Factors Associated With Vaccine Incompletion Among Children Under Five Years Of Age

Abbreviations

- WHO World Health Organization
- SPSS Statistical Package for Social Sciences
- UNICEF United Nations Children's Fund
- BCG
- DTP Diphtheria-Tetanus-Pertussis
- OPV Oral Polio Vaccine
- DTPcV-3 Diphtheria-Tetanus-Pertussis Vaccine
- TT
- VPDS Vaccine-Preventable Diseases
- KAP Knowledge, Attitudes and Practice
- UN United Nations
- EPI Expanded Program on Immunization

Introduction

Immunization is the process whereby a person is made immune or resistant to infectious disease, through the administration of vaccines. Immunization program is a proven tool for controlling and eliminating life-threatening infectious diseases, and is estimated to avert between 2-3 million deaths each year(...).

On emphasizing the importance of immunization, Plotkin argued that, with exception of safe water, no any other modality even antibiotics has had a major effect on childhood mortality reduction as vaccination.

Background information

Low immunization coverage against preventable childhood illness is a major public health concern worldwide. Although immunization is a cost-effective and life-saving childhood intervention, there is a huge number children who are left unvaccinated or undervaccinated worldwide.

Fully immunized children are those who receive BCG, Pentavalent vaccine 3, OPV3, Rotavirus 2 and Measles-Rubella vaccines before reaching the age of 24 months.

Globally, there is a gap in the coverage of childhood vaccines, with the European region being the best performer and the African region being marked with low vaccine uptake coverage. The coverage of a third dose of vaccine protecting against DTP(DTPcV-3) remained at 86% in 2018 leaving 19.4 million children under the age of 5 years, who did not get vaccinated or those who received partial vaccination vulnerable to vaccine-preventable diseases (VPDs), (UNICEF/WHO,2018).

Recent data estimates show Tanzania to have an immunization coverage of 75% of all basic vaccinations (BCG, Measles,Pentavalent vaccine and Polio). Kilimanjaro region was reported with highest coverage of 94.2% and Tabora region with the lowest vaccination coverage of 42.1%, while Zanzibar region was had a coverage of ....%.

Although immunization services have been strengthened in many regions, there is still a concern at the failure of other districts in achieving high immunization coverage. Therefore, in this study will focus on showing the reasons or factors behind the failure to complete the vaccine uptake for children under the age of 5 years in North B, Unguja Zanzibar.

Problem statement

Low immunization coverage against preventable childhood illness constitutes a major public health concern word wide. Among the problems encountered today in the expanded program on immunization is the failure to reach an acceptable level of immunization coverage to the population.

Although childhood vaccination is a major tool in the primary prevention of some infectious diseases, there is some reluctance in a proportion of the population.

The General objective

- To examine the factors associated with vaccine incompletion among children under 5 years of age.

Specific objectives

- To determine the proportion of mothers of under 5 years who perceive their children to be susceptible to diseases if they are not immunized.
- To determine awareness level on childhood vaccination among mothers of under 5years children
- To assess the acceptability of childhood vaccination among mothers of under 5 years children.
- To assess the factors which hinder the under 5 years children to complete vaccination coverage

Research questions

This study intended to look into factors behind the vaccine incompletion among children of under 5 years of age in the North B region, specifically, it intended to generate answers to the following issues,

- What is the proportion of mothers of under-fives who perceive their children to be susceptible to diseases if they are not immunized?
- What is the level of knowledge on childhood vaccinations among mothers of under-five children?
- To what extent is child vaccination acceptable among mothers of under-five children?
- What are the reasons which hinder mothers of under-five children from taking their

children for vaccination uptake?

Scope of the study

Significance/ importance of the study

Child health improvement is key in many countries today. To achieve this goal, child vaccination is recommended to be among the strategies of choice. Despite its importance mothers are not sending their children for vaccination for reasons which are not well known.

This study is designed to look for factors behind child vaccine incompletion in North B District.

The information generated will be useful in determining strategies to be employed in order to improve vaccination uptake with an ultimate goal of improving child health in the study area and thereby meeting the SDG 3.2 which states that, “By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under 5 mortality to at least as low as 25 per 1,000 live births”,(UN, 2015).

Findings may also contribute to policies on how to improve vaccination coverage among under-fives in other parts of the country.

Literature review

The practice of vaccination can be traced to as early as 7th Century when Indian Buddhists drank snake venom to induce immunity (22). Using local knowledge regarding protective effects of cowpox and further experiments; in 1798 Edward Jenner introduced the notion of systematic immunization against small pox (23).

The prevention of child mortality through immunization is one of the most cost-effective public interventions in use in resource-poor settings. The Expanded Program on Immunization (EPI) aims at delivering the primary immunization series to at least 90% of infants. However, inadequate levels of immunization against childhood diseases remain a significant public health problem in resource-poor areas of the globe. Nonetheless, the reasons for incomplete vaccination and non-uptake of immunization services are poorly understood. The importance of immunization is accentuated by the fact that the current readily available antibiotics cannot destroy viruses (25). Thus, immunization offers the only means of controlling childhood viral diseases. When a sufficient coverage of vaccination is achieved, spread of disease in the community is prevented resulting into strong immunity.

WHO identified several vaccines which all infants should receive during their first five years of life. For a child to be considered full immunized, he or she should have received the basic vaccines as stipulated in the National Vaccination Schedule before reaching the age of 24 months. Such vaccines include BCG, Pentavalent vaccine-3, OPV3, Rotavirus 2 and Measles Rubella vaccines (UNICEF/WHO,2018).

High infants and childhood mortality rate in Cambodia is associated with low immunization coverage and is due to the Vaccine-Preventable Diseases, (VPDs). A qualitative study was conducted in Kampong Chhnang, Cambodia to assess the level of knowledge, attitudes and

practices among health workers and the community and it was found that the incomplete vaccination was caused by the health care facilities, as there were shortage of human resources and officials, cold chain problems, transportation problems and limited fund for outreach services. However, the study found that some parents did not take their children to vaccination due to the misbelief and fear of the side effects of vaccines on children (Forder, J., 2002).

Jani et al, 2008 in a study conducted in Southern Mozambique to assess the immunization status of children and the risk factors for incomplete vaccination found that, almost three quarters of the children had a complete vaccination status. The quarter of those who were not able to vaccinate their children claimed many reasons including reasons associated with health services delivery such as long waiting hours, shortage of personnel at the health facility, lack of vaccines on the day of vaccination, lack of information about the day for vaccination. Other reasons included forgetting the day of immunization, difficulties in accessing the health facilities, mother's sickness on the day of vaccination, migration, concomitant treatment by traditional healers and other miscellaneous reasons. Factors such as mothers' age, marital status, educational level, migration history, gender of the child, understanding of the importance of vaccination, and migration history of the mother showed no significant differences with respect to children with complete and incomplete vaccination status.

Methodology

Research design

The research design applied will be a descriptive cross-sectional study, with the aim of examining the factors for vaccine incompletion among children under five years of age. Data will be collected using a semi-structured interview with both open and closed questions aided by some observations.

Target population

The target population for this study will be mothers of under 5 years children, with not less than one year of residence in the North B district.

Sample size and sampling procedure

The selection of sample will use probability sampling using a stratified sampling technique. This method will ensure that both members have equal chance of being selected to participate in the study.

The sample size will however be calculated using Yamane's formula,

Formula,

$n = N/1 + N(e)2$

where n = sample size

N = Target population

e = level of decision (precision level), e = ±5%

Data collection methods

In this study, both primary and secondary data will be employed. The primary data will be collected using semi-structured interviews containing both open and closed questions and direct observations of the children's clinic cards. The secondary data will be gathered from published documents including published reports, journals, articles and other materials related to the study.

Reliability of data collection instruments

Reliability of the data collection instruments will be tested through conducting a pre-test by randomly selecting mothers of under 5years children who are available at hand to check whether the questions are understood and give the required information related to the study.

Data analysis and presentation

The collected data will be analyzed using software program, the Statistical Package for Social Science (SPSS).

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