THE RELATIONSHIP BETWEEN MOTHERS ACCESSIBILITY TO MASS MEDIA TOOLS AND FULL VACCINATION STATUS OF CHILDREN IN NIGERIA.

BY

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MATRIC NO: 152694

B.Sc HUMAN PHYSIOLOGY (UNIVERSITY OF ILORIN)

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF EPIDEMIOLOGY, MEDICAL STATISTICS AND ENVIRONMENTAL HEALTH, FACULTY OF PUBLIC HEALTH, COLLEGE OF MEDICINE, UNIVERSITY OF IBADAN, IBADAN, NIGERIA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF M.Sc (EPIDEMIOLOGY)

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DEDICATION

This project is dedicated to God Almighty, the source of my strength and inspiration. My dedication also goes out to my beloved parents Engr and Mrs Babawarun, my siblings and friends.

ACKNOWLEDGEMENT

My gratitude first of all goes to God almighty for granting me the grace, strength, wisdom, understanding and good health during the process of carrying out this research project. I owe the success of this study to my Supervisor, Dr Akinola Fatiregun who has graciously guided me through this project.

I also owe my gratitude to the lecturers in the department of Epidemiology, Medical Statistics and Environmental Health, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, for impacting in me the knowledge i have acquired so far. My gratitude also goes to the National Population Commission in conjunction with United States Agency for International Development (USAID) for allowing me make use of the NDHS 2008 dataset for research. My gratitude also goes to my friend Tolulope Mumuni, who was by me all through the way, to all my friends, colleagues and non teaching staffs of EMSEH. Finally to the teaching and non teaching staffs in the faculty of public health. Thank you all and God bless
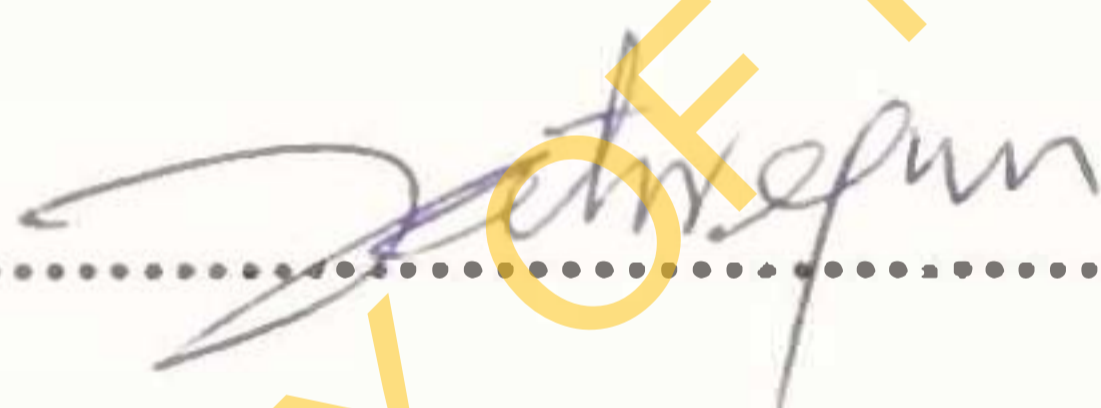
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CERTIFICATION

I certify that this project was carried out under my supervision by Oloruntoba Babawarun of the Department of Epidemiology, Medical Statistics and Environmental Health, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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ABSTRACT

Background; Immunization is the most cost-effective and highest-impact health intervention, reducing hospitalization and treatment costs through prevention. Even when vaccinations are readily available and service delivery is good, coverage rates may still be low owing to problems arising from knowledge and awareness about vaccination by the mothers. The objective of this study is to assess the relationship between maternal exposure to mass media tools and full vaccination status of children in Nigeria.

Methods; The study was a secondary data analysis using the Nigeria Demographic and Health Survey carried out in 2008 in Nigeria. For the purpose of this study, women aged 15-49years in these households and their last children who were born after January 2003 were of interest. Information on the immunization card was noted on questionnaire. Information on maternal socio demographic characteristics, exposure to mass media tools like radio, television was obtained. Descriptive statistical analysis was used to determine frequencies and proportions, chi square test was used to determine relationships between maternal exposure to mass media tools and full vaccination status, while multiple logistic regression methods were used to determine risk factors associated with full vaccination status.

Results; The mean age of mothers was 28.7 ± 9.5 years, while the proportion of fully immunized children was 18.2%. Multivariate analysis showed that Mothers who do not listen to radio at all (OR=0.672, 95% CI=0.583-0.774), and those that listened to radio less than or at least once a week (OR=0.883, 95% CI=0.789-0.987) were less likely to have fully vaccinated children than frequent listeners of radio programs. Also mothers who do not watch television at all (OR=0.745, 95% CI=0.628-0.883) were less likely to have fully vaccinated children, than frequent viewers of television. Other risk factors include; maternal age 15-24 years (OR=0.548, 95%=0.480-0.625), 25-34 years (OR=0.859, 95% CI=0.775-0.952), Northern region (OR=0.666, 95% CI=0.533-0.834), ethnicity with Hausa (OR=0.578, 95% CI=0.471-0.710), and poverty (OR=0.571, 95% CI=0.462 0.706).

Conclusion; The findings shows the importance of mass media on vaccination uptake. Completeness of vaccination was significantly correlated with knowledge on immunization via mass media tools like radio and television, and adequate attention should be given to this if high coverage levels are to be achieved.

Key words: Mass media tools, Children vaccination status, Mothers socio demographic characteristics.

Word Count: 383

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LIST OF ABBREVIATIONS

WHO: World Health Organization

UNICEF: United Nations Children's Fund

CDC: Center for Disease Control

NDHS: Nigeria Demographic and Health Survey

EPI: Expanded Programme on Immunization

BCG: Bacillus Calmette Guerin

DPT: Diphtheria, Pertussis And Tetanus

OPV: Oral Polio Vaccine

TV: Television

CATV: Community Antenna Television

HIV/AIDS: Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome

GSK: Glaxo Smith Klein

CHAPTER ONE

INTRODUCTION

1.1   BACKGROUND

The importance of immunization cannot be over emphasized as it 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. Vaccine preventable diseases remain the most common cause of childhood mortality with an estimated three million deaths each year [Centre for global development, 2005].

Immunization is the most cost-effective and highest-impact health intervention, reducing hospitalization and treatment costs through prevention (Peter, 1992). The proportion of the world's children immunized against the major vaccine-preventable diseases has increased from 20% in 1980 to over 80% in 1996, preventing more than 2.8 million child deaths annually (WHO, 1991). Despite the success of the expanded programme of immunization (EPI), such as the eradication of smallpox, many vaccine-preventable diseases remain prevalent in developing countries, related to 20% to 35% of all deaths in children under the age of five (Behrman, 1994) With routine coverage against measles at 88% in 2003, the Middle East/North Africa region is on course to achieve the goal of 90% coverage.

The UNICEF and WHO guidelines for childhood immunization includes BCG vaccination (against tuberculosis), three doses of DPT (diphtheria, pertussis and tetanus) vaccine, three doses of polio vaccine, and one dose of measles vaccine by the age of 12 months.

Uptake of vaccination services is dependent not only on provision of these services but also on other factors including knowledge and attitude of mothers [Matsumura et al,2005], density of health workers [Anand et al, 2007], accessibility to vaccination clinics and availability of safe needles and syringes.

There is a growing awareness on the limitation of evaluating the performance of immunization programmes solely on the basis of coverage irrespective of the age at which immunization is given as well as the need to establish the pattern and determinants of delays [Lantz et al, 2004]. For instance, the current immunization schedule recommended by the World Health Organization and widely implemented in developing countries is aimed at providing effective protection at the earliest possible age [WHO, 2002].

According to the World Health Organization, a child is considered fully vaccinated if he or she has received a BCG vaccination against tuberculosis, three doses of DPT vaccine to prevent diphtheria, pertusis, and tetanus (DPT); at least three doses of polio vaccine; and one dose of measles vaccine. These vaccinations should be received during the first year of life. In Nigeria, BCG and Polio 0 vaccine should be given at birth, DPT and polio vaccines should be given at approximately 6,10, and 14 weeks of age. Measles vaccine should be given at nine months or soon after the child reaches nine months of age. It is also recommended that children receive the complete schedule of vaccinations before their first birthday and that the vaccinations be recorded on a health card given to the parents or guardians. This is however not the case in most developing countries, Nigeria inclusive due to various factors that militate against the timely reception of these vaccines. The 2008 NDHS collected Information on coverage for these vaccinations among all children born in the first years preceeding the survey (NDHS, 2008).

Since the institution of the WHO Expanded Programme on Immunization (EPI) in 1974, levels of vaccination coverage have increased considerably worldwide. Among the factors identified as important in achieving and maintaining high coverage include the following; an adequate supply of vaccines (Subramanyam, 1989), accessibility of vaccination sites and convenient time for vaccination. (Belcher et al, 1978), Short waiting times and low rates of missed opportunity for vaccination (Cutt et al, 1989).

However, even when vaccinations are readily available and service delivery is good, coverage rates may still be low owing to problems arising from knowledge, attitude and perception about vaccination (Cutt et al, 1990).

These can include more general knowledge and attitudes about the utility of vaccines such as a lesser scientific and more fatalistic notion of the disease and a generally low use of preventive

services (Hinlon et al, 1988) lack of knowledge about what diseases vaccines prevent or a belief that EPI are not serious (Streatfield, 1988) as well as lack of logistic knowledge about time and place vaccination was available or about the appropriate age or intervention at which to bring the child for vaccination (Eng et al, 1991).

One major response to the identification of these difficulties is to provide necessary information through the mass media. However, provision of information is usually only one of many components or programme improvements and frequency is barely mentioned in description of mass campaigns.

In order to increase the number of children less than a year old receiving vaccinations in Manila, Philippines, radio and television broadcasts were created because almost everybody utilized one or both media channels. According to a study done later to determine the efficacy of the campaign, using the radio and television "resulted in more children being vaccinated on schedule. These results show that in places where people use mass media regularly and vaccinations are available, effective radio and television spots can increase vaccination rates and extend the reach of health workers (Ibid, 2002).

The mass media, in the form of the radio and television, are an effective way to persuade target audiences to adopt new behaviors, or to remind them of critical information. Besides informing the public about new diseases and where to seek help, they can also keep the public updated about immunization campaigns. The mass media can "empower rural populations to fight major causes of infant mortality such as diarrheal dehydration and diseases which can be prevented through vaccination, inform large numbers of people of seasonal or daily variations for such activities as an immunization campaign or availability of a new product or service, teach new health skills such as how to mix oral rehydration solution, promote new health behaviors such as taking ivermectin once a year, motivate ad hoc or organized listening groups, and increase community acceptance of health workers (Boyd et al, 1995).

1.2 PROBLEMS STATEMENT

Several studies from the underdeveloped and developing countries documented considerably low outcomes in the administration of vaccinations. Even in developed countries, the vaccination coverage was not always optimal. Parve (2004), In a study to identify vaccination barriers in children 12 to 24 months and found that of the parents who were surveyed, only 20% reported that their children were currently up-to-date with their immunizations.

The poor vaccination coverage is problematic, as children need to be protected early in life when they are most susceptible to infectious diseases. Parental problems that have social implications were frequently cited as the main reasons for low vaccination coverage.

Low vaccination coverage against childhood diseases may lead to increased mortality and morbidity among children and also affect the fraction of vaccinated population necessary for elimination of a disease.

However, even when vaccinations are readily available and service delivery is good, coverage rates may still be low owing to problems arising from knowledge, attitude and perception about vaccination (Cutt et al, 1990).

Most of the problems attributed to the cause of low vaccination coverage was lack or inadequate information and knowledge attributed to the mothers due to no or insufficient access to mass media tools such as Television, Radio, Electricity, Mobile phones and others.

It also aims to explore the possible contributing and correlating factors to low vaccination rate in Nigeria. It was hypothesized that the majority of such low vaccination coverage could be easily prevented.

1.3   JUSTIFICATION

The mass media helps health workers expand their audience reach, which is important owing to the fact that face-to-face channels of communication often needed too many human resources and reach only a small number of people in large, underserved rural areas. The mass media provides an important link between the rural residents and vital health information.

Monitoring vaccination status in the population is of Public health importance for establishing disease risk in the population. Previous studies had shown the efficacy of mass campaigns, using Radio and Television, in that places where there was regular access to mass media, vaccination rate increased. Maternal Knowledge about vaccination is key to the child's survival.

This study helps to identify if exposure to mass media tools like television, radio and newspaper improves vaccination coverage, which helps government policies towards immunization campaigns through the mass media.

1.4   OBJECTIVES

GENERAL OBJECTIVE

- The major objective of this study is to determine the relationship between maternal exposure to mass media tools and full vaccination status of children in Nigeria.

SPECIFIC OBJECTIVE

- To determine accessibility and utility of mass media tools to mothers.
- To document the full vaccination status of children in Nigeria.
- To find out the relationship between maternal socio demographic characteristics and full vaccination status of children
- To assess the relationship between maternal exposure to mass media tools and full vaccination status of children
- To determine risk factors associated with full vaccination status of children

1.5   RESEARCH QUESTIONS

The following research questions were addressed in this study.

- What is the accessibility and utility of mass media tools by mothers.
- What is the full vaccination status of children in Nigeria
- Is there any relationship between maternal socio demographic characteristics and full vaccination status of the children.
- Is there any relationship between maternal exposure to mass media tools and full vaccination status.
- What are the risk factors associated with full vaccination.

CHAPTER TWO

LITERATURE REVIEW

There is a substantial gap between immunization requirements and actual compliance even though it is known that vaccination compliance is a fundamental aspect of preventive healthcare (Bundt et al, 2004). As a result, numerous studies have been conducted to find predictors of non-compliance with childhood vaccinations. Goodman, Wu, and Frerichs (2000) conducted a study on compliance rates in Kern County, California and found that parents cited non-compliance as being due mainly to child's illness, procrastination and lack of knowledge about immunizations and where to obtain services.

The literature review would be discussed under the following headings based on the following perceived factors that affect immunization coverage.

2.1 MASS MEDIA

Mass media are tools for the transfer of information, concepts, and ideas to both general and specific audiences. They are important tools in advancing public health goals. Communicating about health through mass media is complex, however, and challenges professionals in diverse disciplines.

Using mass media can be counterproductive if the channels used are not audience-appropriate, or if the message being delivered is too emotional, fear arousing, or controversial. Undesirable side effects usually can be avoided through proper formative research, knowledge of the audience, experience in linking media channels to audiences, and message testing.

2.1.1 TYPES AND FUNCTIONS OF MASS MEDIA

The mass media are capable of facilitating short-term, intermediate-term, and long-term effects on audiences. Short-term objectives include exposing audiences to health concepts; creating awareness and knowledge; altering outdated or incorrect knowledge; and enhancing audience recall of particular advertisements or public service announcements (PSAs), promotions, or program names. Intermediate-term objectives include all of the above, as well as changes in attitudes, behaviors, and perceptions of social norms. Finally, long-term objectives incorporate

all of the aforementioned tasks, in addition to focused restructuring of perceived social norms, and maintenance of behavior change. Evidence of achieving these three tiers of objectives is useful in evaluating the effectiveness of mass media.

Mass media performs three key functions: educating, shaping public relations, and advocating for a particular policy or point of view. As education tools, media not only impart knowledge, but can be part of larger efforts (e.g., social marketing) to promote actions having social utility. As public relations tools, media assist organizations in achieving credibility and respect among public health opinion leaders, stakeholders, and other gatekeepers. Finally, as advocacy tools, mass media assist leaders in setting a policy agenda, shaping debates about controversial issues, and gaining support for particular viewpoints (Mcdermott et al, 1999).

a) Television

Television is a powerful medium for appealing to mass audiences—it reaches people regardless of age, sex, income, or educational level. In addition, television offers sight and sound, and it makes dramatic and lifelike representations of people and products. Focused TV coverage of public health has been largely limited to crises. However, for audiences of the late 1950s, the 1960s, and the 1970s, television presented or reinforced certain health messages through product marketing. Some of these messages were related to toothpaste, hand soaps, multiple vitamins, fortified breakfast cereals, and other items.

Public health authorities have expressed concern about the indirect influence of television in promoting false norms about acts of violence, drinking, smoking, and sexual behavior. A hypothetical equation for viewers might be: drinking plus smoking equals sex and a good time. Safe sex practices are rarely portrayed on television. An additional public health concern is that TV viewing promotes sedentariness in a population already known for its multiple risk factors for cardiovascular disease and other chronic illnesses.

A more focused coverage of health matters occurred in the 1990s as a result of two events: (1) an expansion of "health segments" on news broadcasts, which included the hiring of "health" reporters, and (2) the expansion and wider distribution of cable television (CATV) and satellite systems. Television coverage of health issues reveals some of the medium's weaknesses as an educator, however. Health segments incorporated into news broadcasts are typically one to three

minutes in length—the consumer receives only a brief report or "sound bite," while the broadcaster remains constrained by the fact that viewers expect the medium to be both visual and entertaining. Fortunately, with the advent and maturation of CATV, more selected audience targeting has become possible. The Health Network is dedicated entirely to health matters, while other cable networks (e.g., Discovery Channel) devote significant amounts of broadcast time to health. This narrowcasting allows the medium to reach particular market segments. However, the proliferation of cable channels decreases the volume of viewers for a given channel at any point in time. According to George and Michael Belch, even networks such as CNN, ESPN, and MTV draw only 1 to 2 percent of primetime viewers.

Although TV has the potential to deliver messages about HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome), smoking, cardiovascular disease, cancer, and so on, televised messages have the characteristic of low audience involvement. The main consumer effect of messages occurs through repetition and brand familiarity. Most health messages do not have the exposure level that brands of toothpaste, soap, or antiperspirant receive, for public health groups rarely can sustain the cost of television, thereby limiting their message's penetration.

For all its potential strengths, TV suffers many shortcomings. The cost of placing health messages on TV is high, not only because of the expense of purchasing airtime, but because of production time for PSA creation. Televised messages are fleeting—airing in most instances for only 15 to 30 seconds. Belch and Belch point out that for 13 to 17 minutes of every hour viewers are bombarded with messages, creating a clutter that makes retention difficult (Mcdermott et al, 1999).

b) Radio

Radio also reaches mass and diverse audiences. The specialization of radio stations by listener age, taste, and even gender permits more selectivity in reaching audience segments. Since placement and production costs are less for radio than for TV, radio is able to convey public health messages in greater detail. Thus, radio is sometimes considered to be more efficient.

Radio requires somewhat greater audience involvement than television, creating the need for more mental imagery, or what Belch and Belch call "image transfer." Because of this, radio can

reinforce complementary messages portrayed in parallel fashion on TV. However, the large number of radio stations may fragment the audience for health message delivery.

Radio health message campaigns have been effective in developing countries, especially when combined with posters and other mass media. Ronny Adhikarya showed that mass media message targeted at wheat farmers in Bangladesh increased the percentage of those who carried out rat control from 10 percent to 32 percent in 1983. Continuation of the campaign in subsequent years saw rat control efforts rise to 72 percent.

c) Newspapers.

Belch and Belch estimate that newspapers are read daily in 70 percent of U.S. households, and in as many as 90 percent of high-income households. Newspapers permit a level of detail in health reporting not feasible with broadcast media. Whereas one can miss a television broadcast about breast cancer, and thus, lose its entire message, one can read the same (and more detailed) message in a newspaper at one's choice of time and venue. Although newspapers permit consumers flexibility concerning what is read, and when, they do have a brief shelf life. In many households, newspapers seldom survive more than one or two days.

Newspapers are available in daily and weekly formats, and local, regional, and national publications exist. In addition, there are numerous special audience newspapers (e.g., various ethnic groups, women and feminist related, gay and lesbian, geography-specific, neighborhood). Consequently, health messages contained in newspapers can reach many people and diverse groups. Newspapers often fall short of their dissemination potential, however. In addition to educating people about public health, deliberate efforts need to be directed at educating other media and politicians (McDermott 2000).

Other authorities have illustrated the shortcomings of the newspapers in conveying health information. Few stories call for individual or community policy or action, and even fewer present a local angle.

d) Magazines.

Belch and Belch divide magazines into three varieties: consumer (e.g., Reader's Digest, Newsweek, People), farm (e.g., Farm Journal, National Hog Farmer, Beef), and business

(professional, industrial, trade, and general business publications). Magazines have several strengths, including audience selectivity, reproduction quality, prestige, and reader loyalty. Furthermore, magazines have a relatively long shelf life—they may be saved for weeks or months, and are frequently reread, and passed on to others. Magazine reading also tends to occur at a less hurried pace than newspaper reading. Health messages, therefore, can receive repeated exposure.

e) Other Print Media

Pamphlets, brochures, and posters constitute other print media used to disseminate health messages. These devices are readily found in most public health agencies, offices of private practitioners, health care institutions, and voluntary health organizations. They are common and familiar educational tools of the American Cancer Society, the American Heart Association, and the American Lung Association. Though widely used, their actual utility is infrequently evaluated (e.g., units distributed vs. changes in awareness, cost analysis). Until the 1990s, few of these print media were developed with the assistance of target audiences, and few contained varied messages, were culturally tailored, or employed readability and face validity techniques. The extent to which persons read, reread, and keep these devices—or circulate them to other readers—is not well evaluated. Thus, their permanence is unknown.

Internet is another growing mass media tool that can be used for the dissemination of health related issues through health related websites, emails, social networks and so on.

f) Outdoor Media

Outdoor media include billboards and signs, placards inside and outside of commercial transportation modes, flying billboards (e.g., signs in tow of airplanes), blimps, and skywriting. Commercial advertisers such as Goodyear, Fuji, Budweiser, Pizza Hut, and Blockbuster all make extensive use of their logo-bearing blimps around sports stadiums. In the United States, none of these outdoor modes are used extensively to convey health messages, although billboards and transit placards are the most likely forms to contain health information. For persons who regularly pass by billboards or use public transportation, these media may provide repeated exposure to messages. Pro-health messages displayed on urban public transportation may suffer,

however, from the image problems that afflict urban buses and subways. In addition, the effectiveness of such postings wears out quickly as audiences grow tired of their sameness.

2.2 MEDIA EFFECTS

Decades of studies on the consequences of mass media exposure demonstrate that effects are varied and reciprocal—the media impact audiences and audiences also impact media by the intensity and frequency of their usage. The results of mass media for promoting social change, especially in developing countries, have become important for public health. J. R. Finnegan Jr. and K. Viswanath (1997) have identified three effects, or functions, of media:

- the knowledge gap,
- Agenda setting, and
- Cultivation of shared public perceptions (Finnegan et al, 1997).

a) The Knowledge Gap

Health knowledge is differentially distributed in the population, resulting in knowledge gaps. Unfortunately, mass media are insufficient for distributing information in an egalitarian fashion—changes in social structure and institutions are also necessary for this to occur. Thus, the impact of mass media on audience knowledge gaps is influenced by such factors as the extent to which the content is appealing, the degree to which information channels are accessible and desirable, and the amount of social conflict and diversity there is in a community. Hence, public health media campaigns are more effective when structural factors that impede the distribution of knowledge are addressed.

b) Agenda Setting

The selective nature of what members of the media choose for public consumption influences how people think about health issues, and what they think about them. When Rudolph Giuliani, the mayor of New York City, publicly disclosed he had prostate cancer prior to the 2000 New York senatorial election, many news media reported the risks of prostate cancer, prompting greater public awareness about the incidence of the disease and the need for screening. A similar

episode occurred in the mid-1970s when Betty Ford, wife of President Gerald R. Ford, and Happy Rockefeller, wife of Vice President Nelson Rockefeller, were both diagnosed with breast cancer.

A related theme is the extent to which the media set the public's perception of health risks. According to J. J. Davis, when risks are highlighted in the media, particularly in great detail, the extent of agenda setting is likely to be based on the degree to which a public sense of outrage and threat is provoked. Where mass media can be especially valuable is in the framing of issues. "Framing" means taking a leadership role in the organization of public discourse about an issue. Media, of course, are influenced by pressures to offer balance in coverage, and these pressures may come from persons and groups with particular political action and advocacy positions. According to Finnegan and Viswanath, "groups, institutions, and advocates compete to identify problems, to move them onto the public agenda, and to define the issues symbolically" (1997). Thus, persons who desire to access mass media's agenda-setting potential must be aware of the competition.

c) Cultivation of Perceptions

Cultivation is the extent to which media exposure, over time, shapes audience perceptions. Television is a common experience, especially in the United States, and it serves as what S. W. Littlejohn calls a "homogenizing agent." However, the effect is often based on several conditions, particularly socioeconomic factors. Prolonged exposure to TV or movie violence may affect the extent to which people think community violence is a problem, though that belief is likely moderated by where they live. However, the actual determinants of people's impressions of violence are complex, and consensus in this area is lacking.

In South-East Asia and South America mass media have considerably more influence

because of a complex of factors like higher levels of ownership of radio and television; better

coverage by national stations; existence of local stations; a high level of experience in use of

media in the context of development projects and more imaginative formats used (Ruijter, 1991)

2.3   MASS MEDIA AND VACCINATION STATUS

Mass media alone are not effective tools in bringing about change in knowledge, attitude and practices (lifestyle) relating to health among widespread sectors of society in Africa. They could, however, play an essential role if directed specifically at training, and backing up the interventions of personal change agents. as a result of mass media information campaigns diffusion of innovations tradition occurred, some impact were made in changing the knowledge and attitudes of people, their impact on practices lagged far behind — the so-called Knowledge, Attitude and Perception gap (UNESCO, 1975). Change agents were recognized as a key factor in bringing about change in people's practices, the idea being that the mass media are effective in arousing awareness and creating interest, while personal media, such as extension workers, are better in establishing the link with people's experiences and helping them to overcome resistance to adopting innovations through a process of trial and error and critical evaluation (Everett et al, 1990).

Over the last decade many African governments have implemented social mobilization programmes such as the mass media aimed at the widespread adoption of 'new' health practices like immunization. These experiments could be seen as diffusion of innovation projects in a new 'marketing' jacket (Colin et al, 1985). Thus social mobilization tradition showed the Knowledge, Attitude and Perception gap in a reversed form. Instead of high knowledge and low practice, we now find high practice and low knowledge. This should not be surprising altogether since the immunization coverage has often been boosted as a result of short campaigns. The mass media limited themselves mostly to motivating people to visit the health centers: announcing the dates and places where one could be vaccinated rather than explaining the why and what (UNICEF, 1985).

National health education programmes were widely initiated on the African continent by the ministries of health in the last decade. These programmes generally focus on two lines of activity. training of health and para-medical personnel, and production of health educational materials through print as well as audio-visual media.

Previous studies have shown that virtually all African radio and television networks have introduced regular health programmes, produced jointly with the ministries of health, and targeted at the population at large.

The seven studies confirmed the limited role of TV as a source of health information due to lack of purchase power, foreign currency restrictions and limited access to electricity supply.

2.3.1 Radio and vaccination status in Africa

Literacy rates and distribution problems are the major constraints impending wide access to the print media. The role of radio in imparting health related information is small, particularly so outside the capitals.

Ownership of a radio set is still insufficient (Zambia 47%; Zimbabwe 30%), although scoring significantly higher in Lesotho and Botswana (Nyirenda et al, 1988). This difference could be explained by the high import duties on radio sets in most African countries, against the subsidized prices for commodities in those countries which are members of the South African customs union. Secondly, a large number of available radio sets appeared nonoperational, with percentages running as high as 75 percent in Zimbabwe, 65 percent in Lesotho, and 50 percent in Botswana (Motiemelo et al, 1986), probably due to unavailability and high prices of dry-cell batteries. Zimbabwean data between 1984 and 1988 show a marked decline in the number of people with a working radio set in the home from 33 percent in 1984 to 9 percent in 1988 (Brand Barometer Survey, 1988). This could well be the trend in most African countries.

However, economic difficulty does not affect media use of all groups in the same way. In Lesotho and Botswana it was found that most people with more education (and, therefore, better-paid jobs?) have their radio sets in working order, against only a third of the lesser educated (Motiemelo, 1990).

On the whole, health education programmes on the radio are frankly unpopular. Less than 20 percent of respondents overall listen regularly to health education programmes. The potential outreach of these programmes to the middle class seems higher, because this group uses the media for specific information purposes. The poorer and non-educated segments of the population turn to the mass media to be entertained and talk to nurses, village health workers and political leaders, in that order, for health information.

There is, however, the feeling that these people are not transmitting information well enough, nor often enough (Oduol et al, 1990). The health programmes transmitted by the radio are not attractive because the dominant format used is the interview with the expert and the lecturer.

Drama, role-play and counseling, poorly used in real life, do not feature regularly in these programmes either (Dube Jones et al, 1999).

2.4 THE EFFECTS OF MASS MEDIA ON UPTAKE OF VACCINATION

A number of studies have documented the impact of mass media — particularly radio and television — on awareness and vaccination rates in several countries where mass media is accessible and widely consumed (Perez-Cuevas et al, 1999) Findings generally report an increase in knowledge about the benefits of vaccines, ages for immunization, and places and time of vaccinations; improved perceptions of seriousness of some diseases and positive shifts in attitudes regarding childhood vaccination; and more discussion about immunization in the home. Health workers tend to be among the most influential source of information in vaccination behavior, effective interpersonal communication between health providers and caregivers is critical. This is even more important as caregivers need to know and be reminded of new vaccines added to the childhood immunization schedule.

- A media project was credited for a significant change in knowledge about the immunization schedule in Ecuador in the late 1980s. The proportion of respondents with correct knowledge went from 65 percent in November 1985 to 91 percent in April 1987. During that period, measles immunization coverage among 12 month-olds increased from 15 percent to 35 percent (HEALTHCOM, 1992).

- Communication provided significant support to diphtheria immunization programs in Russia in the mid-1990s, following outbreaks after a significant drop in DTP coverage. After two months, various media were cited by one-third of Novgorod's vaccinated population as one of the means through which they learned about the need for additional doses of diphtheria vaccine. In Voronezh, higher exposure to media messages correlated with higher coverage rates for the same communication intervention period (Porter et al 2000).

- In India, exposure to television and radio spots featuring a popular film celebrity influenced caregivers' decision to go to vaccination booths during the polio immunization campaigns in 2003 (Waisbord, 2003).

- In the Philippines, a media campaign was credited for increasing knowledge about measles and other vaccines in 1990. Good access to a well-developed media system also contributed to positive changes in knowledge and increased participation in services. During the period of the communication interventions, the percentage of fully vaccinated children increased from 54 percent to 65 percent. Similar increases were observed in the percentage of children ages 2-8 months with at least four vaccines and the percentage of children ages 9-11 months who had all vaccinations (Zimicki et al. 1994).

When controversies arise, immunization programs need communication strategies that can be readily put into action (UNICEF 2004b). A mix of media and locally appropriate, community-based strategies is needed to address concerns and refusal. In any situation where the safety of vaccines is questioned, it is critical to first understand the nature and scope of the concerns. Interpersonal communication activities with influential local leaders (religious, medical, and political) can positively affect the community's trust in and willingness to vaccinate their children. Community leaders can not only be valuable partners in promoting immunization, they can be valuable key informants to understand the nature and reasons for any concerns.

• A study conducted in the early 1980s in Bangladesh demonstrates that personal communication in meetings with influential local leaders showed a statistically significant increase in knowledge of vaccines and immunization schedule among caregivers. Because political, cultural, and religious leaders are influential opinion-makers, their messages strongly affect immunization behavior.

• Communication with religious and political leaders is key to increase acceptance of immunization (UNICEF 2004a). For example, it has been credited with increasing the acceptance of immunization campaigns in India (Verma et al, 2004).

• In another study, communication interventions that included advocacy with leaders, community involvement with service delivery and child tracking, and media partnerships at various levels were responsible for dropout reduction and immunization coverage above the national average in two provinces in Madagascar in 2003 (Shimp, 2004).

• Through community discussions and meetings with leaders, immunization programs were able to address concerns and opposition among religious groups in D.R. Congo, Mali, and Zambia (BASICS et al, 1999).

• A major reason for the success of several health programs in Indonesia in the early 1990s was the recognition of the key role of leaders in encouraging hamlet residents to participate in government programs, including immunization. Competitions and other incentives were provided for leaders to maintain interest and efforts in

support of these programs (Streatfield et al, 1988).

Promoting immunization through community networks is a proven means to

build trust and acceptance of vaccines. Caregivers are most likely to trust other community members when they make decisions about the health of their children.

• Zimbabwe's ability to maintain high routine immunization coverage is largely due to the extensive network of community motivators. Motivators distribute materials through the media, public and group meetings, and home visits (WHO et al, 2000).

• Studies have documented several successful experiences including the work of the Catholic Church in Angola and the Philippines; community mobilization in rural districts in Ethiopia, Ghana, and Madagascar; the programs of Urban Volunteers in Bangladesh and schoolchildren in Indonesia; and the network of motivators in Zimbabwe (Awoonor-Williams, 2003)

• In the AIN (Integrated Child Health) program in Honduras and similar programs throughout Central America, a cadre of community volunteers holds a monthly child health session to check immunization as well as general health status and counsel, treat, or refer each child as appropriate. In some of these programs, the nurse supervisor actually vaccinates during sessions, but in others children are simply referred. In program communities, full coverage increased from 85 to 95 percent in Nicaragua and from 83 to 95 percent in El Salvador from 2002 to 2003. The mid-project evaluation in Honduras showed an increase from 73.2 percent to 80.7 percent of children fully immunized (Change, 2003).

2.5 MATERNAL SOCIO-DEMOGRAPHIC CHARACTERISTICS AND VACCINATION STATUS

In a previous study carried out in Bangladesh, it was shown that mother's birthplace, mother's age, length of time living in Dhaka, mother's marital status, father's occupation, sex of the index child, and frequency of home visits by field workers had no independent effect after controlling for the effects of the other predictor variables. The strong effects observed in the bivariate analysis for the effect of number of children living in the household, mother's employment status, and distance to the nearest immunization centre remained in the multivariate analysis.

The effects of a mother having a limited education and of living in a slum household were attenuated in the multivariate model compared with the bivariate analysis, but in the multivariate model both of these variables were still associated with a reduction by more than half in the probability of complete immunization coverage. There were no significant interaction effects identified in the logistic regression model. There were differences between the bivariate and multivariate analyses with respect to the effect of specific predictor variables on coverage. The effect of mother's birthplace was mediated by the number of children, slum/non-slum household status, and maternal employment status: mothers born in urban slums or in rural villages had more children, were more likely to live in slum households, and were more likely to work for money. The effect of maternal age was mediated by the number of children: older mothers were more likely to have more children. The effect of marital status on coverage was mediated by mother's employment status: mothers who were divorced widowed or separated were more likely to work for money. The effect of father's occupational status was mediated by slum/non-slum household status and maternal employment status: fathers with lower occupational status were more likely to live in slum households and be married to women who worked for money.

Mothers who worked for money had fewer field-worker contacts than those who did not work for money. Also, mothers with less education and those living in slum households had fewer fieldworker contacts. The effect of field-worker contacts was apparent for both working and nonworking mothers, however, and the effect was even stronger among working mothers. For mothers who did not work for money, the coverage increased from 52% to 65% as the number of field-worker contacts increased from 0-2 to 3-4, while among working mothers a similar increase in field-worker contact was associated with an increase in coverage from 26% to 60% (Perry H et al, 1996).

2.6 KNOWLEDGE AND ATTITUDES ON IMMUNIZATION

In a previous study done in Nigeria, it showed the knowledge and attitudes of the mothers/care givers towards immunization. Most mothers had very positive attitudes and more than half of them were generally knowledgeable about symptoms of vaccine preventable diseases except for difficulty in breathing. Cough was the most correctly identified symptom (83.8%) and almost all (99.1%) felt that immunization was beneficial. The mean score was 3.9 ± 1.2 points with 295 (87.0%) of the mothers scoring above 3 marks and were classified as having a satisfactory knowledge on the aspects inquired. Age ($p = 0.38$), marital status ($p = 0.09$) and place of residence ($p = 0.09$) were not significantly associated with higher level of knowledge. However, the knowledge of the mothers was significantly higher with being of the Christian faith ($p = 0.002$) and possessing at least secondary school education ($p = 0.009$). Further analysis of the effect of education on the knowledge scores stratified by religion did not show any significant association (Mantel-Haenszel summary Chi Square $= 0.82$; $p = 0.364$) indicating that religion was a confounding variable for the influence of education ((Odusanya et al, 2000).

Overall, the existing body of literature suggests there are identifiable characteristics that place children at greater risk of being under immunized. To date, however, little emphasis has been placed on assessing changes these risk factors have had over time. Observing sizeable changes, whether they are positive or negative, may help policymakers determine which risk factors or population groups to target going forward.

Previous studies have shown that out of the eleven risk factors of delayed and non immunization, only seven, namely family size, sex, number of children, material education, paternal education, distance from health centre and low socio-economic status were found to be significantly associated. The common causes for low immunization coverage were negligence on part of parents, unawareness about the use of vaccine and sickness of child. Thus, health education of the parents is recommended.

Another study focused on maternal characteristics associated with non-compliance. The maternal characteristics in this study were as follows: mothers who were African-American, had not completed high school, had an income below 50% of the federal poverty level, being divorced,

separated, or widowed, and having multiple children. The study also found that mothers who were eligible for WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children) and participated in the WIC program, were more likely to vaccinate their children (Luman et al,2003).

Several studies have addressed factors leading to under vaccination. Though the child eventually gets the immunization, this concept is important because in many cases the delay causes inadequate vaccination of the child. (Dombkowski et al, 2004) found these factors to include: single-parent households, larger family size, low parental education level, Medicaid enrollment, absence of primary health care provider, and lack of insurance coverage. In a study on compliance with National Immunization Guidelines, (Mell et al, 2005) found that less than 8% of the children who participated in the study received all their immunizations in accordance with the National Immunization Guidelines.

2.7 PARENTAL ATTITUDE AND VACCINATION STATUS

An extensive body of literature puts parental attitudes to be critical intangibles in the prediction of children's immunization. Partly because parental attitudes are tough to capture empirically, they do not explain outcomes outright but still factor heavily in the decision-making process. When applying social learning theories to the matter, investigators found children of mothers who do not believe in the importance of timely vaccination and those of parents who believe in the safety of obtaining multiple immunizations in one visit were less likely to be immunized (Strobino et al, 1996). The same holds true for children of parents who are uncertain in their capabilities of obtaining all recommended vaccinations (Brenner et al, 2001). Additionally, uncertainty in the efficacy of vaccines tends to weakly predict outcomes but nevertheless remains a readily identified concern amongst parents (Prislin et al, 1998). Parental attitudes, beliefs, and behaviors indicative of vaccine safety concerns contribute significantly to low vaccination coverage (Gust et al, 2004).

Attitudes and beliefs regarding natural immunity and perceived barriers are also of great interest. Preconceived notions of natural immunity, especially amongst healthy children, tend to lower immunization rates (Prislin et al, 1998). Perceived barriers, such as a sense of inconvenience in obtaining vaccines and confusing vaccination schedules, are statistically associated with an increased risk for delayed immunization and eventual underimmunization (Brenner et al, 2001).

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However, only a small proportion of parents identified such barriers, which help explain less than 10% of underimmunization observed in pediatric office settings (Taylor et al, 2002b). Nonetheless, all of these findings suggest parental attitudes, perceptions, and notions regarding immunization play an important role in influencing outcomes.

The key to the effects of parental attitudes is mediated by how their perceptions affect their sense of control. Its role is highlighted in cases of distrust between parents and medical professionals. Among children whose doctor-parent relationships are strained, immunization rates tend to be lower. A parent's heightened sense of control is positively associated with outcomes but distrust is argued to undermine favorable decisions, and thereby erode immunization rates (Prislin et al, 1998).

Along with attitudes, education of caretakers plays an integral part in influencing outcomes since obtaining child vaccinations is based on informed decision-making. In two of four medically underserved areas, mother's education level was found to be strongly positively associated with UTD status at three months of age (Bardenheier et al, 2004). Additionally, according to National Health Interview Survey (NHIS) Immunization Supplement 1992-1996 pooled data, children of parents with education beyond high school exhibit significantly lower chances of delayed immunization and underimmunized for the 4:3:1 series (Domkowski et al, 2004). In general, higher maternal education is linked with favorable child immunization outcomes (Bobo et al, 1993).

Immunization rates among children of better-educated parents tend to be higher because they are better informed of the safety of vaccines and are less distrustful of professionals. However, better-educated caretakers tend to refuse vaccinations more often due to medically unjustified contraindications, such as a common cold; this is most probably due to being thoroughly informed of possibly sensationalized side effects (Prislin et al, 1998). Thus, education plays a primarily positive role but when influencing beliefs about contraindications, it may bring about a reverse effects.

2.8   VACCINATION STATUS OF CHILDREN

In a study carried out in Nigeria to find out the determinants of vaccination coverage in rural Nigeria, Three hundred and seventeen (93.5%) children from whom vaccination cards or verbal immunization history was verified had received at least one antigen, 22 (6.5%) had not received any vaccine at all. The card retention rate for all subjects was 55.5%. The majority (68.6%) were vaccinated at the GSK supported Health Centre. The DPT1 drop-out rate was 8.0%. DPT3 coverage was 80.8%. Six out of ten children were fully vaccinated against tuberculosis, tetanus, diphtheria, poliomyelitis, pertussis, measles and hepatitis B, although the coverage was significantly higher (p = 0.002) amongst subjects who had vaccination cards (69.7%, 131/188) than in those assessed by maternal history alone (52.3%, 79/151). Comparing maternal assessment of completeness of vaccination with full immunization status showed that this was correct in 209/210 of those fully vaccinated and in 61/129 of those not fully vaccinated. The sensitivity of maternal history was 99.5% (Confidence Interval (CI) 97,100%), the specificity (when mothers do not truly know the vaccination status of their children) was 47.3% (CI 38.5, 56.2%), positive predictive value of 75.5 (CI 69.9, 80.3%) and negative predictive value of 98.4% (CI 90.2, 99.9%). The confidence intervals for the sensitivity, specificity, positive predictive value and negative predictive value were scores intervals. The percentage of correct classification is 79.6%.

The proportion of children fully vaccinated at the GSK supported Health Centre (190/231, 82.3%) was significantly higher (p < 0.001) than the rate observed for children vaccinated at the government/private facilities (20/108, 18.5%). The proportion of children that were fully vaccinated amongst the four communities was Sabongidda 68.4%, Oke 66.7%, Aviobsi 45.2% and Uhonmora 47.4%. Maternal factors were most strongly associated with non-completion of vaccination; the most frequent was lack of awareness of the need for immunization.

Factors that were associated with a higher rate of immunization against all the seven diseases included being from Sabongidda (p = 0.006), having at least secondary school education (p = 0.035), satisfactory immunization knowledge of the mother (p < 0.001), retention of immunization card (p = 0.002) and vaccination at the GSK supported Health Centre (p < 0.001, Table shows the results of the multiple logistic regression. Vaccination at the GSK supported Health Centre (p < 0.001) and satisfactory maternal knowledge on immunization (p = 0.006)

CHAPTER THREE

METHODOLOGY

3.1 Study Area

This study is a secondary data analysis using the National Demographic and Health Survey carried out in 2008 in Nigeria. The 2008 Nigeria Demographic and Health Survey (2008 NDHS) was implemented by the National Population Commission from June to October 2008 on a nationally representative sample of more than 36,000 households. All women age 15-49 years in these households and all men age 15-59 years in a sub-sample of half of the households were individually interviewed. For the purpose of this study people of interest were the women age 15-49 years in these households. The survey was carried out using representative samples from the six geopololitical zones of Nigeria.

While significantly expanded in content, the 2008 NDHS is a follow-up to the 1990, 1999, and 2003 NDHS surveys and provides updated estimates of basic demographic and health indicators covered in these earlier surveys. Although previous surveys collected data at the national and zonal levels, the 2008 NDHS is the first NDHS survey to collect data on basic demographic and health indicators at the state level.

The primary objectives of the 2008 NDHS project were to provide up-to-date information on fertility levels; nuptiality; sexual activity; fertility preferences; awareness and use of family planning methods; breastfeeding practices; nutritional status of mothers and young children; early childhood mortality and maternal mortality; maternal and child health; and awareness and behaviour regarding HIV/AIDS and other sexually transmitted infections.

3.2 Study Design

The NDHS survey was a cross sectional study which involved interviewing the mothers of eligible children using a protocol to obtain maternal characteristics and immunization history.

3.3 Sample Design

The sample for the 2008 NDHS was designed to provide population and health indicators at the national, zonal, and state levels. The sampling frame used for the 2008 NDHS was the 2006 Population and Housing Census of the Federal Republic of Nigeria conducted in 2006, provided by the National Population Commission (NPC).

Administratively, Nigeria is divided into states. Each state is subdivided into local government areas (LGAs), and each LGA is divided into localities. In addition to these administrative units, during the 2006 Population Census, each locality was subdivided into convenient areas called census enumeration areas (EAs). The primary sampling unit (PSU), referred to as a cluster for the 2008 NDHS, is defined on the basis of EAs from the 2006 EA census frame. The 2008 NDHS sample was selected using a stratified two-stage cluster design consisting of 888 clusters, 286 in the urban and 602 in the rural areas1. A representative sample of 36,800 households was selected for the 2008. The final survey sample included 886 instead of 888 clusters. During fieldwork, access was not obtained in one cluster due to flooding, and in another cluster due to inter-communal disturbances.

NDHS survey, with a minimum target of 950 completed interviews per state. In each state, the number of households was distributed proportionately among its urban and rural areas.

A complete listing of households and a mapping exercise were carried out for each cluster from April to May 2008, with the resulting lists of households serving as the sampling frame for the selection of households in the second stage. All private households were listed. The NPC listing enumerators were trained to use Global Positioning System (GPS) receivers to take the coordinates of the 2008 NDHS sample clusters.

In the second stage of selection, an average of 41 households was selected in each cluster, by equal probability systematic sampling. All women age 15-49 who were either permanent residents of the households in the 2008 NDHS sample or visitors present in the households on the night before the survey were eligible to be interviewed. In a sub-sample of half of the households, all men age 15-59 who were either permanent residents of the households in the 2008 NDHS sample or visitors present in the households on the night before the survey were eligible to be interviewed. In addition, a subsample of one eligible woman in each household was randomly selected to be asked additional questions about domestic violence.

3.4 Data collection tools (Questionnaire)

The instrument used for the purpose of the study was the women's Questionnaire The questionnaires was adapted to reflect the population and health issues relevant to Nigeria They were translated and administered in Hausa, Igbo, and Yoruba in addition to English. Some basic information was collected on the characteristics of the women, which included her age, sex, education, religion and relationship to the head of the household. The Women's Questionnaire was used to collect information on all women aged 15-49years

The 2008 NDHS collected information on coverage for routine NPI vaccinations among all children born in the five years preceding the survey. Therefore for the purpose of this study last children of mothers who were born after January 2003 were of interest.

In the 2008 NDHS, information on vaccination coverage was obtained in two ways—from health cards and from mothers' verbal reports. All mothers were asked to show the interviewer the health cards in which immunization dates are recorded for all children born since January 2003. If a card was available, the interviewer recorded onto the questionnaire the dates of each vaccination received by the child. If a child never received a health card, or the mother was unable to show the card to the interviewer, or a particular vaccination was not recorded on the health card, the vaccination information for the child was based on the mother's report. Questions were asked for each vaccine type. Mothers were asked to recall whether the child had received BCG, polio, DPT, and measles vaccinations. If the mother indicated that the child had received the polio or DPT vaccines, she was asked about the number of doses that the child received.

The mother was then asked whether the child had received other vaccinations that were not recorded on the card, and if so, they too were noted on the questionnaire. The results presented here are based on both health card information and, for children without a card, information provided by the mother.

The data collection tool will contain variables that have been divided into the following sections

Section1; maternal socio-demographic characteristics

Participants provided data on age, residence, level of education, wealth index, ethnicity, religion. literacy level and participation in literacy programs were collected.

Section2; Mass media tools,

Data on ownership and frequent use of various mass media tools like Radio, Television, Magazine/Newspaper, telephone and electricity were collected.

Section3; Main reasons for not vaccinating child,

Information on main reasons for not vaccinating were collected, data on lack of information, fear of side effects, fear child may get disease, vaccination do not work, religious reasons, post too far, child was absent and others were collected.

Section4;

Data on the vaccination status of the children was obtained from the mothers via vaccination card or verbally where cards were not available.

3.5 Pre-test Activities

The training for the pre-test took place March 3-12, 2008 and included training on administration of questionnaires and taking of anthropometric measurements. The pre-test training for the interviewers and supervisors consisted of a project

overview and survey objectives, techniques of interviewing, field procedures, a detailed description of all sections of the household and individual questionnaires, and two days of field practice. The trainers/resource people included professionals from NPC and ICF Macro.

The pre-test was conducted in 6 states by 6 teams March 15-22, 2008. The teams were

divided according to languages. There were 2 Hausa teams in the North East and North West zones, 2 English teams in the South South and North Central zones, 1 Yoruba team in the South West, and 1 Igbo team in the South East. The supervisors and editors were drawn from the NPC core technical team. The teams covered 6 zones (one state in each zone) and aimed at completing 25 urban and 25 rural households per state. At the end of fieldwork, a debriefing session was held March 24-25, 2008 in Kaduna with all staff involved in the pre-test, and the questionnaires were amended based on the pre-test findings

3.6 Training of Field Staff

Three hundred and sixty eight people were recruited and trained for the fieldwork to serve as zonal coordinators, supervisors, field editors, female and male interviewers, reserve interviewers, and quality control interviewers. Training of field staff for the main survey was conducted during a three-week period in May-June 2008. The training course consisted of instruction regarding interviewing techniques and field procedures, a detailed review of items on the questionnaires, instruction and practice in weighing and measuring children, mock interviews between participants in the classroom, and practice interviews with real respondents in areas outside the 2008 NDHS sample points. During this period, field editors, team supervisors, and quality control interviewers were provided with additional training in methods of field editing, data quality control procedures, and fieldwork coordination. Thirty-seven supervisors, 37 editors, 152 female interviewers, and 74 male interviewers were selected to make up 37 data collection teams for the 2008 NDHS. Thirty-seven people were selected to be quality control interviewers.

3.7 Fieldwork

Thirty-seven interviewing teams carried out data collection for the 2008 NDHS. Each team consisted of 1 supervisor (team leader), 1 field editor, 4 female interviewers, 2 male interviewers, and 2 drivers. Nineteen senior staff members from NPC, designated as zonal coordinators, coordinated and supervised fieldwork activities. Data collection took place over a four-month period from June to October 2008.

3.8 Secondary Data Analysis

Data was obtained and secondary data analysis done using SPSS 15.0. Descriptive statistics was used to determine frequencies and distributions of each variable. Vaccination coverage was assessed as percentages.

To assess factors associated with vaccination coverage, the chi-square test was used. Multivariate logistic regression analysis was conducted to determine the predictors of full vaccination coverage. A p-value < 0.05 would be considered to indicate statistical significance.

3.9 Data Management

3.9.1 Socio demographic characteristics of Mothers

Data on Maternal socio demographic characteristics was obtained from the Nigeria Demographic and Health Survey 2008, old variables were recoded into new variables.

Table 3.9.1: Socio demographic characteristics of Mothers

Old variable Name (Label)	Coded variable Name (Label)
V012 (Current age)	Age3 (Age)
V024 (Region)	Region6 (Region)
V102 (Type of place of residence)	Residence2 (Residence)
V106 (Highest educational level)	Edu2 (Education)
V130 (Religion)	Religion2 (Religion)
V131 (Ethnicity)	Ethnicity2 (Ethnicity)
V190 (Wealth index)	Wealth index3 (Wealth index)
V156 (Ever participated in a literacy program)	Everliteracy (Ever participated in literacy prog)
V155 (Literacy)	Literacy3 (Literacy)

The value labels of all the variables were recoded into 0=no, 1=yes, Responses coded as 96, 8 were labeled as system missing. The new maternal socio demographic variables were analyzed using descriptive statistics, frequencies and proportions were determined.

3.9.2 Possession and Utility of mass media tools by mothers

Variables on possession and utility of mass media tools such as ownership and frequency of use of Radio, Television, Newspapers/Magazine, Telephones etc, were recoded into different variables.

Table 3.9.2 Possession and Utility of mass media tools by mothers

Old variable Name (Label)	Coded variable Name (Label)
V119 (Has electricity)	Elect2 (Electricity)
V120 (Has Radio)	Radio2 (Radio)
V121 (Has Television)	Tv2 (Television)
V153 (Has telephone)	Telephone2 (Telephone)
V157 (Frequency of reading Newspaper)	Newspaperfreq (Freq of reading Newspaper)
V158 (Frequency of listening to Radio)	Radiofreq3 (Freq of listening to Radio)
V159 (Frequency of watching television)	Tvfreq3 (Freq of watching tv)

The value labels of all the variables were recoded into 0=no, 1=yes, Responses coded as 96, 8 were labeled as system missing. The frequencies and proportions of the coded variables were obtained.

3.9.3 Outcome variable

The outcome variable of this study was full vaccination status, and the variable was obtained by computing different variables into one. Variables that were computed into one to form the full vaccination status variables are

i)   H2$1 (Received BCG) was recoded into bcgnew (bcg new)

ii)   H8$1 (Received POLIO 3) was recoded into polio3 (polio)

iii)   H7$1 (Received DPT) was recoded into dptnew (dpt)

iv)   H9$1 (Received MEASLES) was recoded into measlesnew (measles new).

Children who had received all the vaccines which include BCG, POLIO 3, DPT and Measles vaccines were said to be fully vaccinated, while children who had received less than the four vaccines mentioned above are said have not been fully vaccinated. Each of the four recoded variable which included BCG=Yes, POLIO3=Yes, DPT=Yes and Measles=Yes, were consolidated into fully vaccinated=1, while Children who were short on any of this vaccines were consolidated as not fully vaccinated=0. The value labels of the four variables was recoded from

0=no   To   0=no

1=Vaccination Date on card   1=yes

2=Reported by mother

3=Vaccination marked on card

8=Don't know

Don't know was recoded as system missing. The frequency and proportions of fully vaccinated children were obtained.

3.9.4 Association between maternal socio demographic characteristics and full Vaccination status.

To obtain the relationship between maternal socio demographic characteristics and full Vaccination status chi squared test was carried out. Maternal socio demographic variables such as maternal age, region, residence, educational status, religion, ethnicity, literacy levels are all explanatory variables that were cross tabulated against the outcome variable (full vaccination status) to determine relationships.

3.9.5 Association between maternal exposure to mass media tools and full vaccination status.

To obtain the relationship between maternal exposure to mass media tools and full vaccination status chi squared test statistics was used. Possession and utility of mass media tools by mothers, (mass media tools such as Radio, Television, Newspaper, Telephone and so on) was cross tabulated with the outcome variable (full vaccination status) to determine relationship.

3.9.6 The risk factors associated with poor vaccination status of children

Explanatory variables that are significant in 3.9.4 and 3.9.5 will fit into the multivariate logistic regression model to find out the true risk factors associated with receipt of full vaccination after adjusting for confounders.

3.10 LIMITATION OF THE STUDY

Data obtained for the purpose of this study was acquired via interviewer administered questionnaires; therefore there may be room for recall bias due to wrong information given by respondent and reporting bias from interviewers giving falsified reports of information given by respondents. This study did not explore other factors such as paternal and other family characteristics that may have significant association with children being fully immunized.

CHAPTER FOUR

RESULTS

4.1: SOCIO DEMOGRAPHIC CHARACTERISTICS OF MOTHERS

Table 4.1 shows the socio demographic characteristics of mothers that participated in the survey. The overall mean age of the mothers was 28.7±9.5 years old. There were more mothers aged between 15-24 years, with most of the mothers coming from the north western region of the country (21.9%), while mothers from other regions ranged between 11%- 19%. Most respondents were from the rural areas with primary or less education and were poor. The religion of most respondents was either Christian or Islam with 50.3% of them been from tribes other than the three major tribes in the country. Majority of the mothers had not participated in literacy programmes, with only 49.5% being able to read part or whole sentences.

TABLE 4.1a : SOCIO DEMOGRAPHIC CHARACTERISTICS OF MOTHERS

CHARACTERISTICS	FREQUENCY (PERCENTAGE)
Mean age of mothers (years)	28.65 $\pm$ 9.493 (15-49)
Age in 3 groups	
15-24	12686 (38.0)
25-34	10850 (32.5)
35-49	9815 (29.4)
Total	33385 (100)
Regions	
North central	6366 (19.1)
North east	6217 (18.6)
North west	7297 (21.9)
South east	3667 (11.0)
South west	4813 (14.4)
South south	5025 (15.1)
Total	33385 (100)
Residence in 2 groups	
Urban	10483 (31.4)
Rural	22902 (68.6)
Total	33385 (100)
Education	
Primary and less	19831 (59.4)
Secondary and higher	13554 (40.6)
Total	33385 (100)
Religion	
Christianity	17293 (51.8)
Islam	15557 (46.6)
Others	534 (1.6)
Total	33385 (100)

TABLE 4.1b : SOCIO DEMOGRAPHIC CHARACTERISTICS OF MOTHERS

Ethnicity	
Hausa	7124 (21.3)
Yoruba	4899 (14.6)
Igbo	4621 (13.8)
Others	16741 (50.3)
Total	33385 (100)
Wealth index in 3 groups	
Poor	14101 (42.2)
Middle	6582 (19.7)
Rich	12702 (38.0)
Total	33385 (100)
Ever participated in literacy programme	
No	32116 (96.2)
Yes	1269 (3.8)
Total	33385 (100)
Literacy	
Cannot read at all	16714 (50.1)
able to read part or whole sentence	16507 (49.5)
No card and blind or visually impaired	164 (0.3)
Total	33385 (100)

4.2: POSSESSION AND UTILITY OF MASS MEDIA TOOLS BY MOTHERS

Table 4.2 shows the possession and access to mass media tools by mothers who participated in the survey. With 54.8% of the respondents reporting not having electricity. Most of the respondents had radios (76.0%) with 37.5% listening to radio less than or at least once a week. About 37.6% had televisions with 53.4% not watching it at all. Respondents without telephones (98.2) were more than those who had telephones. Majority of the respondents didn't read newspapers at all (79.4%) while only 2.6% read them every day

TABLE 4.2: POSSESSION AND UTILITY OF MASS MEDIA TOOLS BY MOTHERS

CHARACTERISTICS	FREQUENCY (PERCENTAGE)
Electricity	
No	18295 (54.8)
Yes	15090 (45.2)
Total	33385 (100)
Radio	
No	8012 (24.0)
Yes	25373 (76.0)
Total	33385 (100)
Television	
No	20832 (62.4)
Yes	12553 (37.6)
Total	33385 (100)
Frequency of reading newspaper	
Not at all	26404 (79.4)
Less than or at least once a week	6023 (17.9)
Almost everyday	958 (2.6)
Total	33385 (100)
Frequency of listening to radio	
Not at all	11385 (34.1)
Less than or at least once a week	12519 (37.5)
Almost every day	9481 (28.4)
Total	33385 (100)
Frequency of listening to television	
Not at all	17828 (53.4)
Less than or at least once a week	8313 (24.9)
Almost every day	7244 (21.7)
Total	33385 (100)

4.3: PROPORTION OF PARTIALLY VACCINATED CHILDREN

Table 4.3, shows the proportion of partially vaccinated children using the individual vaccines. The proportion of children with BCG vaccination only is 47%, OPV3 only in 33.2%, DPT only is 47% and Measles only is 33.7%.

TABLE 4.3: PROPORTION OF PARTIALLY VACCINATED <u>CHILDREN</u>

CHARACTERISTICS	FREQUENCY (PERCENTAGE)
BCG Vaccine	
No	17694 (53.0)
Yes	15690 (47.0)
Total	33385 (100.0)
OPV3 Vaccine	
No	22301 (66.8)
Yes	11084 (33.2)
Total	33385 (100.0)
DPT Vaccine	
No	17694 (53.0)
Yes	15691 (47.0)
Total	33385 (100.0)
Measles Vaccine	
No	21033 (66.3)
Yes	11250 (33.7)
Total	33385 (100.0)

4.4: FULL VACCINATION STATUS.

Table 4.4 shows the complete vaccination status of children as reported by their mothers and documented on their vaccination cards. Proportion of fully vaccinated children is 18.2%.

TABLE 4.4: FULL VACCINATION STATUS.

CHARACTERISTICS	PERCENTAGE (FREQUENCY)
full vaccination status	
No	27309 (81.8)
Yes	607 (18.2)
Total	33385 (100)

4.5: THE REASONS PRESENTED BY MOTHERS ON WHY THEIR CHILDREN HAD NOT RECEIVED ANY VACCINATION.

Table 4.5 shows the reasons given by the mothers for not vaccinating their babies. Prevalence of vaccination was 59.8%. Only 16.0% and 12.4% of mothers reported lack of information and fear of side effects respectively. Also, only 3.5% feared child may get disease and 1.7% believed vaccines do not work. 3.8% said it was due to religious reasons and 5.5% reported absence of the child.

TABLE 4.5: THE REASONS PRESENTED BY <u>MOTHERS</u> ON WHY THEIR CHILDREN HAD NOT RECEIVED ANY VACCINATION.

CHARACTERISTICS	PERCENTAGE (FREQUENCY)
Lack of information	
No	3523 (69.5)
Yes	1594 (30.5)
Total	5117 (100)
Fear of side effects	
No	3851 (76.1)
Yes	1266 (23.9)
Total	5117 (100)
Fear child may get disease	
No	4703 (93.3)
Yes	414 (6.7)
Total	5117 (100)
Vaccines do not work	
No	4878 (96.9)
Yes	239 (3.1)
Total	5117 (100)
Religious reasons	
No	4671 (92.7)
Yes	446 (7.3)
Total	5117 (100)
Facility too far	
No	4217 (83.5)
Yes	900 (16.5)
Total	5117 (100)

4.6: ASSOCIATION BETWEEN FULL VACCINATION AND MOTHERS SOCIO DEMOGRAPHIC CHARACTERISTICS

Table 4.6 shows the cross tabulation between vaccination status of children and demographic characteristics of mothers. An equal proportion of those aged 25-34 (20.7%) and those aged 35-49 (20.3%)) reported complete vaccination for their children compared to those aged 15-24 (11.5%). A greater proportion of mothers in the south south region reported complete child vaccination (34.0%) compared to those from other regions. Those in the urban area had a higher proportion reporting complete child vaccination (28.2%) compared to those in rural areas (14.4%). Those with a higher level of education secondary and higher (34.6%) had a higher proportion reporting child vaccination compared to those with a lower level of education (11.6%). Christians had a higher proportion reporting complete vaccination (29.6%) compared to Muslims (9.8%) and those from other religions (11.0%). Also the Yoruba's had a greater proportion reporting child vaccination (34.8%) compared to the Hausa's (5.7%), Igbo's (32.7%) and those from other tribes (18.0%). Those with a higher wealth index had a higher proportion reporting complete vaccination (32.9%) compare o those in the middle class (19.5%) and the poor (8.3%).

A slightly higher proportion of those who were able to read part or whole sentences reported complete child vaccination (32.4%) compared to those who cannot read (9.3%) and those who were blind or visually impaired (18.6%). Significant relationships were established between all categories with P=0.00.

TABLE 4.6a: ASSOCIATION BETWEEN FULL VACCINATION AND MOTHERS SOCIO DEMOGRAPHIC DATA

Characteristics	Full Vaccination status of children		Total	Chi square	P-value
	Yes (%)	No (%)			
Mothers age (Years)					
15-24	1148 (11.5)	8835 (88.5)	9983 (100)	177.857	0.00
25-34	2780 (20.7)	10648 (79.3)	13428 (100)		
35-49	2025 (20.3)	7949 (79.7)	9974 (100)		
Regions					
North central	1439 (24.5)	4436 (75.5)	5875 (100)	1355.401	0.00
North east	560 (8.7)	5882 (91.3)	6442 (100)		
North west	435 (6.0)	6818 (94.0)	7253 (100)		
South east	1224 (29.7)	2896 (70.3)	4120 (100)		
South west	1331 (28.0)	3422 (72.0)	4753 (100)		
South south	1680 (34.0)	3262 (66.0)	4942 (100)		
Residence					
Urban	3638 (28.2)	9262 (71.8)	12901 (100)	422.946	0.00
Rural	2949 (14.4)	17534 (85.6)	20484 (100)		
Education					
Primary and less	2349 (11.6)	17898 (88.4)	20247 (100)	1211.262	0.00
Secondary and higher	4556 (34.6)	8612 (65.4)	13168 (100)		
Religion					
Christianity	3742 (29.6)	8901 (70.4)	12643 (100)	1052.549	0.00
Islam	1451 (9.8)	13355 (90.2)	14806 (100)		
Others	653 (11.0)	5283 (89.0)	5936 (100)		

TABLE 4.6b: ASSOCIATION BETWEEN FULL VACCINATION AND MOTHERS SOCIO DEMOGRAPHIC DATA

Ethnicity				
Hausa	493 (5.7)	8159 (94.3)	8652 (100)	1072.360	0.00
Yoruba	2812 (34.8)	3425 (65.2)	6237 (100)		
Igbo	2644 (32.7)	3212 (67.3)	5856 (100)		
Others	3625 (18.0)	9015 (82.0)	12640 (100)		
Wealth index					
Poor	3481 (8.3)	10334 (91.7)	13815 (100)	1297.772	0.00
Middle	3423 (19.5)	5384 (80.5)	8807 (100)		
Rich	4499 (32.9)	6264 (67.1)	10763 (100)		
Literacy level					
Cannot read at all	3754 (9.3)	12048 (90.7)	15803(100)	1405.664	0.00
Able to read part or whole sentence	4850 (32.4)	7059 (67.6)	11909 (100)		
No card and blind or visually impaired	2819 (18.6)	2854 (81.4)	5673 (100)		

4.7: ASSOCIATION BETWEEN FULL VACCINATION AND POSSESSION OF EXPOSURE ENABLING TOOLS BY MOTHERS

A higher proportion of those who had electricity (11.9%) reported child vaccination compared to those that did not (27.5%). Significant relationships were established between all categories with P=0.00.

TABLE 4.7: ASSOCIATION BETWEEN FULL VACCINATION AND POSSESSION OF EXPOSURE ENABLING TOOLS BY MOTHERS

Characteristics	Full Vaccination status of children		Total	Chi square	P-value
	Yes (%)	No (%)			
Electricity					
No	2187 (11.9)	16188 (88.1)	18372 (100)	646.546	0.00
Yes	4129 (27.5)	10884 (72.5)	15013 (100)		

4.8: ASSOCIATION BETWEEN FULL VACCINATION AND POSSESSION OF MASS MEDIA TOOLS BY MOTHERS

Table 4.8 shows cross tabulation between vaccination and possession of exposure enabling tools by mothers. The higher proportion of those who had radio (20.1%), television (31.1%) and telephone (30.5%) reported full child vaccination compared to those that did not 12.0%, 11.7% and 17.9% respectively. Significant relationships were established between all the categories with P=0.00 .

TABLE 4.8: ASSOCIATION BETWEEN FULL VACCINATION AND POSSESSION OF MASS MEDIA TOOLS BY MOTHERS

Characteristics	Full Vaccination status of children		Total	Chi square	P-value
	Yes (%)	No (%)			
Radio No Yes	1500 (12.0) 4197 (20.1)	11002 (88.0) 16686 (79.9)	12502 (100) 20883 (100)	134.820	0.00
Television No Yes	2287 (11.7) 4304 (31.1)	17257 (88.3) 9536 (68.9)	19544 (100) 13841 (100)	918.948	0.00
Telephone No Yes	4415 (17.9) 2660 (30.5)	20249 (82.1) 6061 (69.5)	24664 (100) 8721 (100)	23.282	0.001

4.9: ASSOCIATION BETWEEN FULL VACCINATION AND FREQUENCY OF USE OF MASS MEDIA TOOLS BY MOTHERS

A greater proportion of those who read newspapers almost every day reported complete vaccination (40.7%) compared to those who read less than or at least once a week (38.7%) and those who did not read at all (15.0%). Those who listened to radio/television almost every day had a higher proportion reporting vaccination (27.4%/35.9%) compared to those who listened less than or at least once a week (20.5%/27.6%) and those who did not listen at all (9.7%/10.0%). Significant relationships were established between all categories with P=0.00.

TABLE 4.9: ASSOCIATION BETWEEN FULL VACCINATION AND FREQUENCY OF USE OF MASS MEDIA TOOLS BY MOTHERS

Characteristics	Full Vaccination status of children		Total	Chi square	P-value
	Yes (%)	No (%)			
Frequency of listening to radio					
Not at all	1159 (9.7)	10790 (90.3)	11949 (100)	579.148	0.00
Less than or at least once a week	2354 (20.5)	9130 (79.5)	11484 (100)		
Almost every day	2726 (27.4)	7224 (72.6)	9951 (100)		
Frequency of watching television					
Not at all	1580 (10.0)	14224 (90.0)	15804 (100)	1261.067	0.00
Less than or at least once a week	2513 (27.6)	6592 (72.4)	9105 (100)		
Almost every day	3043 (35.9)	5433 (64.1)	8476 (100)		
Newspaper					
Not at all	2995 (15.0)	16970 (85.0)	19965 (100)	719.480	0.00
Less than or at least once a week	2911 (38.7)	4612 (61.3)	7523 (100)		
Almost everyday	2400 (40.7)	3497 (59.3)	5897 (100)		

4.10 LOGISTIC REGRESSION OUTPUT SHOWING RISK FACTORS ASSOCIATED WITH FULL VACCINATION.

After adjusting for other variables, mothers between age 15-24 and 25-34 were 2 and 1 times less likely to have children that had received complete vaccination than those aged 35-49 (p=0.000 and 0.004). Those in the northern central, north east and north west were about 1.288 more likely,0.666 and 0.630 times less likely to have children that had been fully vaccinated than those in the south south (p=0.006, 0.000 and 0.000 respectively).

Christians were 1.464 times more likely to have children that had been fully vaccinated compared to those that practice other religions (0.053). Hausa's were 0.578 times less likely to have children that had been completely vaccinated than those from other tribes (p=0.000). Poor people were 0.571 times more likely to have children that had not been fully vaccinated than the rich (p=0.000).

Those who do not listen to the radio at all were 0.672 times less likely to have children that had been fully vaccinated compared to those who listened almost every day (p=0.000). Those who do not watch television were 0.745 times less likely to have children that had complete vaccination when compared to those who watched television almost every day. (p=0.001)

TABLE 4.10a: LOGISTIC REGRESSION OUTPUT SHOWING RISK FACTORS ASSOCIATED WITH FULL VACCINATION.

Characteristics	Odds ratio	Confidence interval	P-value
Age in 3 groups			
15-24	0.548	0.480-0.625	0.000
25-34	0.859	0.775-0.952	0.004
35-49 (ref)			
Regions			
North central	1.288	1.074-1.545	0.006
North east	0.666	0.533-0.834	0.000
North west	0.630	0.487-0.814	0.000
South east	0.826	0.629-1.085	0.170
South west	0.824	0.672-1.011	0.064
South south (ref)			
Residence			
Urban	1.029	0.920-1.150	0.618
Rural (ref)			
Education			
Primary and less	0.920	0.769-1.064	0.263
Secondary and higher (ref)			
Religion			
Christianity	1.464	0.995-2.154	0.053
Islam	0.885	0.598-1.314	0.548
Others (ref)			
Ethnicity			
Hausa	0.578	0.471-0.710	0.000
Yoruba	1.009	0.837-1.216	0.923
Igbo	1.078	0.852-1.363	0.531
Others (ref)			

TABLE 4.10b: LOGISTIC REGRESSION OUTPUT SHOWING RISK FACTORS ASSOCIATED WITH FULL VACCINATION.

Wealth index			
Poor	0.571	0.462-0.706	0.000
Middle	0.892	0.753-1.057	0.188
Rich (ref)			
Literacy			
Cannot read at all	1.001	0.477-2.100	0.998
Able to read part or whole sentence	1.629	0.772-3.438	0.201
No card and blind or visually impaired			
Electricity			
No	0.900	0.785-1.032	0.130
Yes (ref)			
Radio			
No	0.911	0.803-1.034	0.148
Yes (ref)			
Television			
No	1.031	0.884-1.204	0.696
Yes (ref)			
Telephone			
No	1.030	0.750-1.414	0.857
Yes (ref)			
Newspaper		0.741-1.306	0.909
Not at all	0.984	0.790-1.396	0.734
Less than or at least once a week	1.051		
Almost every day (ref)			

TABLE 4.10c: LOGISTIC REGRESSION OUTPUT SHOWING RISK FACTORS ASSOCIATED WITH FULL VACCINATION.

Frequency of listening to radio			
Not at all	0.672	0.583-0.774	0.000
Less than or at least once a week	0.883	0.789-0.987	0.029
Almost every day (ref)			
Frequency of watching television			
Not at all	0.745	0.628-0.883	0.001
Less than or at least once a week	0.911	0.796-1.041	0.172
Almost every day (ref)			

CHAPTER FIVE

DISCUSSION

This study sets to examine the relationship between mother's accessibility to mass media tools and full vaccination status of children in Nigeria using a Nationally representative sample of women of reproductive age (15-49 years).

The proportion of fully immunized children in Nigeria is estimated at 18.2%, this value is below normal but corresponds with another study conducted by (Odusanya et al, 2000) on the determinants of vaccination coverage in Nigeria which showed that the rate observed for children fully vaccinated at the government/private facilities is 18.5%. This is however far from the WHO recommendation for full vaccination which is 58%. Mothers who were between the age groups of 15-24 years had a higher proportion of those who participated in the study which is in line with another study carried out by (Odusanya et al, 2000) on determinants of vaccination coverage in rural Nigeria, which showed that mothers aged 20-29 had a higher rate of participation in vaccination. Most of the mothers coming from the north western region of the country while mothers from other regions ranged between 11%- 19%. Most respondents were from the rural areas with primary or less education and were poor. The religion of most respondents was either Christian or Islam, with Christians having a higher rate of participation and the result is consistent with a study by (Odusanya et al, 2000) on determinants of vaccination coverage in rural Nigeria which showed that most participants in the study were Christians. Majority of the mothers had not participated in literacy programmes, with only few being able to read part or whole sentences. The results obtained where relatively consistent with other studies done in and outside Nigeria.

5.1 POSSESSION AND UTILITY OF MASS MEDIA TOOLS BY MOTHERS

Most of the respondents had radios (76.0%), with 37.5% listening to radio less than or at least once a week. This is quite high due to the age of technology were mass media is easily accessible than past years, when compared to other studies by (Nyirenda et al,1988) on Radio listenership survey of Botswana, it showed that ownership of a radio set is still insufficient in Zambia (47%)

and Zimbabwe (30%), although scoring significantly higher in Lesotho and Botswana, this reason for the difference in level of access could be due to the fact that the study by (Nyirenda et al, 1988) was done a long time ago compared to the present study.

About 37.6% had televisions with 53.4% not watching it at all, this is relatively low when compared to those that owned radio and could be as a result of poor or lack of electricity in most parts of the country, so most respondents don't see the need to own a television because electricity is needed to power a television set, a study by (Colins et al, 1985) on mass media as a tool of information in Africa, confirmed the limited role of TV as a source of health information due to lack of purchase power, foreign currency restrictions and limited access to electricity supply. Those without telephones were more than those who did have telephones. Majority of the respondents didn't read newspapers at all while only few read them every day. This is low compared to previous studies done in the United States by Belch and Belch who estimated that newspapers are read daily in 70 percent of U.S. households, and in as many as 90 percent of high-income households, the reason for the large difference may be due to the fact that this study focuses on only women while the previous study focuses on the households where men are more likely to buy and use newspapers compared to women, this may be due to the difference in socio economic status of both countries.

5.2 REASONS PRESENTED BY MOTHERS ON WHY THEIR CHILDREN HAD NOT RECEIVED ANY VACCINATION

Only 16.0% and 12.4% of mothers reported lack of information and fear of side effects respectively. About 3.5% feared child may get disease and 1.7% believed vaccines do not work. About 3.8% said it was due to religious reasons (3.8%) and 5.5% reported absence of the child, This study was relatively consistent with a previous study by (Odusanya et al, 2000) Most mothers had very positive attitudes and more than half of them were generally knowledgeable about symptoms of vaccine preventable diseases except for difficulty in breathing. Cough was the most correctly identified symptom and almost all felt that immunization was beneficial.

5.3 RELATIONSHIP BETWEEN MATERNAL SOCIO DEMOGRAPHIC CHARACTERISTICS AND FULL VACCINATION STATUS

A slightly higher proportion of those aged 35-49 years vaccinated their children compared to other age groups and this study showed that maternal age is a predictor of vaccination status of children, with older women having the highest proportion of vaccinated children, the reason for this may be due to the fact that older women may be have gained experience about vaccination over the years when compared to the younger mothers and this report is consistent with previous study by (Mutua et al, 2011) on childhood vaccination in informal urban settlements in Nairobi, Kenya, which found that Maternal age and receipt of antenatal or postnatal care were associated with full vaccination of their children. Those from the south south had a higher chance of full vaccination than other regions. Those in the urban area had a higher proportion reporting complete child vaccination compared to those in rural areas this is probably due to the fact that those in urban area are more aware about the importance of vaccination than the rural area through mass media awareness and other sources peculiar to only urban. The result is relatively consistent with another study done in Kenya by (KNBS, 2009) stating that Urban areas in Kenya have the higher proportion of fully vaccinated children than those from rural areas, this studies shows that residence is a significant predictor to immunization of children. Those with a higher level of education secondary and higher had a higher proportion reporting child vaccination compared to those with a lower level of education, this is probably due to the fact that the higher the educational level the more literate the mothers become and will be able to understand information on vaccination faster than those with less education. This can be compared to a previous study by (Nankabirwa et al, 2010) on maternal education and it's association with vaccination status, showed that 46% of the mothers with only a primary school education had their children fully vaccinated compared to 65% of those with secondary school education because Women with secondary education were at least 50% less likely to miss their infants' scheduled vaccinations compared to women with only a primary school education. Christians had a higher proportion reporting vaccination compared to Muslims and those from other religions. Also the Yoruba's had a greater proportion reporting child vaccination compared to the Hausa's, Igbo's and those from other tribes. This findings are consistent with other searches from the Nigeria Demographic and Health Survey (NDHS, 2008). Those with a higher level of income had a higher proportion reporting vaccination compare to those in the middle class and the poor.

because it will be more difficult for a low income mother to provide the basic logistics such as transportation to health facility, cost of vaccination and others. This is consistent with another study by (Bates et al, 2010) on personal, financial and structural barriers to immunization, stated that financial barriers are important factors related to vaccination receipt,.

A slightly higher proportion of those who were able to read part or whole sentences reported complete child vaccination compared to those who cannot read and those who were blind or visually impaired ,this is probably due to the fact that those who can read well can easily get themselves informed via mass media tools like newspaper and billboards.

5.4 POSSESSION OF MASS MEDIA TOOLS AND FULL VACCINATION STATUS

A high proportion of those who had radio (20.1%) reported complete child vaccination, this is due to the fact that the more mothers are exposed to radio programs, the higher the tendency to hear health informations on benefits, date, time and place of vaccination, previous studies by (Jani V et al, 2008) on determinants of vaccination coverage in rural Nigeria, reported that major sources of information for knowledge about vaccination were the health facility and the radio. Those with Television had a high level of vaccination but it contradicted a previous study (Colins et al, 1985) on mass media as a tool of information in Africa, which confirmed the limited role of TV as a source of health information due to lack of purchase power, foreign currency restrictions and limited access to electricity supply, and those with telephones reported child vaccination. This results shows that all the mass media tools are important predictor variables on vaccination status and this is consistent with previous studies as stated above, this is due to the power of mass media tools to communication channels to the people on the importance of vaccinating children against killer diseases using graphic images and audio sound effects.

5.5 FREQUENCY OF USE OF MASS MEDIA AND FULL VACCINATION STATUS

The results from this study shows that women who read the newspaper everyday had a high proportion of vaccinated children than those who are not regular readers, this could be due to the fact that there is a high probability of regular readers of newspaper to find vaccination awareness and information from such materials. The regular viewers of television programs reported higher proportion of vaccinated children when compared to those who viewed less. Frequent listeners of radio programs reported high proportion of vaccinated children when compared to non regular listeners, the more frequent listeners of radio and watchers of television are likely to be exposed to information on vaccination, and this corresponds to previous study (Jani et al, 2008) on determinants of vaccination coverage in rural Nigeria, reported that major sources of information for knowledge about vaccination were through the radio, another study by (Rahman et al, 2010) on immunization coverage in rural Bangladesh, stated that respondents having mass media exposure (regularly watching TV and listening to radio) were more likely to fully immunize their children than mothers who had no exposure (adjusted odds ratio. In all previous studies also backed by this study had proved the importance of regular use of mass media as an important predictor variables on vaccination status of children, those who view television, listen to radio and read magazine regularly have an increased probability of coming across health information that will influence their knowledge, Attitude and perception about vaccination.

5.6 RISK FACTORS ASSOCIATED WITH FULL VACCINATION STATUS OF CHILDREN

Maternal age played a major role in vaccination uptake with older women aged 35-49years been more likely to have vaccinated children than younger women. Mothers aged 15-24years and 25-34years were 2 and 1 times less likely to have children that had received complete vaccination than those aged 35-49years (OR=0.548, 95% CI=0.480-0.625), (OR=0.859, 95%CI=0.775-0.625). The reasons for this may be due to the fact that older women may have gained experience about vaccination over the years when compared to the younger mothers. The finding was consistent with a previous study (Jani et al, 2008) on risk factors for immunization in rural Mozambique, showed that maternal age is a major predictor variable in vaccination uptake but another study reported that both younger (Markland et al, 1976) and older aged mothers (Akesode, 1982) has been reported to be associated with incomplete vaccination which is contrary with this findings.

Region plays a significant role in the uptake of vaccination, in this study the northern region were about 1 time more likely to have children that had not been vaccinated than those in the south, it is presumed that a higher proportion of mothers in the study that comes from the southern parts of Nigeria are more literate than the ones from the Northern parts of the country. There is no previous study that was found to back up this findings.

Poverty was also identified as a risk factor for uptake of vaccination as the poor mothers are about 2 times less likely to vaccinate their children than the richer mothers (OR=0.571, 95%CI=0.462-0.706). The reason for this may be due to the fact that poor mothers are less likely to be able to afford cost of transportation to health center, may not be able to own and access mass media tools for adequate information and other important amenities necessary for uptake of vaccination. this is consistent with a previous study by (Bates et al, 1997) on financial barriers on vaccination uptake, which stated that mothers who lived in poverty were more likely to have under vaccinated children therefore financial barriers are important factors related to vaccination receipt

Those who do not listen to the radio at all or less than once a week were more likely to have children that are not vaccinated than those who listen to it almost every day and it corresponds with previous study by (Jani et al, 2008) reported that major sources of information for knowledge about vaccination were through the radio.

Those who watch television less than or at least once a week were more likely to have children that had not been vaccinated when compared to those who watched television almost every day and this showed that television is an effective tool for communicating vaccination messages as a previous study by (Waisbord, 2003) In India, exposure to television and radio spots featuring a popular film celebrity influenced caregivers' decision to go to vaccination booths during the immunization campaigns in 2003 .

Another study by (Rahman et al, 2010) on immunization coverage in rural Bangladesh stated that respondents having mass media exposure (regularly watching TV and listening to radio) were more likely to fully immunize their children than mothers who had no exposure (adjusted odds ratio 1.546, 95% CI 1.707, 2.881).

5.7 CONCLUSION AND RECOMMENDATION

The importance of full vaccination among children in Nigeria cannot be over emphasized; this study was done in order to determine the relationship between possession and utility of mass media tools by mothers and full vaccination uptake of children in Nigeria. The proportion of fully vaccinated children in Nigeria is 18.2%. Socio demographic variables which affected full vaccination uptake included maternal age, Region, Ethnicity and Wealth index.

This study also showed that mass media plays a very important role in full vaccination uptake. In this study, mothers who listened to radio every day were more likely to have fully vaccinated children than those who are not regular listeners. Also mothers who watched television almost every day were more likely to have fully vaccinated children than those who do not watch television daily, therefore the mass media has proven to be very effective as observed from this study. A number of studies have documented the impact of mass media especially that of radio and television on awareness about vaccination and vaccination rates in different countries where mass media is accessible and widely used. Studies have confirmed. reports of an increase in knowledge about the benefits of vaccines, ages for immunization, and time and place of vaccinations; improved perceptions of seriousness of some diseases and positive change in attitudes regarding childhood vaccination; and more discussion about immunization in the home and communities.

Efforts should be made through the following strategic plans to boost immunization uptake through the mass media by

- Organized institutions can distribute mass media tools like radio, televisions and newspaper to the populace at free or cheaper rates in order to keep them informed about the need for vaccine uptake.

- This study has identified specific areas for intervention as far as socio demographic factors associated with lower vaccination are concerned. Programmes targeting mothers of lower socio-economic status such as those with no education, those in most poor households and younger mothers especially those who are still teenagers. Such programmes may include health education and immunization campaigns at the community level to improve coverage.

- Basic amenities such as electricity, transportation to health facilities be provided to the populace.

- Mothers can be encouraged by health workers to strive for information via mass media tools such as television, radio and newspaper, so as to keep in tune with important health information about place and time for immunization.

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
106	Do you do anything to the water to make it safer to drink?	YES .... 1 NO .... 2 DON'T KNOW 8	→ 108

107	What do you usually do to make the water safer to drink?
	
	Anything else?
	
	CIRCLE ALL MENTIONED.
		BOIL .... A
		ADD BLEACH/CHLORINE .... B
		STRAIN THROUGH A CLOTH C
		USE WATER FILTER (CERAMIC/
		  SAND/COMPOSITE/ETC.) .... D
		SOLAR DISINFECTION .... E
		LET IT STAND AND SETTLE .... F
		ALUM .... G
		
		OTHER _____ X
		           (SPECIFY)
		DON'T KNOW .... Z	

108	What kind of toilet facility do members of your household usually use?	FLUSH OR POUR FLUSH TOILET
		  FLUSH TO PIPED SEWER
		    SYSTEM 11
		  FLUSH TO SEPTIC TANK 12
		  FLUSH TO PIT LATRINE 13
		  FLUSH TO SOMEWHERE ELSE ... 14
		  FLUSH, DON'T KNOW WHERE ... 15
		PIT LATRINE
		  VENTILATED IMPROVED
		    PIT LATRINE 21
		  PIT LATRINE WITH SLAB 22
		  PIT LATRINE WITHOUT SLAB/
		    OPEN PIT 23
		COMPOSTING TOILET 31
		BUCKET TOILET 41
		HANGING TOILET/HANGING
		  LATRINE 51
		NO FACILITY/BUSH/FIELD 61
		
		OTHER _____ 96
		           (SPECIFY)
			→ 111

109	Do you share this toilet facility with other households?	YES .... 1 NO 2	→ 111
110	How many households use this toilet facility?	NO. OF HOUSEHOLDS IF LESS THAN 10 [0][ ] 10 OR MORE HOUSEHOLDS .... 95 DON'T KNOW 98	
111	Does your household have the following items which are in good working order		

	YES	NO
Electricity?	ELECTRICITY	1	2
A radio?	RADIO	1	2
A television?	TELEVISION	1	2
A mobile telephone?	MOBILE TELEPHONE	1	2
A non-mobile telephone?	NON-MOBILE TELEPHONE	1	2
A refrigerator?	REFRIGERATOR	1	2
A cable TV ?	CABLE TV	1	2
A generating set ?	GENERATING SET	1	2
Airconditioner ?	AIR CONDITIONER	1	2
A computer ?	COMPUTER	1	2
Electric iron ?	ELECTRIC IRON	1	2
A fan ?	FAN	1	2

CONFIDENTIAL

25 June 2008

NIGERIA DEMOGRAPHIC AND HEALTH SURVEY 2008
MODEL WOMAN'S QUESTIONNAIRE
WITH HIV/AIDS AND MALARIA MODULES

NATIONAL POPULATION COMMISSION

National Health Research Ethics Committee
Assigned Number NHREC/01/01/2007

IDENTIFICATION

STATE _____

LOCAL GOVT. AREA _____

LOCALITY _____

ENUMERATION AREA _____

URBAN/RURAL (URBAN=1, RURAL=2) ....

CLUSTER NUMBER ....

BUILDING NUMBER ....

HOUSEHOLD HEAD NAME/NUMBER _____

NAME AND LINE NUMBER OF WOMAN _____

IS WOMAN SELECTED FOR QUESTIONS ON DOMESTIC VIOLENCE (SECTION 13)?
(YES=1, NO=2) ....

INTERVIEWER VISITS

	1	2	3	FINAL VISIT	
DATE	_____	_____	_____	DAY	
				MONTH	
				YEAR	2 0 0 8
INTERVIEWER'S NAME	_____	_____	_____	INT. NUMBER	
RESULT*	_____	_____	_____	RESULT	
NEXT VISIT: DATE	_____	_____	_____	TOTAL NUMBER OF VISITS	
TIME	_____	_____	_____		

*RESULT CODES
1 COMPLETED   4 REFUSED
2 NOT AT HOME   5 PARTLY COMPLETED   7 OTHER _____
3 POSTPONED   6 INCAPACITATED   (SPECIFY)

	HAUSA	YORUBA	IGBO	ENGLISH	OTHER		TRANSLATOR USED?	YES	NO
LANGUAGE OF INTERVIEW	1	2	3	4	6	SPECIFY		1	2
NATIVE LANGUAGE OF RESPONDENT	1	2	3	4	6	SPECIFY			

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____	NAME _____		
DATE _____	DATE _____		

ENGLISH

W-1

Appendix G 527

INTRODUCTION AND CONSENT

INFORMED CONSENT

Greetings. My name is _____

We are conducting a national survey that asks women and men about various health issues. This study has been reviewed and granted approval by the National Health Research Ethics Committee, assigned number NHREC/01/01/2007, for the study period of February 22, 2008 to February 23, 2009. We would very much appreciate your participation in this survey. This information will help the government to plan health services. The survey usually takes between 30 and 60 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons. Should you have any queries, feel free to call any of the following contact person(s):

2008 NDHS Contact Person: Project Director, **Email**: safigar58@yahoo.com. Phone: 080337708114
NHREC Dontact Person(s): Secretary, NHREC, Email: secretary@nhrec.net, Phone: 08033143791
Desk Officer, NHREC, Email: deskofficer@nhrec.net, Phone: 08065479926

Participation in this survey is voluntary, and if we should come to any question you don't want to answer, just let me know and I will go on to the next question, or you can stop the interview at any time. However, we hope that you will participate in this survey since your views are important.
At this time, do you want to ask me anything about the survey?
May I begin the interview now?

Signature of interviewer _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED 1   RESPONDENT DOES NOT AGREE TO BE INTERVIEWED .... 2 → END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME	HOUR .... [ ][ ] MINUTES .... [ ][ ]	
102	How long have you been living continuously in (NAME OF CURRENT PLACE OF RESIDENCE)? IF LESS THAN ONE YEAR, RECORD '00' YEARS	YEARS .... [ ][ ] ALWAYS .... 95 VISITOR 96	→104
103	Just before you moved here, did you live in a city, in a town, or in a village?	CITY .... 1 TOWN .... 2 VILLAGE 3	
104	In the last 12 months, on how many separate occasions have you travelled away from your home community and slept away?	NUMBER OF TRIPS [ ][ ] NONE 00	→106
105	In the last 12 months, have you been away from your home community for more than one month at a time?	YES .... 1 NO 2	
106	In what month and year were you born?	MONTH [ ][ ] DON'T KNOW MONTH .... 98 YEAR [ ][ ][ ][ ] DON'T KNOW YEAR 9998	
107	How old were you at your last birthday? COMPARE AND CORRECT 106 AND/OR 107 IF INCONSISTENT	AGE IN COMPLETED YEARS [ ][ ]	
108	Have you ever attended school?	YES .... 1 NO 2	→112
109	What is the highest level of school you attended primary, secondary, or higher?	PRIMARY .... 1 SECONDARY .... 2 HIGHER 3	
110	What is the highest (class/form/year) you completed at that level?	CLASS/FORM/YEAR [ ][ ]	

W.2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
111	CHECK 109: PRIMARY ☐ SECONDARY OR HIGHER ☐		→115

112	Now I would like you to read this sentence to me.
	
	SHOW CARD TO RESPONDENT.·
	
	IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE:
	Can you read any part of the sentence to me?
		CANNOT READ AT ALL 1
		ABLE TO READ ONLY PARTS OF
		    SENTENCE 2
		ABLE TO READ WHOLE SENTENCE. 3
		NO CARD WITH REQUIRED
		    LANGUAGE _____ 4
		             (SPECIFY LANGUAGE)
		BLIND/VISUALLY IMPAIRED 5	

113	Have you ever participated in a literacy program or any other program that involves learning to read or write (not including primary school)?	YES .... 1 NO 2	

114	CHECK 112:
	
	CODE '2', '3' ☐ CODE '1' OR '5'
	    OR '4' CIRCLED ☐
	  CIRCLED
			→116

115	Do you read a newspaper or magazine almost every day, at least once a week, less than once a week or not at all?	ALMOST EVERY DAY .... 1 AT LEAST ONCE A WEEK .... 2 LESS THAN ONCE A WEEK ...... 3 NOT AT ALL 4	
116	Do you listen to the radio almost every day, at least once a week, less than once a week or not at all?	ALMOST EVERY DAY .... 1 AT LEAST ONCE A WEEK .... 2 LESS THAN ONCE A WEEK ...... 3 NOT AT ALL 4	
117	Do you watch television almost every day, at least once a week, less than once a week or not at all?	ALMOST EVERY DAY .... 1 AT LEAST ONCE A WEEK .... 2 LESS THAN ONCE A WEEK ...... 3 NOT AT ALL 4	
118	What is your religion?	CATHOLIC .... 1 OTHER CHRISTIAN .... 2 ISLAM .... 3 TRADITIONALIST .... 4 OTHER _____ 6 (SPECIFY)	
119	What is your ethnic group?	_____ ☐☐☐	

501	ENTER IN THE TABLE THE LINE NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2003 OR LATER. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS, BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE LAST 2 COLUMNS OF ADDITIONAL QUESTIONNAIRES)		

502	LINE NUMBER FROM 212	LAST BIRTH LINE NUMBER .... ☐☐	NEXT-TO-LAST BIRTH LINE NUMBER .... ☐☐	SECOND-FROM-LAST BIRTH LINE NUMBER .... ☐☐

503	FROM 212 AND 216	NAME _____ LIVING ☐ DEAD ☐ (GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 570)	NAME _____ LIVING ☐ DEAD ☐ (GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 570)	NAME _____ LIVING ☐ DEAD ☐ (GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE, OR IF NO MORE BIRTHS, GO TO 570)

504	Do you have a card where (NAME'S) vaccinations are written down? IF YES: May I see it please?	YES, SEEN .... 1 (SKIP TO 508) YES, NOT SEEN .... 2 (SKIP TO 508) NO CARD 3	YES, SEEN .... 1 (SKIP TO 506) YES, NOT SEEN .... 2 (SKIP TO 508) NO CARD 3	YES, SEEN .... 1 (SKIP TO 506) YES, NOT SEEN .... 2 (SKIP TO 508) NO CARD 3

505	Did you ever have a vaccination card for (NAME)?	YES .... 1 (SKIP TO 508) NO 2	YES .... 1 (SKIP TO 508) NO 2	YES .... 1 (SKIP TO 508) NO 2

506	(1) COPY VACCINATION DATE FOR EACH VACCINE FROM THE CARD. (2) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A VACCINATION WAS GIVEN, BUT NO DATE IS RECORDED. (3) IF MORE THAN TWO VITAMIN 'A' DOSES, RECORD DATES FOR MOST RECENT AND SECOND MOST RECENT DOSES		

		LAST BIRTH DAY MONTH YEAR	NEXT-TO-LAST BIRTH DAY MONTH YEAR	SECOND-FROM-LAST BIRTH DAY MONTH YEAR
	BCG	BCG	BCG	BCG
	POLIO 0 (POLIO GIVEN AT BIRTH)	P0	P0	P0
	POLIO 1	P1	P1	P1
	POLIO 2	P2	P2	P2
	POLIO 3	P3	P3	P3
	DPT 1	D1	D1	D1
	DPT 2	D2	D2	D2
	DPT 3	D3	D3	D3
	MEASLES	MEA	MEA	MEA
	VITAMIN A (MOST RECENT)	VIT A	VIT A	VIT A
	VITAMIN A (2nd MOST RECENT)	VIT A	VIT A	VIT A

506A	CHECK 506.	BCG TO MEASLES ALL RECORDED ☐ OTHER ☐ (GO TO 510)	BCG TO MEASLES ALL RECORDED ☐ OTHER ☐ (GO TO 510)	BCG TO MEASLES ALL RECORDED ☐ OTHER ☐ (GO TO 510)

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
507	Has (NAME) received any vaccinations that are not recorded on this card, including vaccinations received in a national immunization day campaign? RECORD 'YES' ONLY IF RESPONDENT MENTIONS BCG, POLIO 0-3, DPT 1-3, AND/OR MEASLES VACCINES	YES .... 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) (SKIP TO 510) NO .... 2 (SKIP TO 510) DON'T KNOW 8	YES .... 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) (SKIP TO 510) NO .... 2 (SKIP TO 510) DON'T KNOW 8	YES .... 1 (PROBE FOR VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) (SKIP TO 510) NO .... 2 (SKIP TO 510) DON'T KNOW 8
508	Did (NAME) ever receive any vaccinations to prevent him/her from getting diseases, including vaccinations received in a national immunization campaign?	YES .... 1 NO .... 2 (SKIP TO 511A) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 511A) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 511A) DON'T KNOW 8
509	Please tell me if (NAME) received any of the following vaccinations			
509A	A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually causes a scar?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
509B	Polio vaccine, that is, drops in the mouth?	YES .... 1 NO .... 2 (SKIP TO 509E) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 509E) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 509E) DON'T KNOW 8
509C	Was the first polio vaccine received in the first two weeks after birth or later?	FIRST 2 WEEKS ... 1 LATER 2	FIRST 2 WEEKS ... 1 LATER 2	FIRST 2 WEEKS ... 1 LATER 2
509D	How many times was the polio vaccine received?	NUMBER OF TIMES ☐	NUMBER OF TIMES ☐	NUMBER OF TIMES ☐
509E	A DPT vaccination, that is, an injection given in the thigh or buttocks, sometimes at the same time as polio drops?	YES .... 1 NO .... 2 (SKIP TO 509G) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 509G) DON'T KNOW 8	YES .... 1 NO .... 2 (SKIP TO 509G) DON'T KNOW 8
509F	How many times was a DPT vaccination received?	NUMBER OF TIMES ☐	NUMBER OF TIMES ☐	NUMBER OF TIMES ☐
509G	A measles injection or an MMR injection - that is, a shot in the arm at the age of 9 months or older - to prevent him/her from getting measles?	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8	YES .... 1 NO .... 2 DON'T KNOW 8
510	Were any of the vaccinations (NAME) received during the last two years given as part of a national immunization day campaign?	YES .... 1 NO .... 2 NO VACCINATION IN THE LAST 2 YRS ... 3 DON'T KNOW ...... 8 (SKIP TO 511B)	YES .... 1 NO .... 2 NO VACCINATION IN THE LAST 2 YRS ... 3 DON'T KNOW ...... 8 (SKIP TO 511B)	YES .... 1 NO .... 2 NO VACCINATION IN THE LAST 2 YRS ... 3 DON'T KNOW ...... 8 (SKIP TO 511B)

NO	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
511	At which national immunization day campaigns did (NAME) receive vaccinations? RECORD ALL CAMPAIGNS MENTIONED NOTE: ALL RECOMMENDED VACCINES INCLUDE POLIO, MEASLES, YELLOW FEVER, CSM, BCG, ETC.	POLIO 2006 ...... A ⌐ (NIDS/FEB,MAR) MEASLES 2006 .... B ⌐ (SNIDS/OCT) ALL 2006 .... C ⌐ (IPDS/MAY-JULY) ALL 2007 .... D ⌐ (IPDS/JAN) (SIPDS/MAR-SEPT) ALL 2008 .... E ⌐ (IPDS/JAN,FEB 2008) (SIPDS/APR 2008) (SKIP TO 511B) ←	POLIO 2006 ...... A ⌐ (NIDS/FEB,MAR) MEASLES 2006 .... B ⌐ (SNIDS/OCT) ALL 2006 .... C ⌐ (IPDS/MAY-JULY) ALL 2007 .... D ⌐ (IPDS/JAN) (SIPDS/MAR-SEPT) ALL 2008 .... E ⌐ (IPDS/JAN,FEB 2008) (SIPDS/APR 2008) (SKIP TO 511B) ←	POLIO 2006 ...... A ⌐ (NIDS/FEB,MAR) MEASLES 2006 .... B ⌐ (SNIDS/OCT) ALL 2006 .... C ⌐ (IPDS/MAY-JULY) ALL 2007 .... D ⌐ (IPDS/JAN) (SIPDS/MAR-SEPT) ALL 2008 .... E ⌐ (IPDS/JAN,FEB 2008) (SIPDS/APR 2008) (SKIP TO 511B) ←

511A	What are the main reasons (NAME) has not received any vaccinations?
	
	PROBE Any other reasons?
	
	CIRCLE ALL MENTIONED
		LACK OF INFO .... A
		FEAR OF SIDE-
		  EFFECTS .... B
		FEAR CHILD MAY
		  GET DISEASE ... C
		VACCINES DO NOT
		  WORK .... D
		RELIGIOUS REASONS E
		POST TOO FAR .... F
		CHILD WAS ABSENT G
		
		OTHER _____ X
		         SPECIFY
			LACK OF INFO .... A
			FEAR OF SIDE-
			  EFFECTS .... B
			FEAR CHILD MAY
			  GET DISEASE ... C
			VACCINES DO NOT
			  WORK .... D
			RELIGIOUS REASONS E
			POST TOO FAR .... F
			CHILD WAS ABSENT G
			
			OTHER _____ X
			         SPECIFY
				LACK OF INFO .... A
				FEAR OF SIDE-
				  EFFECTS .... B
				FEAR CHILD MAY
				  GET DISEASE ... C
				VACCINES DO NOT
				  WORK .... D
				RELIGIOUS REASONS E
				POST TOO FAR .... F
				CHILD WAS ABSENT G
				
				OTHER _____ X
				         SPECIFY

511B	CHECK 506 AND 509B
	
	DATE FOR POLIO VACCINE RECORDED IN 506 OR CODE '1' RECORDED IN 509B
		NO POLIO POLIO
		VACCINE VACCINE
		RECEIVED RECEIVED
		⬚ ⬚
		↓ (SKIP TO
		         512)
			NO POLIO POLIO
			VACCINE VACCINE
			RECEIVED RECEIVED
			⬚ ⬚
			↓ (SKIP TO
			         512)
				NO POLIO POLIO
				VACCINE VACCINE
				RECEIVED RECEIVED
				⬚ ⬚
				↓ (SKIP TO
				         512)

511C	Now I want to ask you specifically about vaccinating your child against polio
	
	What are the main reasons (NAME) has not received any polio vaccinations?
	
	PROBE Any other reasons?
	
	CIRCLE ALL MENTIONED
		LACK OF INFO .... A
		FEAR OF SIDE-
		  EFFECTS .... B
		FEAR CHILD MAY
		  GET DISEASE ... C
		VACCINES DO NOT
		  WORK .... D
		RELIGIOUS REASONS E
		POST TOO FAR .... F
		CHILD WAS ABSENT G
		
		OTHER _____ X
		         SPECIFY
			LACK OF INFO .... A
			FEAR OF SIDE-
			  EFFECTS .... B
			FEAR CHILD MAY
			  GET DISEASE ... C
			VACCINES DO NOT
			  WORK .... D
			RELIGIOUS REASONS E
			POST TOO FAR .... F
			CHILD WAS ABSENT G
			
			OTHER _____ X
			         SPECIFY
				LACK OF INFO .... A
				FEAR OF SIDE-
				  EFFECTS .... B
				FEAR CHILD MAY
				  GET DISEASE ... C
				VACCINES DO NOT
				  WORK .... D
				RELIGIOUS REASONS E
				POST TOO FAR .... F
				CHILD WAS ABSENT G
				
				OTHER _____ X
				         SPECIFY