika kama vile kutasfiri*) _____

Sahihi: _____ Tarehe: _____

Appendix 2: Questionnaire

QUESTIONNAIRE

STUDY TITLE: Knowledge, Attitudes and Practice towards Childhood Immunization among Teenage mothers in Nairobi Slums

Patient study no

Date.....

I. Socio-demographics

1. Age (Years)

2. Marital Status

3. Education

4. Religion.....

Catholic-Protestant

Muslim

Others(specify).....

5. Number of children

6. Occupation.....

7. Child's gender

Male

Female

8. Place of delivery

Home

Public Hospital

Private/Mission Hospital

II. Knowledge of Childhood immunization

9. Child fully immunized

Yes No

10. Source of information

Healthcare worker Neighbours Parents Others (specify).....

11. Diseases prevented by use of vaccine.....

12. Immunization cures diseases

Yes No I don't know

13. Immunization prevents diseases

Yes No I don't know

14. There are different types of vaccines

Yes No I don't know

15. First vaccination dose is given at birth

Yes No I don't know

16. Most of the vaccines are given in combination with other vaccines

Yes No I don't know

17. Healthy children do not need vaccination

Yes No I don't know

18. How is a vaccine administered

19. KEPI vaccination is free

20. Vaccination makes children sick

Yes No I don't know

III. The attitude on Childhood immunization

21. Vaccines are safe for children

Agree Neutral Disagree

22. Vaccines strengthen the immune system of the child

Agree Neutral Disagree

23. Vaccines protect the child from contagious infectious diseases

Agree Neutral Disagree

24. I think vaccine have side effects

Agree Neutral Disagree

25. If there is an alternative to protect my child from vaccination, i will not give the vaccine

Agree Neutral Disagree

26. I am satisfied with the vaccination program offered by the Ministry of Health

Agree Neutral Disagree

27. I am satisfied with nursing services through which vaccines are introduced to my child

Agree Neutral Disagree

28. More than one vaccine at the same time have no impacts on child immunity

Agree Neutral Disagree

29. It is important to follow the vaccination schedule

Agree Neutral Disagree

30. Mothers should be allowed to send their child to school even if not immunized

Agree Neutral Disagree

IV. The practice of Mothers towards Immunization

31. Was immunization completed according to schedule

Yes No

32. Availability of KEPI card during vaccination

Yes No

33. Did side effects appear

Yes No

If yes, which were seen

Fever

Pain

Rash

34. Did you inform the healthcare provider

Yes No

35. Will you use analgesics for swelling and pain after vaccination

Yes No

36. Will you search for other available vaccines

Yes No

V. Barriers and facilitators to childhood immunization

37. Barriers

Specify.....

38. Facilitators

Specify.....