

**KNOWLEDGE OF WOMEN OF CHILDBEARING AGE ON
PREVENTION OF CEREBRAL PALSY AMONG CHILDREN IN IBADAN
NORTH LOCAL GOVERNMENT AREA, OYO STATE**

BY

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DEDICATION

This work is dedicated to Almighty God, who has being my help from the beginning of my academic career.

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ABSTRACT

Paediatric neurological disorders constitute a major reason for paediatric specialist care in Ibadan, Nigeria. Every hour, a child is born with cerebral palsy (CP) which is a life-long physical disability caused by damaged or developing brain. The frequency of CP has not declined and giving attention to risk factors associated with an increased risk of CP might help to prevent its development. This study assessed the knowledge of women of childbearing age on the prevention of cerebral palsy among children in Ibadan North Local Government Area of Oyo State.

A descriptive cross-sectional study was conducted using a four stage sampling technique. Two hundred and eight respondents were selected from communities in six wards in Ibadan North LGA. A validated semi-structured interviewer-administered questionnaire was used to collect information on knowledge of prevention of CP and risk factors predisposing children to the development of CP among women of childbearing age. Knowledge was assessed using 12 points scale, ≤ 3 were categorised as poor, ≤ 8 were categorised as fair while ≤ 12 were categorised as good. Data were analysed using descriptive statistics and chi square test at $P=0.05$

Respondents' mean age was 31.03 ± 7.69 years and most (93.8%) were married. Most (54.3%) were traders, 4.8% were civil servants, 26.4% were artisans. Majority of the respondents 73.1% were Yorubas, 20.7% were Hausas while 6.3% were Igbos. 38.5% of the respondents had primary education, 36.1% had secondary education, 13.9% had no formal education, while 11.5% attained tertiary education. A larger percentage (95.2%) of the respondents reported that they have heard about cerebral palsy. Majority of the respondents (66.5%) reported that they have not heard about the risk factors predisposing children to the development of cerebral palsy, (33.2%) said they have heard. Most respondents (63.5%) said cerebral palsy has no cure but can be managed, (28.4%) reported it can be cured since there is no impossibility with God.

There is poor knowledge of prevention of cerebral palsy among women of childbearing age in Ibadan North LGA which has to do with predisposing factors that are associated with an increased risk of cerebral palsy development in children. It is therefore important that primary prevention through health education should be effectively communicated continuously to women of childbearing age during prenatal and postnatal healthcare delivery

CERTIFICATION

I certify that this study was carried out by Miss Bunmi O. Bamgbade under my supervision at the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan.

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TABLE OF CONTENTS

	Page
Title page	i
Certification	ii
Dedication	iii
Acknowledgements	iv
Abstract	v
Table of Contents	vi
List of Tables	x
List of Figures	xi
List of Appendices	xii
 CHAPTER ONE: INTRODUCTION	
1.1 Background of the study	1
1.2 Statement of problem	2
1.3 Justification of study	2
1.4 Research questions	3
1.5 Objectives of the study	3
1.6 Hypotheses	4
 CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	5
2.2 The human brain	6
2.3 Epidemiology of cerebral palsy	8
2.4 Etiology and pathology of cerebral palsy	9
2.5 The risk factors predisposing children to the development of cerebral palsy	10

2.6 Classification of cerebral palsy	12
2.7 Signs and symptoms of cerebral palsy	15
2.8 Prevention of cerebral palsy	17
2.9 Conceptual framework	20
CHAPTER THREE: METHODOLOGY	
3.1 Research design	23
3.2 Study area	23
3.3 Study population	24
3.4 Sample size calculation	25
3.5 Sampling technique	25
3.6 Inclusion criteria	26
3.7 Research Instrument	26
3.8 Data collection procedure	26
3.9 Data analysis procedure	27
CHAPTER FOUR: RESULTS	
4.1 Socio – demographic characteristics	29
4.2 Awareness about cerebral palsy	31
4.3 Knowledge about types of cerebral palsy	33
4.4 Knowledge of prevention of cerebral palsy	35
4.5 Risk factors to cerebral palsy among children	37
4.6 Neonatal care given to children	39
4.7 Test of hypotheses	41

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5. 1 Socio – demographic characteristics	43
5.2 General knowledge on cerebral palsy	44
5.3 Knowledge of prevention of cerebral palsy	45
5.4 Risk factors to cerebral palsy among children	46
5.5 Neonatal care given to children	46
5.6 Implications for health promotion and education	47
5.7 Conclusion	48
5.8 Recommendations	48
References	49
Appendices	

LIST OF TABLES

Table 4.1. Marital status, Religion, Age, Ethnic group, Occupation, Level of education	30
Table 4.2. Awareness about cerebral palsy	31
Table 4.3. Knowledge about types of cerebral palsy	33
Table 4.4. Knowledge of prevention of cerebral palsy	36
Table 4.5 Risk factors of cerebral palsy	37
Table 4.5. Neonatal care received for children by parents	40
Table 4.6. Test of hypothesis for hypothesis 1	41
Table 4.7. Test of hypothesis for hypothesis 2	42

LIST OF FIGURES

	Pages
Figure 2.1 The anatomy of the brain	12
Figure 2.2 Causes of cerebral palsy	14
Figure 2.3 Types of cerebral palsy	15
Figure 2.4 Conceptual frame work	20

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LIST OF APPENDICES

Pages

Appendix 1; Letter of introduction

52

Appendix 2. Questionnaire

53

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Cerebral palsy refers to a number of neurological conditions that affect muscle control and movement; it is a disorder of movement and posture caused by an early permanent and non – progressive cerebral lesion. Impaired motor function is the hallmark of cerebral palsy and fifty per cent of children with cerebral palsy also have a combination of epilepsy, hearing and vision problems, learning or feeding difficulties and difficulties in controlling their muscle movement as they grow and develop (Coovadia and Wittenberg, 2009). Cerebral palsy is usually caused by damage to the brain which may occur before, during or after birth. The main known causes of damage include infection in early pregnancy, lack of oxygen to the brain during child birth, and abnormal brain development. Some risk factors that increase the likelihood of brain damage include a complicated or premature birth, maternal age of below 20 or over 40 years, multiple births and low birth weight (News Medical, 2014). It is caused by damage to the motor control centers of the developing brain, about 2% of all cerebral palsy cases are believed to be due to a genetic cause (Olajide, Deih and Yaadar, 2013). Voluntary movement (walking, Grasping, chewing etc) is primarily accomplished using muscles that are attached to bones, known as the skeletal muscles but children with Cerebral palsy usually have difficulties in this part of the body and control of the skeletal muscles originates in the cerebral cortex, the largest portion of the brain. Palsy means paralysis, but may also be used to describe uncontrolled muscle movement. Therefore, cerebral palsy encompasses any disorder of abnormal function of cerebral cortex (Farlex, 2014). Cerebral palsy is not an infectious disease. Most cases are diagnosed at a young age rather than during adolescence or adulthood. Improvements in the care of new-borns have helped reduce the number of babies who develop cerebral palsy and increased the survival of those with very low birth weights. It occurs in about 2.1 per 1,000 live births. Physical and occupational therapy may help (Olajide, Deih and Yaadar, 2013).

Cerebral refers to the cerebrum, which is the affected area of the brain. The disorder may often involve connections between the cortex and other parts of the brain such as the cerebellum. The root word "palsy" means "paralysis". In medicine, this is often used in reference to the paralysis or weakness that often accompanies nerve damage, loss of sensation

or muscle disorders involving uncontrollable movements such as trembling or shaking (Farlex, 2014).

Symptoms vary greatly depending on which type of cerebral palsy a child has. Ataxia cerebral palsy affects balance and may cause difficulty in walking, while children with dyskinetic cerebral palsy may be unable to even maintain an upright position. The most common type of cerebral palsy, spastic cerebral palsy, refers to a tight and unyielding muscle tone that restricts movement and impairs mobility.

The impact of cerebral palsy is significant with considerable social and economic costs to the family especially mothers and the individual. Individuals with CP bear 37% of the financial costs, and their families and friends bear a further 6%. Federal government bears around one third (33%) of the financial costs (mainly through taxation revenues forgone and welfare payments). State governments bear under 1% of the costs, while employers bear 5% and the rest of society bears the remaining 19%. If the burden of disease (lost well-being) is included, individuals bear 76% of the costs (Access Economics, 2008). In the UK, cerebral palsy affects about one in every 400 children and approximately 1,800 babies are diagnosed with the condition each year (News Medical, 2014) Cerebral palsy affects two to three per 1000 children and is the commonest cause of physical disability in childhood (Coovadia and Wittenberg, 2009). One of the main challenges for parents is to manage the child's chronic health problems effectively in addition to that of coping with the requirements of everyday living. Consequently, the task of caring for a child with complex disabilities at home might be somewhat daunting for caregivers. The provision of such care may prove detrimental to both the physical health and the psychological well-being of parents of children with disabilities (Olajide, Deih and Yaadar, 2013). There is no cure for cerebral palsy but treatments such as physiotherapy and occupational therapy can help relieve symptoms and increase a child's self-esteem and independence while medication can relieve muscle stiffness and spasms (Peters, Adetola, and Fatudimu, 2008). CP does not include conditions due to progressive disease or degeneration of the brain, for this reason, CP is referred to as static (nonprogressive) encephalopathy (disease of the brain). Also excluded from CP are any disorders of the muscle control that arise in the muscles themselves and in the peripheral nervous system (nerves outside the brain and spinal cord). In Nigeria the prevalence of CP at the paediatric neurology clinic at Olabisi Onabanjo University Teaching Hospital Sagamu as at 2008 was 50.3% (Ogunlesi, Ogundeyi, Ogunfowora, and Olowu, 2008).

1.2 Statement of problem

Paediatric neurological disorders constitute a major reason for paediatric specialist care in Ibadan, Nigeria. Preventable causes play a major role in the aetiology of the major paediatric neurological disorders seen in this part of the world (Lagunju and Okafor, 2009). In a three-year study of cerebral palsy (CP), CP accounted for 16.2 per cent of new referrals to a child neurology clinic. 63 per cent of these had potentially preventable causes (not including intracranial infections), associated with chronic shortage of care personnel and inadequate finances for effective rehabilitation services. It is suggested that training and deployment of nurse-physiotherapists, combined with intensive health education, is a feasible solution to the problem (Notidge and Okogbo, 2009). Population-based studies from around the world show that prevalence of cerebral palsy worldwide ranges from 1.5 to more than 4 per 1,000 live births or children of a defined age range (Ananya, 2014). Every hour, another child is born with Cerebral Palsy (CP). Cerebral Palsy is a life-long physical disability caused by damage of the developing brain. CP is a condition that is permanent, but not unchanging. In most cases, brain injury leading to cerebral palsy occurs during pregnancy. Cerebral palsy, except in its mildest forms, can be evident in the first 12-18 months. Motor disability can range from minimal to profound, depending on the individual. Children with Cerebral Palsy are likely to also have other impairments in addition to their motor disability (Cerebral Palsy International Research Foundation, 2014). Cerebral palsy is commonly encountered worldwide. Globally over 17million people have cerebral palsy (Cerebral Palsy International Research Foundation, 2014). The consequences of Cerebral Palsy include retardation of growth and development as well as social and financial squeals. The ideal management of Cerebral Palsy is comprehensive and effective physical rehabilitation, which is unfortunately expensive for the average Nigerian family. However, even with the best rehabilitation, functional and physical recovery in Cerebral Palsy is rarely complete (Peters, Adetola, and Fatundimu, 2014). Prevention therefore is of central importance and this study investigated “knowledge of women of childbearing age in Ibadan North Local Government Area of Oyo State on the prevention of cerebral palsy among children.

Cerebral palsy is characterized by abnormal muscle tone, reflexes, or motor development and coordination. There can be joint and bone deformities and contractures (permanently fixed, tight muscles and joints). The classical symptoms are spasticities, spasms, other involuntary movements (e.g., facial gestures), unsteady gait, problems with balance, and/or soft tissue

findings consisting largely of decreased muscle mass. Scissor walking (where the knees come in and cross) and toe walking (which can contribute to a gait reminiscent of a marionette) are common among people with CP who are able to walk, but taken on the whole, CP symptomatology is very diverse. The effects of cerebral palsy fall on a continuum of motor dysfunction, which may range from slight clumsiness at the mild end of the spectrum to impairments so severe that they render coordinated movement virtually impossible at the other end of the spectrum.

Babies born with severe CP often have an irregular posture; their bodies may be either very floppy or very stiff. Birth defects, such as spinal curvature, a small jawbone, or a small head sometimes occur along with CP. Symptoms may appear or change as a child gets older. Some babies born with CP do not show obvious signs right away. Classically, CP becomes evident when the baby reaches the developmental stage at 6 1/2 to 9 months and is starting to mobilise, where preferential use of limbs, asymmetry, or gross motor developmental delay is seen. Resulting conditions can include seizures, epilepsy, apraxia, dysarthria or other communication disorders, eating problems, sensory impairments, intellectual disability, learning disabilities, urinary incontinence, fecal incontinence, and/or behavioural disorders.

1.3 Justification

Neurological disorders in children are common occurrence in clinical practice. The disorder accounted for more than 20% of the world's disease burden with a greater majority of people affected living in Africa. When affected by neurological disorders, a person's memory, motor and cognitive abilities, concentration, speech, and physique can be drastically altered. Many of these disorders are chronic, frustrating to caregivers and parents and require adequate understanding to cope with management. The clinical manifestation of neurological disorders may progress and get worst over time (Frank-Briggs and Alikor, 2011). Not only do the people who live with these disorders suffer, their loved ones also experience great pain. Additionally, some affected children are unable to take care of themselves, such as feeding, clothing, and engaging in other basic everyday activities. Empirical observation suggest that the general attitude of parents of children with chronic illnesses such as neurological disorders in developing countries is to shop from one doctor to another in search of a cure or solution, this gives room for frustration as they usually end up being treated by non-specialists. The treatment period may be so long taking months to years, making room for a high rate of default from follow-up (Frank-Briggs and Alikor, 2011). The frequency of

cerebral palsy has not declined, and there are relatively few specific, modifiable risk factors for cerebral palsy, attention to some factors that are associated with an increased risk of cerebral palsy might help to prevent its development. The focus of preventing cerebral palsy is in alleviating or minimizing risk. Expectant parents, medical practitioners, researchers and government policy makers play important roles in the quest to reduce the chances of a child developing cerebral palsy. Planning a family, or learning of pregnancy, can be an exciting time. It is also a crucial time to begin providing for the safety of the child. Paediatric neurological conditions still constitute health problems in developing countries. It is therefore important that more resources be deployed (human and material) for the prevention of the potentially preventable neurological conditions and for appropriate and effective management (Ogunlesi, Ogundeyi, Ogunfowora, Olowu, 2008).

1.4 Research objectives

The broad objective of this study was to investigate the knowledge of women of childbearing age on the causes and prevention of cerebral palsy among children in Ibadan North Local Government Area of Oyo State.

1.6 Research questions

This study answered the following research questions:

1. What are the risk factors related to the development of cerebral palsy which if changed in women of childbearing age in Ibadan North could result into the prevention of cerebral palsy among children?
2. What is the level of knowledge of prevention of cerebral palsy among women of childbearing age?

1.5 Specific objectives

The specific objectives of this study were

1. To identify the knowledge of risk factors predisposing children to the development of cerebral palsy
2. To assess knowledge of prevention of cerebral palsy among women of child bearing age

1.7 Research hypotheses

- There is no association between general knowledge of cerebral palsy and the knowledge of prevention of cerebral palsy.
- There is no association between general knowledge of cerebral palsy and complete vaccination of children.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Cerebral palsy encompasses disorders apparent at birth or in childhood due to intra-uterine or neonatal brain damage; deficits are non-progressive. Cerebral palsy is a term describing the end result of damage to the developing brain resulting in problems with movement, tone and posture (Beattie and Carachi, 2005). Learning problems, mild to severe, are frequent, though not exclusive – physical disability is independent of cognitive impairment. The precise cause of damage in an individual child may be difficult to determine. The following are largely responsible: Hypoxia in utero and/ or during parturition, neonatal cerebral haemorrhage and/or infarction, trauma, neonatal or during parturition, prolonged seizures – status epilepticus, hypoglycaemia, kernicterus with athetoid movement disorder – now rare with maternal Rh immunization (Kumar and Clark, 2009)

Cerebral palsy refers to abnormal function caused by a static abnormality of the brain acquired during the prenatal period, or the early developmental years. Although the clinical manifestations change over time as the brain develops and matures, the underlying lesion of the central nervous system is static. Any part of the brain can be involved, including the cerebral hemispheres, basal ganglia, and cerebellum. Congenital motor disabilities caused by dysfunction of the spinal cord, nerves, neuromuscular junction, or muscles are not referred to as cerebral palsy (Summitt, 1990). The clinical features depend on the portion of the central nervous system involved. The earliest and most consistent abnormality in most cases is the muscle tone. Typically, hypotonia is present in the first six months of life. Some children will remain hypotonic while others will develop increased muscle tone (spasticity) or abnormal movements (dyskinesia). Children who manifest spasticity in the first years of life usually are severely affected. Dyskinesias usually do not appear until the second year of life.

2.2 The human brain

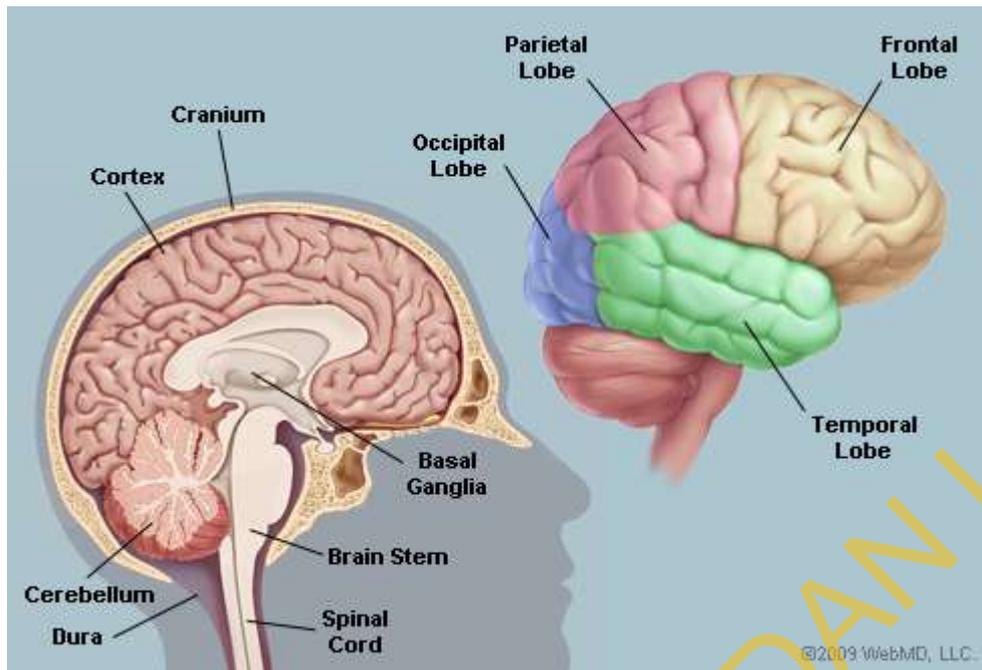


Figure 2.1: The anatomy of the brain

Source: webMD (2009)

The brain is called cerebral in medical terms. The term palsy means complete or partial loss of ability to move body muscles. Cerebral palsy (CP) is a blanket term that is used to describe complete loss or impairment to some extent of motor function. It is actually caused by brain damage due to brain injury or abnormal development of the brain. This damage can occur before birth, during birth or within a few months after birth (webmd, 2014).

Cerebral palsy is not life-threatening. Children with cerebral palsy live well into adulthood. Only in some cases, where there is serious damage to the brain, the condition is non-life-threatening. However, the condition is incurable. The damage is non-progressive that means the injury will not cause further degeneration of the brain (Kennett, 2014). Cerebral palsy is a permanent condition as the brain cannot heal itself like other body parts. The condition is non-communicable, that is, not contagious. The condition is life-long with no cure (Healthplus, 2014).

Generally there are four types of cerebral palsy which are classified by location of brain damage, the type of movement impairment and other symptoms the condition causes (Aitikin, 2014). The brain is one of the largest and most complex organs in the human body.

It is made up of more than 100 billion nerves that communicate in trillions of connections called synapses. The brain is made up of many specialized areas that work together: The cortex is the outermost layer of brain cells. Thinking and voluntary movements begin in the cortex. The brain stem is between the spinal cord and the rest of the brain. Basic functions like breathing and sleep are controlled here. The basal ganglia are a cluster of structures in the center of the brain. The basal ganglia coordinate messages between multiple other brain areas. The cerebellum is at the base and the back of the brain. The cerebellum is responsible for coordination and balance.

The brain is also divided into several lobes: the frontal lobes are responsible for problem solving and judgment and motor function. The parietal lobes manage sensation, handwriting, and body position. The temporal lobes are involved with memory and hearing. The occipital lobes contain the brain's visual processing system. The brain is surrounded by a layer of tissue called the meninges. The skull (cranium) helps protect the brain from injury (Webmed, 2014). According to the National Institute of Neurologic Disorders and Stroke, cerebral palsy occurs due to brain damage sustained during fetal development or just before, during or just after birth.

As the name of the disorder suggests, cerebral palsy affects the cerebrum, the largest portion of the brain. The cerebrum controls voluntary movements, thinking, reasoning and emotions, as well as some specialized functions such as visual processing, speech and hearing. Damage often occurs to the cerebral motor cortex, a portion of the brain that lies at the back of the frontal lobe just before the fold that separates the frontal lobe from the parietal lobe, as described by the Canadian Institute of Neurosciences, Mental Health and Addiction (Coovadia and Wittenberg, 2009.) The abnormalities in the cerebral motor cortex disrupt the brain's ability to control both movement and posture. This results in the characteristic symptoms including a lack of muscle coordination, stiff or tight muscles, walking on the toes, muscles that appear too tight or too floppy, tremors and difficulty with precise movements. The severity of cerebral palsy varies depending on the extent of the damage to the cerebral motor cortex. Patients with mild cerebral palsy may exhibit slightly awkward movements, while severe cp results in the inability to walk (webmed, 2014).

The brain consists of white matter, so called because it contains lots of nerve fibers sheathed in myelin--the fatty substance that surrounds and protects nerves--and the myelin appears white. The white matter contrasts with the gray matter, the majority of brain tissue, which

appears gray because of the gray centers of the cells. Although the gray matter processes the information in the brain, the white matter transmits the signals to the rest of the body. Some cerebral palsy occurs due to damage to the white matter, a condition known as periventricular leukomalacia--PVL. The damage in PVL looks like tiny holes in the white matter. The presence of these holes interrupts the transmission of nerve signals, resulting in the movement problems characteristic of cerebral palsy (Fuhrman, et al, 2011 & webmed, 2014).

2.3 Epidemiology of cerebral palsy

Cerebral palsy occurs in about 2.1 per 1000 live births (Oskoui, Coutinho, Dykeman, Jette, and Pringsheim,, 2013) In those born at term rates are lower at 1 per 1000 live births. Rates appear to be similar in both the developing and developed world (John, 2013)- The rate is higher in males than in females; in Europe it is 1.3 times more common in males (Johnson, 2002) Variances in reported rates of incidence or prevalence across different geographical areas in industrialised countries are thought to be caused primarily by discrepancies in the criteria used for inclusion and exclusion. When such discrepancies are taken into account in comparing two or more registers of patients with cerebral palsy (for example, the extent to which children with mild cerebral palsy are included), the prevalence rates converge toward the average rate of 2:1000 (Oskoui, et al, 2013)

Overall, advances in care of pregnant mothers and their babies have not resulted in a noticeable decrease in CP. This is generally attributed to medical advances in areas related to the care of premature babies (which results in a greater survival rate). Only the introduction of quality medical care to locations with less-than-adequate medical care has shown any decreases. The incidence of CP increases with premature or very low-weight babies regardless of the quality of care (Bax, Murray, Peter, Alan, Nigel, Bernard, Bo, Diane, 2013). Prevalence of cerebral palsy is best calculated around the school entry age of about 6 years, the prevalence in the U.S. is estimated to be 2.4 out of 1000 children (Hirtz, Thurman , Gwinn-Hardy, Mohamed, Chaudhuri, Zalutsky , 2007).

2.4 Etiology and pathology of cerebral palsy

Etiology is multifactorial, and a specific cause is sometimes hard to establish. Prematurity, in utero disorders, neonatal encephalopathy, and kernicterus often contribute. Perinatal factors (eg, perinatal asphyxia, stroke, CNS infections) probably cause 15 to 20% of cases. Spastic

diplegia after premature birth, spastic quadriplegia after perinatal asphyxia, and athetoid and dystonic forms after perinatal asphyxia or kernicterus are examples of types of CP. CNS trauma or a severe systemic disorder (eg, stroke, meningitis, sepsis, dehydration) during early childhood may also cause a CP syndrome. Although the brain lesion itself in cerebral palsy is non – progressive, the clinical picture changes as the child grows and develops. The underlying brain lesion may result from different insults occurring at various time in the developing brain. The clinical picture resulting from these insults varies depending on the area of the brain involved (Coovadia and Wittenberg, 2009).

Little, in the middle of nineteenth century, analysed cases of cerebral palsy and considered the majority to be the result of perinatal events, either obstetric or birth asphyxia. Freud agreed that often these were etiologic factors, but also believed that many cases resulted from abnormal development of the brain in prenatal period (Miller, 2014).

2.5 The risk factors predisposing children to the development of cerebral palsy

Risk factors are those things that increase the chance of a child that he/she will have CP. It is important to remember that having a risk factor does not mean that a child will have CP. Cerebral palsy (CP) is a general term for a group of permanent, non-progressive movement disorders that cause physical disability (Rosenbaum, Paneth, Leviton, Goldstein, Bax, Damiano, Dan, Jacobsson, 2007), mainly in the areas of body movement (Beukelman, Mirenda, 1999). There may also be problems with sensation, depth perception and communication ability. Difficulty with cognition and epilepsy are found in about one-third of cases. There are subtypes including a type characterized by spasticity, a type characterized by poor coordination, and types which feature both symptoms or neither. Cerebral palsy is caused by damage to the motor control centers of the developing brain and can occur during pregnancy, during childbirth, or after birth up to about age three (*Healthwise*, 2014) About 2% of all cerebral palsy cases are believed to be due to a genetic causes. Cerebral palsy is not an infectious disease and is not contagious. Most cases are diagnosed at a young age rather than during adolescence or adulthood. Improvements in the care of new-borns has helped reduce the number of babies who develop cerebral palsy and increased the survival of those with very low birth weights. There is no cure, with efforts attempting to treat and prevent complications. (Oskout et el, 2013)

Congenital CP is a disorder that was present at birth, ninety - five percent of CP cases are congenital while the remaining five percent or so of CP cases are acquired CP, meaning that they were acquired after birth as a result of infection, head trauma, or some other cause of brain damage. Congenital cerebral palsy occurs when the baby's brain does not develop normally in the womb or when brain damage has occurred during development (Pamela, 2000 & brain development.org, 2014)

Some of the risk factors for congenital CP are:

- Low birthweight—Children who weigh less than 5 1/2 pounds (2,500 grams) at birth, and especially those who weigh less than 3 pounds, 5 ounces (1,500 grams) have a greater chance of having CP.
- Premature birth—Children who were born before the 37th week of pregnancy, especially if they were born before the 32nd week of pregnancy, have a greater chance of having CP. Intensive care for premature infants has improved a lot over the past several decades. Babies born very early are more likely to live now, but many have medical problems that can put them at risk for CP.
- Multiple births—Twins, triplets, and other multiple births have a higher risk for CP, especially if a baby's twin or triplet dies before birth or shortly after birth. Some, but not all of this increased risk is due to the fact that children born from multiple pregnancies often are born early or with low birthweight, or both.
- Assisted reproductive technology (ART) infertility treatments—Children born from pregnancies resulting from the use of some infertility treatments have a greater chance of having CP. Most of the increased risk is explained by preterm delivery or multiple births, or both; both preterm delivery and multiple births are increased among children conceived with ART infertility treatments.
- Infections during pregnancy—Infections can lead to increases in certain proteins called *cytokines* that circulate in the brain and blood of the baby during pregnancy. Cytokines cause inflammation, which can lead to brain damage in the baby. Fever in the mother during pregnancy or delivery also can cause this problem. Some types of infection that have been linked with CP include viruses such as chickenpox, rubella

(German measles), and cytomegalovirus (CMV), and bacterial infections such as infections of the placenta or fetal membranes, or maternal pelvic infections.

- Jaundice and kernicterus— Jaundice is the yellow colour seen in the skin of many newborns. Jaundice happens when a chemical called bilirubin builds up in the baby's blood. When too much bilirubin builds up in a new baby's body, the skin and whites of the eyes might look yellow. This yellow coloring is called jaundice. When severe jaundice goes untreated for too long, it can cause a condition called kernicterus. This can cause CP and other conditions. Sometimes, kernicterus results from ABO or Rh blood type difference between the mother and baby. This causes the red blood cells in the baby to break down too fast, resulting in severe jaundice.
- Medical conditions of the mother—Mothers with thyroid problems, intellectual disability, or seizures have a slightly higher risk of having a child with CP.
- Birth complications—Detachment of the placenta, uterine rupture, or problems with the umbilical cord during birth can disrupt oxygen supply to the baby and result in CP.

Acquired CP: A small percentage of CP is caused by brain damage that occurs more than 28 days after birth. This is called *acquired* CP, and usually is associated with an infection (such as meningitis) or head injury.

Some causes of acquired CP are:

- Infection—Infections of the brain, for example, meningitis or encephalitis during infancy.
- Injury—Injuries to the brain, for example, head injuries caused by motor vehicle crashes or child abuse.

Problem with blood flow to the brain—Cerebrovascular accidents, for example, stroke or bleeding in the brain associated with a blood clotting problem, blood vessels that didn't form properly, a heart defect that was present at birth, or sickle cell disease. Summarily the causes of CP can be diagrammatically represented thus

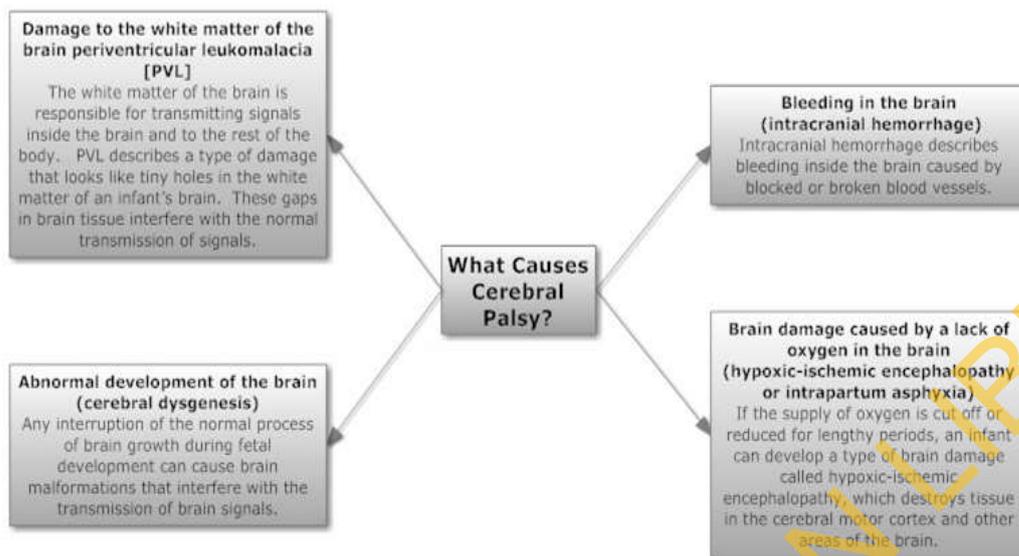


Figure 2. 2. Causes of cerebral palsy

Source: U.S. Department of Health and Human Services, National Institute of Neurological Disorders & Stroke (2014)

2.6 Classification/types of cerebral palsy

CP is classified by the types of motor impairment of the limbs or organs, and by restrictions to the activities an affected person may perform (Rethlefsen, Ryan, Kay, 2010). There are three main CP classifications by motor impairment: spastic, ataxic, and athetoid/dyskinetic. Additionally there is a mixed type that shows a combination of features of the other types. These classifications also reflect the areas of the brain that are damaged.

Spastic CP

Spastic cerebral palsy, or cerebral palsy where spasticity (muscle tightness) is the exclusive or almost-exclusive impairment present, is by far the most common type of overall cerebral palsy, occurring in upwards of 70% of all cases (Stanley, Blair, Alberman 2000). It results from the damage to the cerebral motor cortex or its connections (Rudolf and Levene, 2006). Spasticity is manifested by increased muscle tone when the limbs are moved passively. There is tendency for the tone to decrease suddenly as the joint is moved, known as the clasp knife

phenomenon. Severe spasticity may be difficult to distinguish from rigidity, in which muscle tone is increased to a constant degree throughout the entire range of joint motion. Children who are spastic usually have increased deep tendon reflexes and Babinski signs. Although the muscles are not weak, there is great difficulty in initiating skilled movements (Robert, 1990).

People with spastic CP have increased muscle tone. This means their muscles are stiff and, as a result, their movements can be awkward. Spastic CP usually is described by what parts of the body are affected:

- Spastic diplegia/diparesis—In this type of CP, muscle stiffness is mainly in the legs, with the arms less affected or not affected at all. People with spastic diplegia might have difficulty walking because tight hip and leg muscles cause their legs to pull together, turn inward, and cross at the knees (also known as *scissoring*).
- Monoplegia: this type of CP affects only one arm or leg is affected.
- Spastic hemiplegia/hemiparesis—This type of CP affects only one side of a person's body; usually the arm is more affected than the leg.
- Spastic quadriplegia/quadruparesis—Spastic quadriplegia is the most severe form of spastic CP and affects all four limbs, the trunk, and the face. People with spastic quadruparesis usually cannot walk and often have other developmental disabilities such as intellectual disability; seizures; or problems with vision, hearing, or speech.

Ataxia CP

This type of cerebral palsy can be caused by damage to the cerebellum. Ataxia is a less common type of cerebral palsy, occurring between 5% and 10% of all cases. Some of these individuals have hypotonia and tremors. Motor skills such as writing, typing, or using scissors might be affected, as well as balance, especially while walking. It is common for individuals to have difficulty with visual and/or auditory processing. They usually have an awkward gait and as well with some dysarthria (Rudolf and Levene, 2006).

Athetoid CP

Athetoid cerebral palsy or dyskinetic cerebral palsy is mixed muscle tone – both hypertonia and hypotonia mixed with involuntary motions. People with dyskinetic CP have trouble

holding themselves in an upright, steady position for sitting or walking, and often show involuntary motions. For some people with dyskinetic CP, it takes a lot of work and concentration to get their hand to a certain spot (like scratching their nose or reaching for a cup). Because of their mixed tone and trouble keeping a position, they may not be able to hold onto objects, especially small ones requiring fine motor control (such as a toothbrush or pencil). About 10% of individuals with CP are classified as dyskinetic CP but some have mixed forms with spasticity and dyskinesia. The damage occurs to the extrapyramidal motor system and/or pyramidal tract and to the basal ganglia. In newborn infants, high bilirubin levels in the blood, if left untreated, can lead to brain damage in the basal ganglia (kernicterus), which can lead to dyskinetic cerebral palsy (Pamela, 2000).

Missed Cerebral Palsy

Mixed cerebral palsy is symptoms of athetoid, ataxic and spastic CP appearing simultaneously, each to varying degrees, and both with and without certain symptoms of each. Mixed CP is the most difficult to treat as it is extremely heterogeneous and sometimes unpredictable in its symptoms and development over the lifespan.

Some people have symptoms of more than one type of CP. The most common type of mixed CP is spastic-dyskinetic CP (Rudoff and Levene, 2006)

TYPES OF CEREBRAL PALSY

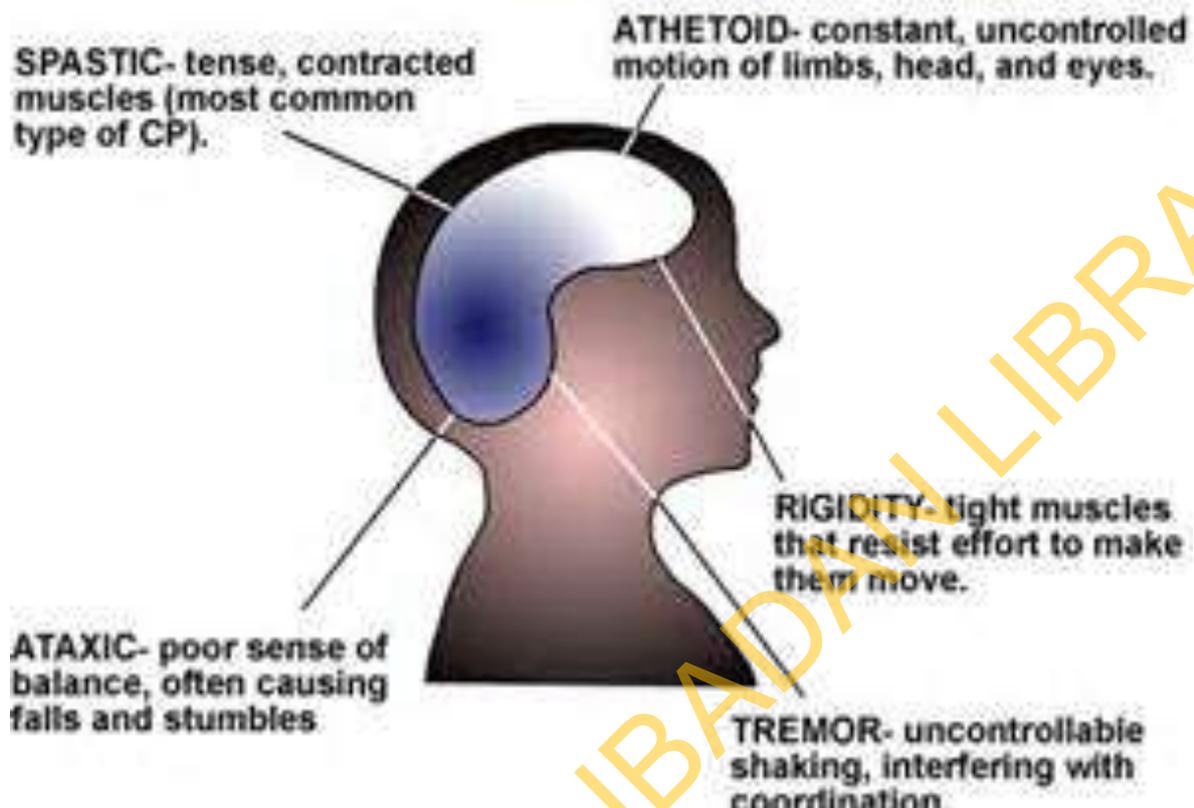


Figure 2.3 Types of cerebral palsy

Source: Cerebral palsy Alliance (2014)

2.7 Signs and symptoms of cerebral palsy

The symptoms of CP vary from person to person. A person with severe CP might need to use special equipment to be able to walk, or might not be able to walk at all and might need lifelong care. A person with mild CP, on the other hand, might walk a little awkwardly, but might not need any special help. CP does not get worse over time, though the exact symptoms can change over a person's lifetime (Emilio and Aicardi, 2001).

Early signs

The signs of CP vary greatly because there are many different types and levels of disability. The main sign that a child might have CP is a delay reaching motor or movement milestones (such as rolling over, sitting, standing, or walking). Following are some other signs of

possible CP. It is important to note that some children without CP also might have some of these signs.

In a baby younger than 6 months of age

- His head lags when you pick him up while he's lying on his back
- He feels stiff
- He feels floppy
- When held cradled in your arms, he seems to overextend his back and neck, constantly acting as if he is pushing away from you
- When you pick him up, his legs get stiff and they cross or scissor (Rudoff and Levene, 2006)

In a baby older than 6 months of age

- She doesn't roll over in either direction
- She cannot bring her hands together
- She has difficulty bringing her hands to her mouth

She reaches out with only one hand while keeping the other fistled (Emilio and Aicardi, 2001).

In a baby older than 10 months of age

- He crawls in a lopsided manner, pushing off with one hand and leg while dragging the opposite hand and leg
- He scoots around on his buttocks or hops on his knees, but does not crawl on all fours.

All people with CP have problems with movement and posture. Many also have related conditions such as intellectual disabilities, seizures; problems with vision, hearing, or speech; changes in the spine (such as scoliosis); or joint problems (such as contractures), (Emilio and Aicardi, 2001).

Knowledge of women of childbearing age on prevention of cerebral palsy

According to the key informant interview had with women of childbearing age, majority of them grouped cerebral palsy along with poliomyelitis, the first-hand knowledge they have is majorly based on the information they had at the antenatal clinic about polio. Most women of childbearing age learnt about cerebral palsy after they had a child with CP in their families. In a previous study conducted by Olajide et al in 2013, 70% of the women who participated claimed to have adequate knowledge about cerebral palsy while 30% agreed that they did not have adequate knowledge about it. People with cerebral palsy, their families, carers and service providers are on a lifelong quest for knowledge. On diagnosis, mothers first ask, Why did this happen?, 'How can I make the best life for my child?' At every stage of their child's life, the mother and entire family's knowledge needs change. Critical times are around transition points: adjusting to the diagnosis, entering the service system, preschool and school and the transition to adulthood (Bammer, 2010).

According to Population-based studies performed by the Centers for Disease Control and Prevention, reasons for prevention is so important and can be seen in the faces and bodies of children with CP. Current estimates outline a very human toll; cerebral affects more boys than girls. About 77 percent of children with CP suffers from spasticity, and 41.8 percent could not walk independently. Another 30.6 percent had no ability to walk. There is also a financial toll, both for families and society. Medical costs for children with CP is ten times higher than for unaffected children. If a child had cerebral palsy and an intellectual disability, those costs were 26 percent higher. If a child was born with cerebral palsy it's estimated that lifetime care could cost \$11.5 billion.

Prevention of cerebral palsy is a multi-level process. The result, when all of the various factors fall into place, is a happy, healthy birth. Prevention is possible under some circumstances. It's true that there are some cases of cerebral palsy that cannot be prevented.

Others, however, can be curtailed by the efforts of parents, physicians, researchers and governments. Most of the talk surrounding cerebral palsy centers on what happens after a child receives a diagnosis; the topic of prevention seems to be discussed much less frequently. Too often, cerebral palsy is seen as a condition that cannot be prevented. There are circumstances when it is believed cerebral palsy cannot be prevented, as is the case of congenital abnormalities – it's likely not to be preventable. And, most cases of cerebral palsy – approximately 90 percent – are believed to be congenital. There are, however, some

measures that can be taken to prevent cerebral palsy. Under what circumstances can cerebral palsy be prevented? Cerebral palsy is broken down into categories, congenital, acquired and genetic predisposition. Congenital cases are the result of brain damage that has occurred – sometimes for unknown reasons – before a child is born. Additionally, cases where a birth complication occurs are also considered congenital. Most acquired cases, however, occur after a child is born. A child may acquire cerebral palsy if he or she endured a brain injury through natural (stroke), accidental (car injury) or purposeful (shaken-baby syndrome) means, or if he or she comes down with an infection or a condition that slows blood flow to the brain. Genetic predisposition means that a child has a genetic make-up that through causal pathways may lead to cerebral palsy. Measures can be taken to prevent both congenital and acquired cerebral palsy, but more options seem to be effective on curtailing acquired cases. In the case of genetic predisposition, a couple who is aware that they have a predisposition are able to ascertain whether they would like to conceive, adopt or foster children which can be viewed as a form of prevention to some extent (Peacock, 2000).

2.7 Prevention of cerebral palsy

The cause of cerebral palsy (CP) sometimes isn't known. But links have been identified between CP and certain conditions during pregnancy, birth, and early childhood. Some of these can be prevented and some cannot. The conditions are classified into congenital and acquired cerebral palsy. In many cases, the cause or causes of congenital CP aren't fully known, which means that currently little can be done to prevent it. CP related to genetics is not preventable. However, there are actions people can take before and during pregnancy, as well as after birth that might help reduce the risk of developmental problems, including CP.

Taking steps to help ensure a healthy pregnancy can help prevent developmental problems, such as CP. Acquired CP often is related to an infection or injury, and some of these cases can be prevented (American Academy of Pediatrics Healthy Children, 2013).

Before pregnancy

- Be as healthy as possible before pregnancy. Make sure that any infections in the mother are treated and health conditions are in control, ideally before pregnancy occurs.

- Get vaccinated for certain diseases (such as chickenpox and rubella) that could harm a developing baby. It is important to have many of these vaccinations *before* becoming pregnant.
- If assistive reproductive technology (ART) infertility treatments are used to get pregnant, consider ways to reduce the chance of a multiple pregnancy (twins, triplets, or more), such as transferring only one embryo at a time (Center For Diseases Control and Prevention, 2013).

During pregnancy

Doing all you can during pregnancy can help lower the risk that a brain injury will occur in a developing baby. Here are some tips for healthy habits during pregnancy.

- Learn how to have a healthy pregnancy and eat nutritious foods
- Get early and regular prenatal care, both for your health and for that of your developing baby.
- Wash your hands often with soap and water to help reduce the risk of infections that might harm your developing baby.
- Contact your health care provider if you get sick, have a fever, or have other signs of infection during pregnancy.
- Don't smoke and prevent passive smoking
- If there is a difference in the blood type or Rh incompatibility between mother and baby it can cause Jaundice and kernicterus. Women should know their blood type and talk to their doctor about ways to prevent problems. Doctors can treat the mother with Rh immune globulin ("Rhogam") when she is 28 weeks pregnant and again shortly after giving birth to prevent kernicterus from occurring.
- Talk to your doctor about ways to prevent problems if you are at risk for preterm delivery. Research has shown that taking magnesium sulfate before anticipated early preterm birth reduces the risk of CP among surviving infants (Center For Diseases Control and Prevention, 2013).

After the baby is born

- Learn how to help keep your baby healthy and safe after birth.
- Any baby can get jaundice. Severe jaundice that is not treated can cause brain damage, called kernicterus. Kernicterus is a cause of CP that potentially can be prevented. Your baby should be checked for jaundice in the hospital and again within 48 hours after leaving the hospital. Ask your doctor or nurse about a jaundice bilirubin test. In addition, steps can be taken to prevent kernicterus that is caused by Rh blood type incompatibility between the mother and baby.
- Ensure children are vaccinated against infections that can cause meningitis and encephalitis, including *Haemophilus influenzae* type B (HiB vaccine) and *Streptococcus pneumoniae* (pneumococcal vaccine).
- steps to prevent injuries:
 - Buckle your child in the car using an infant or child car seat, booster seat, or seat belt (according to the child's height, weight, and age).
 - Make living areas safer for children by using window guards to keep young children from falling out of open windows and using safety gates at the top and bottom of stairs.
 - Make sure the surface on your child's playground is made of a shock-absorbing material, such as hardwood mulch or sand.
 - Carefully watch young children at all times around bathtubs, swimming or wading pools, and natural bodies of water. Adults watching kids near water should avoid distracting activities like using a computer or handheld device, reading, or talking on the phone.
 - Make sure your child wears a helmet for activities like riding a bike.
 - Never hit, throw, shake, or hurt a child (webMD Medical, 2012).

For babies and young children

Help prevent CP in young child by minimizing the child's risk from getting a brain injury. Take steps to prevent accidents, make sure you are familiar with the signs of jaundice in newborns, and know how to prevent lead poisoning. Keep your child away from people who have serious contagious illnesses, such as meningitis, make sure your child's immunizations are up-to-date (WebMD Medical, 2012)

How mothers can prevent cerebral palsy

Of all of the professionals a parent is likely to encounter during a pregnancy, two individuals that will have the largest impact on whether or not a child has cerebral palsy is the mother and her OBGYN. That's not to say that if a child is born with cerebral palsy, it's a mother's fault – it's not because most cases are not preventable. But it is to say that a parent that is aware of the known risks are able to express concerns as they may arise or occur. Physicians are reliant on their patient's health history, on-going and regularly scheduled check-ups, and a mother's expressed concerns to best ascertain medical treatment options. Some of the measures that parents – particularly mothers – can take to prevent cerebral palsy include: Parents thinking of conceiving, should meet with their respective doctors and discuss their intentions. The doctors will then run the appropriate tests and ask the appropriate questions to best determine if there are any areas of concern that should be addressed prior to conception. Blood compatibility testing, for example can indicate risk. Parents with known drug or alcohol addictions, or a mother that has been exposed to radiation treatments cause concern. Maintaining one's own physical health during pregnancy : There is an established link between infections and risk that determine timing of treatment and effectiveness at managing the risk during labor and delivery. A c-section, for example, may be warranted. Additionally, an expectant mother with a thyroid condition warrants high-risk prenatal care (Cerebral Palsy International Research Foundation, 2014)

- Begin taking folic acid: Studies show that regular doses of folic acids reduce the risk of prematurity – a significant cause of cerebral palsy – by 70 percent. The importance of maintaining a prenatal vitamins regimen is advised. Regularly attend pre-natal care appointments. Scheduled ultrasounds and other checks on a child's health leading up to birth helps physicians identify, and treat, accordingly. Practice healthy habits
- Eat right and exercise (to the extent advised by a physician). The healthier a mother is the greater the likelihood that a child will be born healthy. Some mother's work with

their physician to obtain a healthy weight and nutrition balance even before conception.

- Avoid unhealthy social habits: Refrain from drinking or smoking during pregnancy. Stay away from second-hand smoke. Avoid exposure to known teratogens like kitty litter, cleaning products and lawn fertilizers that cause risk. Do not use herbal remedies or alternative medicines that are not approved by your doctor. Avoid massage during pregnancy.
- Be tested for blood incompatibility: There is a greater likelihood that a child will be born with cerebral palsy if it is determined there is blood incompatibility with the father of the child, or with the fetus. Parents should be advised of the risks when the incompatibility can be determined.
- Choose your doctors, physician network, and hospitals wisely. Research your doctor's credentials, look into their professional history, ascertain their history of problematic deliveries and cases of cerebral palsy or medical malpractice. Understand the doctor's after hours availability and physician rotation schedule. Some offices place the doctor's on rotation for after hours calls which could translate into a doctor delivering your baby that is different than the doctor you have come to know and trust. And, know the policies and practices of the hospital you are likely to deliver in, or go to for emergent care. Do they have a full-time OBGYN on staff? Are they an A, B, or C listed entity? How responsive and trained is the physician network that owns and operates the emergency care, versus the hospital administration. What is the doctor's, the physician's network and the hospitals history when it comes to medical malpractice or birth injury cases? (Bammer, 2010)
- After a child is born, watch for jaundice. Severe jaundice can be a sign of other health problems, especially meningitis, which can increase a child's chances of acquiring cerebral palsy. Jaundice is easy to identify because a child's skin will turn yellow.
- Keep current on vaccinations: Diseases such as meningitis and rubella (German measles) can lead to cerebral palsy, and yet, they're completely preventable if a child has access to the recommended immunization schedule. Following a trusted pediatrician's advice will minimize risk.
- Take precautions to avoid potential injury and accidents. Make sure children are physically secured in a vehicle car seat, high chair, stroller or bike. Head injuries that take place during vehicle accidents can cause cerebral palsy. To prevent this, secure your child in an approved safety seat when driving. Place your child's care in worthy

hands. Those that care for a child require patience, skill and general knowledge of a child's needs and behaviour. Stressors to a person who has no idea how to care for a crying child have been known to shake a child causing shaken baby syndrome and lifelong impairment, or death. Ask questions of the doctor when medical treatment is advised. Ask them about the risks associated with the procedure, ask about the alternative measures available, and ask how many times they have successfully or unsuccessfully performed the procedure. And, ask them about their qualifications and experience to perform the procedure. During prenatal visits, ask the doctor about their preferences during emergent conditions, like do they monitor fetal heart beat? When do they make a decision for c- sections? How do they handle long delivery periods? What procedures do they use if the baby gets stuck in the birth canal? Do they use forceps? What do they do if the baby goes into distress? What is their practice in using medications for inducing labour? What choices do they make if a foetus or mother's health is in danger? (Bammer, 2010)

2.8 Conceptual Frame Work

The Health Belief Model (HBM)

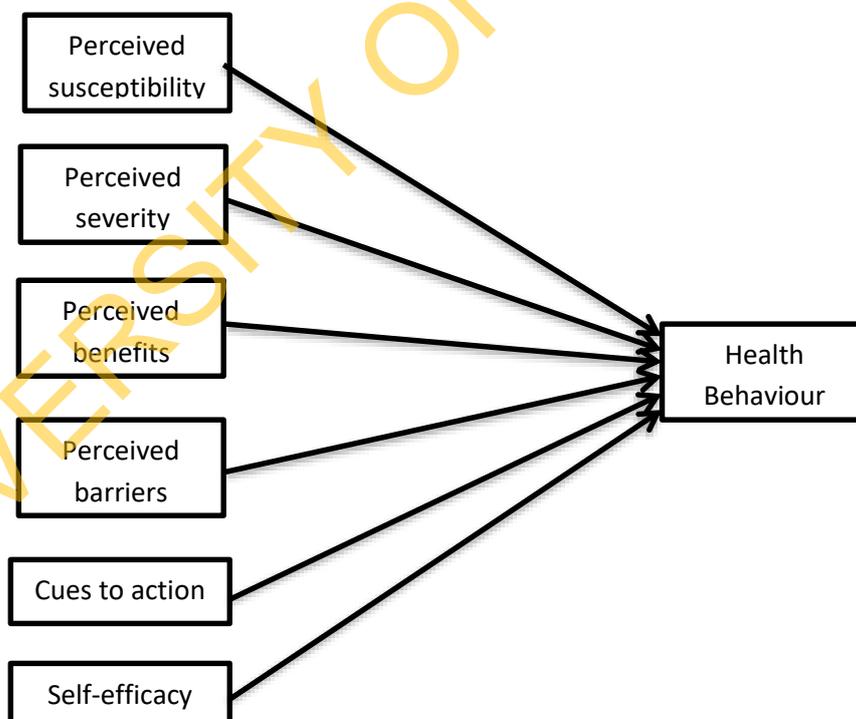


Figure 2.4 Health Belief Model (Source: Manjo and John, 2011)

The health belief model is the first model developed exclusively for health related behaviours. The HBM has six constructs, the first of which is:

Perceived susceptibility: this refers to the subjective belief that a person has with regards to acquiring a disease reaching a harmful state as a result of indulging in a particular behaviour.

The second construct of HBM is **perceived severity**, which refers to a person's subjective belief in the extent of harm that can result from the disease or harmful state as a result of a particular behaviour. This perception varies from person to person. One person might perceive disease from purely medical perspective and thus concerns with signs, symptoms, and limitations arising out of the condition, the temporary or permanent nature of the condition, whereas another individual might look at the disease from a broader perspective, such as the adverse effects it might have on his or her family, job and relationships.

Perceived severity also has a strong cognitive component, which is dependent on knowledge. According to HBM, health educators need to build perceived severity by describing the serious negative consequences and personalizing them for participants (Manoj and John, 2011).

The third construct of the HBM is **perceived benefits** which refer to belief in the advantages of the methods suggested for reducing the risk or seriousness of the disease or harmful state resulting from a particular behaviour. The relative effectiveness of known available alternatives plays a role in shaping actions. An alternative is likely to be seen as beneficial if it reduces the perceived susceptibility or perceived severity of the disease (Manoj and John, 2011).

The fourth construct which goes hand in hand with the construct of perceived benefits, is **perceived barriers**. Perceived barriers refer to beliefs concerning the actual and imagined costs of following the behaviour. An individual may believe that a new action is effective in reducing perceived susceptibility or perceived severity of a disease but may consider the action to be expensive, inconvenient, unpleasant, painful, or upsetting. Health educators need to reduce such barriers so the person will take recommended actions. They may do this by giving reassurance, correcting misperceptions and providing incentives.

The fifth construct in the HBM is **cues to action**, which is the precipitating forces that make a person feel the need to take action. Such cues may be internal (e.g., perception of the bodily state) or external (e.g., interpersonal interactions, media communication, or receiving a postcard from the doctor for follow – up examination). If the perceived susceptibility or perceived severity is low, then a very intense stimulus is needed as cues to action. When the perceived susceptibility or perceived severity is high, then a slight stimulus is adequate.

The final construct, **self - efficacy**, is the confidence that a person has in his or her ability to pursue a behaviour. It is behaviour specific and is in present. It is not about the past or future (Manoj and John, 2011)

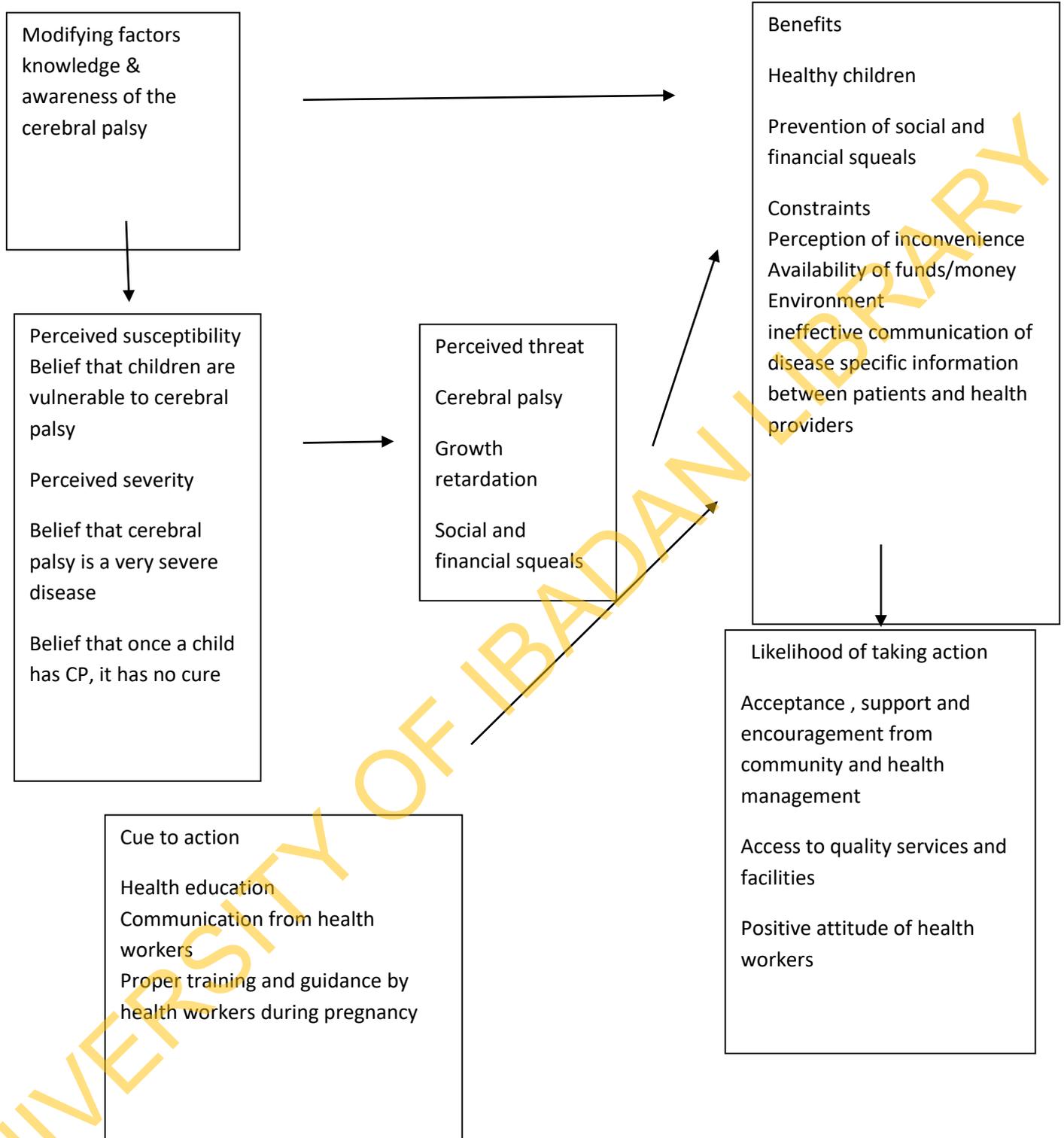


Figure 2.5 Application of Health Belief

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research design

The research design for this study was descriptive cross-sectional since it involved a one-time interaction with a group of people which was women of childbearing age in Ibadan North Local Government.

3.2 Study area

This study was carried out in Ibadan North Local Government. The Ibadan North Government was founded by the Federal Military Government of Nigeria on 27th September 1991. This Local Government was carved out of the defunct Ibadan Municipal Government along with others. The components of the Local Government cover areas between Beere roundabout through Oke-Are to Mokola, Oke Itunu and Ijokodo. The other components are areas from Beere roundabout to Gate, Idi-Ape to Bashorun and up to Lagos/ Ibadan express way, Secretariat, Bodija, University of Ibadan and Agbowo Areas. The headquarters of the Local Government is Bodija. As a result of accommodation problems, the Local Government Headquarters is temporarily accommodated at Quarter 87 at Government Reserved Area at Agodi where the Secretariat is located. The Local Government is bounded by other Local Governments. In the North it is bounded by Akinyele Local Government. In the West by Ido Local Government, Ibadan South West and also Ibadan South East Local Government and bounded in the East by Ibadan North East and Lagelu Local Government. This Local Government is the largest local government in Ibadan with a land area of 145.58 km² which is approximately 4.66% of the total land area of the City. It is also the most populated local government with an estimated total population of 352,270 inhabitants, the majority (two – thirds) of whom are engaged in trading. There are two tertiary education facilities in the local government: The Polytechnic and University of Ibadan; various government headquarters including the State Secretariat and newly developed well planned residential estates. The local government has 12 public health facilities located in various parts of the local government consisting of one federal teaching hospital, the University College Hospital; one state maternity hospital; a dispensary; and several primary health care centres which also serve as maternity and child welfare centres.

The local Government has an estimated total population of 352,271 as of 1996 census, representing 16.5% of the total population of the metropolitan area. This comprises 174,533 females and 177,737 males. Of the female population, 77,499 are women in reproductive age. The population of children under one year old is 14,091 while that under five year is 70,454. The Local Government population density is 2,067 persons per hectare; the most densely populated areas are located within the core residential wards while the least dense areas are located in newly developed areas. The main economic activity of the people in the Local Government is trading, accounting for two-thirds of the employment; public service (including teaching) and industrial accounts for most of the rest of employment. There are twelve wards in the Local Government, this includes: ward 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 12.

Wards Areas covered by Ibadan North Local Government

1. Beere, Keninke, Agbadagbudu, Oke Are, Odo Oye
2. Ode Oolo, Inalende, Oniyanrin and Oke Oloro
3. Adeoyo, Yemetu, Oke Aremo and Isale Alfa,
4. Itutabu, Idi omo, Oje, Kube, Oke apon, Kube, Atenda,
5. Bashorun, Oluwo, Ashi, Ikolaba, Gate
6. Sabo Area
7. Oke Itunu, Cocacola, Oremeji
8. Sango, Ijokodo
9. Mokola, Ago Tapa, Premier Hotel
10. Bodija, Secretariat, Awolowo, Obasa, Sanusi
11. Samonda, Polytechnic, University of Ibadan
12. Agbowo, Bodija Market, Oju irin, Barika, Iso patako Lagos/Ibadan Express Road.

The study site includes; ward 1 (Beere, Keninke, Agbadagbudu, Oke Are, Odo Oye), 2 (Ode Oolo, Inalende, Oniyanrin and Oke Oloro), 4(Itutabu, Idi omo, Oje, Kube, Oke apon, Kube, Atenda), 5(Bashorun, Oluwo, Ashi, Ikolaba, Gate), 6 (Sabo), 9 (Mokola, Ago Tapa, Premier Hotel)

3.3 Study population

The population for this study comprised women of childbearing age in Ibadan North Local Government.

3.4 Sample size

The sample size for the study was estimated using the estimation formula

$$n = \frac{z^2 P(p-1)}{d^2} \quad (\text{Lwanga and Lemeshow (1991)})$$

n = desired sample size

z = the standard normal deviate usually set at 1.96 which corresponds to the 95% confidence level

p = proportion estimated to be obtainable in the target population (prevalence of CP) The prevalence of CP is 16.2% (Ogunlesi et al, 2008).

P-1 = proportion that does not have the characteristic that will be investigated

d = precision for the study which is set at 5%

$$N = \frac{(1.96)^2 \times 0.162 \times 0.838}{0.05^2} = 208$$

3.5 Sampling technique

Multi-stage sampling technique was used for this study, because it is community based study and before the community, we have the State, in the state there are Local Government, in the Local Government there are wards and communities constitutes each wards where households were found.

Stage one involved selection of Local Government. Simple Random Sampling technique was used in selecting the local government out of thirty-three local government in Oyo State.

Stage two: Selection of wards. Simple Random Sampling Technique was used in selecting six wards from the twelve wards in the Local Government in order to give everywoman of childbearing age equal chance of being selected for the study from the wards.

Stage three: Selection of the community was done using stratified sampling technique based on fifty per cent. This implied that all the communities in each ward were sampled irrespective of their numbers in each ward selected. The communities include:

- ward 1: Beere, Keninke, Agbadagbudu, Oke Are, Odo Oye
- ward 2: Ode Oolo, Inalende, Oniyanrin and Oke Oloro
- ward 4: Itutabu, Idi omo, Oje, Kube, Oke apon, Kube, Atenda
- ward 5: Bashorun, Oluwo, Ashi, Ikolaba, Gate
- ward 6: Sabo
- ward 9: Mokola, Ago Tapa, Premier Hotel

Stage four: Selection of respondents which were women of childbearing age was done house to house in the communities from the selected wards within the local government and from each house, an household was selected and every consenting woman that was within the age range of women of childbearing age was recruited for the study.

3.6 Inclusion criteria

Women of childbearing age who have given birth to children in selected area in Ibadan North Local Government and are within the age range of 15 to 49 years.

3.7 Exclusion criteria

Women of childbearing age who have not given birth to children and are within the age range of 15 to 49 were excluded from participating in the reseach.

3.8 Research instrument

The instrument used for gathering information was interviewer-administered questionnaire. The questionnaire had two sections, A and B. Section A consisted questions on demographic information about the respondents while section B comprised of questions on the variables to be studied. The research instrument was subjected to face validity involving researcher's supervisor and contributions of lecturers during the departmental seminar. Their suggestions and views were utilized in reviewing the final copy of the research instrument. A pre-test was carried out on a sample of the target population in another local government to test for reliability of the instrument. The copies of the questionnaire were used as interviewer's guide to interview the participants' individually by the researcher, the reliability was determined using Cronbach alpha. The calculated reliability was 0.604.

3.9 Data collection procedure

A letter of introduction was obtained from the Head of Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan to the Local Government in order to obtain permission to sample the women of childbearing age in the selected wards. The researcher and two research assistants who were trained on how to collect information from women of childbearing age administered the copies of the questionnaire.

Participants trusts were gained by assuring them, there would be no means of identification on the forms. Information gotten from them would be properly stored with limited access to anyone but authorized personnel and agreement form would be signed by the researcher. The agreement form comprised:

- confidentiality of any and all data collection instruments, materials, and documentation developed during this project unless prior approval has been given by the Principal Investigator (PI)
- confidentiality on all information secured during interviews group discussion or obtained in any project-related way
- store confidential research information as specified in standard research protocols and safeguard research information when actually in use
- conduct myself in a manner that obtained the respect and confidence of all persons from whom data will be collected and that I will not betray their confidence by divulging any information obtained to anyone other than authorized team members
- Agreement on not making any attempt to find or contact any study participant beyond the scope of the research
- Agreement on the report of any known or suspected breaches of confidentiality to the PI
- I understand that my obligations under this agreement will survive the termination of this project and or my participation in it.

3.10 Data analysis procedure

SPSS version 20 was used in analysing the demographic data collected, this involved data coding cleaning and analysis while inferential statistic of chi-square was used to test the

hypotheses at 0.05 significance level. The dependent variables were risk factors predisposing children to the development of CP, knowledge of prevention of cerebral palsy among mothers, and neonatal care given to children by mothers were analysed based on the responses from the respondents. The responses that were yes were rated one (1) and no, were rated zero (0). This was resulted in a 12-point CP knowledge of prevention score, with 0 being the lowest and 12 the highest points. Respondents with 0-3 points were regarded as having poor knowledge, 4-7 (fair) while 8-12 was regarded as good knowledge of prevention.

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CHAPTER FOUR

RESULTS

4.1 Socio –demographic characteristics

Table 4.1 shows the demographic characteristic of respondents which comprises age of respondents ranged from 15 – 49 years and the mean age was 31.03 ± 7.69 . Majorities were married (93.8%) and (6.2%) were single. Most respondents were Muslims (57.2%) and (42.8%) were Christians. Majority of the respondents were Yorubas (73.1%), Hausas were (20.7%) and Igbos were (6.2%). The greater numbers of respondent (54.3%) were traders, (4.8%) were civil servant, (26.4%) were artisans, (1.0%) were apprentice, (1.4%) were student, (1.0%) were social worker while (11.1%) had no job. Some respondents (38.5%) reported to have attained primary education, (36.1%) have attained secondary education while (13.9%) have no formal education and (11.6%) have attained tertiary education.

Table 4.1: Respondents' Socio-Demographic Characteristics

Characteristics	Frequency	Percentage (%)
Age (in years)		
15 – 19	9	4.3
20 – 24	30	14.4
25 – 29	51	24.5
30 – 34	44	21.2
35 – 39	32	15.4
40 – 44	26	12.5
45 – 49	16	7.7
Marital status		
Single	13	6.3
Married	195	93.5
Religion		
Christianity	89	42.8
Islam	119	57.2
Ethnic Group		
Yoruba	152	73.1
Hausa	43	20.7
Igbo	13	6.3
Occupation		
Civil Servant	10	4.8
Trader	113	54.3
Artisan	55	26.4
Apprentice	2	1.0
Student	3	1.4
Social worker	2	1.0
No job	23	11.1
Level of education attained		
No formal Education	29	13.9
Primary Education	80	38.5
Secondary Education	76	36.6
N.C.E	2	1.0
O.N.D	5	2.4
H.N.D	5	2.4
First Degree	9	4.3
Second Degree	2	1.0
N (208)		

4.2 Knowledge of cerebral palsy

Table 4.2 shows that majority of the respondents (95.2%) ascertained that they have heard about cerebral palsy, (3.8%) said they have not heard and (1.0%) reported that they were not sure if they have heard about cerebral palsy. (52.9%) of the respondents reported that cerebral palsy is not a communicable disease, (24.5%) said cerebral palsy is a communicable disease and (22.6%) reported they were not sure if cerebral is a communicable disease. Greater number of the respondents (79.3%) reported that cerebrum is the largest portion of the brain affected by cerebral palsy, (15.4%) respondents said cerebrum is not the largest portion of the brain affected by cerebral palsy and (5.3%) were not sure if cerebrum is the largest portion of the brain affected by cerebral palsy. Most of the respondents (74.0%) reported that the abnormalities in the cerebral in the cerebral cortex can disrupt the brain's ability to control both movement and posture, (17.3%) said the abnormalities in the cerebral in the cerebral cortex cannot disrupt the brain's ability to control movement and posture, and (8.7%) respondents report that they were not sure if the abnormalities in the cerebral in the cerebral cortex could disrupt the brain's ability to control movement and posture. (66.8%) of the respondents said the damage done to the brain in the cerebral palsy cannot cause further degeneration of the brain, (23.6%) respondents said the damage done to the brain in the cerebral palsy can cause further degeneration of the brain, and (9.6) respondents reported they were not sure.

Table 4.2: Knowledge of cerebral palsy

Knowledge of CP	Frequency	Percentage (%)
Ever heard about cerebral palsy		
Yes	198	95.2
No	8	3.8
Not sure	2	1.0
Cerebral palsy is not a communicable disease		
Yes	110	52.9
No	51	24.5
Not sure	47	22.6
Cerebrum is the largest portion of the brain affected by cerebral palsy.		
Yes	165	79.3
No	32	15.4
Not sure	11	5.3
The abnormalities in the cerebral cortex disrupt the brain's ability to control both movement and posture.		
Yes	154	74.0
No	36	17.3
Not sure	18	8.7
The damage done to the brain in cerebral palsy cannot cause further degeneration of the brain		
Yes	139	66.8
No	49	23.6
Not sure	20	9.6

4.3 Responses on knowledge of types of cerebral palsy

Majority of the respondents (94.2%) reported that congenital cerebral palsy is a disorder that was present at birth, (2.9%) respondents said it's not while (2.9%) respondents said they were not sure. (96.6%) of respondents said acquired cerebral palsy are acquired after birth as a result of infection, head trauma, or some other cause of brain damage. (86.5%) respondents which were the majority said hemiplegia cerebral palsy affects one side of the body, (91.8%) respondents reported diplegia cerebral palsy has to do with one side of the body, (90.4%) said monopegia cerebral palsy affects only the arm and (81.7%) reported quadriplegia is the type of cerebral palsy that affects the four limbs. Majority of the respondents (97.6%) reported that inability to roll over, sitting, standing or walking might be attributed to early sign of cerebral palsy in children, (1.4%) reported it might not be attributed to early sing of cerebral palsy while (1.0%) was not sure if inability to roll over, sitting, standing or walking could be attributed to early sing of cerebral palsy in children. Most respondents (51%) reported they eat whatever they felt like eating during pregnancy, while (49%) specified they eat food rich in proteins in pregnancy. The mean knowledge score is 9.12 ± 2.122 .

4.3. Knowledge of types of cerebral palsy

Knowledge of types of CP	Frequency	Percentage
Congenital cerebral palsy is a disorder that was present at birth		
Yes	196	94.2
No	6	2.9
Not sure	6	2.9
Acquired cerebral palsy are acquired after birth as a result of infection, head trauma or some other cause of brain damage		
Yes	201	96.6
No	5	2.4
Not sure	2	1.0
Hemiplegia cerebral palsy affects one side of the body		
Yes	180	86.5
No	18	8.7
Not sure	10	4.8
Diplegia cerebral palsy has to do with one side of the body		
Yes	191	91.8
No	7	3.4
Not sure	10	4.8
Monopegia cerebral palsy affects only the arm		
Yes	188	90.4
No	9	4.3
Not sure	11	5.3
Quadripegia is the type of cerebral palsy that affects the four limbs		
Yes	170	81.7
No	27	13.0
Not sure	11	5.3
Inability to roll over, sitting or walking might be attributed to early sign of cerebral palsy		
Yes	203	97.6
No	3	1.4
Not sure	2	1.0

4.4 Respondent knowledge of prevention of cerebral palsy

Table 4.3 shows the respondents knowledge on predisposing factors to cerebral palsy. (77.9%) respondents reported that they were aware that cerebral palsy is caused by malformation of the brain, (12.5%) reported no, while (9.6%) respondents were not sure. Majority of the respondents (63.5%) have not heard about the risk factors predisposing children to the development of cerebral palsy, (33.2%) have heard about it, and (3.4%) respondents could not say precisely if they have heard or not. Most respondents (63.5%) reported that cerebral palsy has no cure but can be managed, (28.4%) reported it can be cured since there is no impossibility with God, while (8.2%) were not sure whether cerebral palsy has no cure but can be managed.

Table 4.4: knowledge of prevention of cerebral palsy

Knowledge of prevention	Frequency	Percentage
Cerebral palsy can be prevented?		
Yes	145	69.7
No	31	14.9
Not sure	32	15.4
Cerebral palsy is caused by malformation of the brain		
Yes	162	77.9
No	26	12.5
Not sure	20	9.6
There are risk factors that predisposes children to the development of cerebral palsy		
Yes	69	33.2
No	132	63.5
Not sure	7	3.4
Cerebral palsy has no cure but can be managed	132	63.5
Yes	59	28.4
No	17	8.1
Not sure		

4.5 Responses on Knowledge of risk factors of cerebral palsy

Majority of respondents reported that multiple births cannot predispose children to the development of cerebral palsy, (24.5%) reported it can, and (7.7%) reported they were not sure if it could. (71.6%) respondents reported they have done assisted reproductive technology, while (28.4%) reported they have not. Majority respondents (45%) reported having infection during pregnancy without being treated could lead to development of cerebral palsy in children, (36.5%) reported having infection during pregnancy without been treated could not lead to development of cerebral palsy in children, while (18.3%) reported that they were not sure if untreated infection during pregnancy could lead to development of cerebral palsy in children. Majority respondents (95.2%) reported they were not diagnosed of any infection during pregnancy, (4.3%) reported they were not, while (0.5%) reported they were not sure if they were diagnosed of any infection during pregnancy. (67.67%) respondents reported they were diagnosed of malaria during pregnancy, while (33.33%) reported they were not diagnosed of any infection during pregnancy. Majority respondents (93.8%) reported their children were completely vaccinated, (5.8%) reported their children were not completely vaccinated and (0.5%) respondent reported she wasn't sure if her child was completely vaccinated. Most respondents (51.0%) reported that complications during delivery cannot result to cerebral palsy in children, (38.0%) reported it could, and (11.1%) reported they were not sure whether it could. Majority respondents reported their children never had head injury as a result of fall several times, (17.3%) respondents reported their children had head injury as a result of fall several times while (0.5%) wasn't sure if her child ever had head injury as a result of fall several times. Majority respondents reported they do not smoke or have someone that smoke in their apartment, (14.9%) reported they have people that smoke in their apartment.

Table 4.5: knowledge of risk factors to cerebral palsy

Variables	Frequency	Percentage
Multiple births can predispose children to the development of cerebral palsy.		
Yes	51	24.5
No	141	67.8
Not sure	16	7.7
Ever done assisted reproductive technology.		
Yes	149	71.6
No	59	28.4
Having infection during pregnancy without being treated could lead to development of cerebral palsy		
Yes	76	36.5
No	94	45.2
Not sure	38	18.3
Diagnosed of any infection during pregnancy		
Yes	9	4.3
No	198	95.2
Not sure	1	0.5
If yes, please specify		
Yes (Malaria)	6	66.7
No	3	33.3
Is your child completely vaccinated		
Yes	195	93.8
No	12	5.8
Not sure	1	0.5
Complications during delivery can result to cerebral palsy in children		
Yes	79	38.0
No	106	51.0
Not sure	23	11.1
Do you smoke or have someone that smoke in your apartment		
Yes	31	14.9
Yes	169	81.3
No	8	3.8
Not sure		

4.6 Respondents neonatal care given to children

Table 4.6 shows respondents neonatal care given to children. Majority respondents (84.6%) reported that their children were not diagnosed of jaundice at birth while (15%) reported their children had jaundice at birth. (90.0%) respondents reported they were discharged before eight days of delivery, (1.9%) respondents reported they were not discharged before eight days of delivery and (7.7%) reported they had home delivery. Majority respondents (94.2%) reported they did not visit doctor for advice on how to be pregnant before they became pregnant and (5.8%) reported they visited doctor for advice before they became pregnant. Majority respondents reported their child was not diagnosed of any infection at birth while (5.8%) reported their child was diagnosed of infection at birth.

Table 4.6: Neonatal care given to children

Variables	Frequency	Percentage
Did your child ever have jaundice		
Yes	32	15.4
No	176	84.6
Discharged before eight days of delivery		
Yes	188	90.4
No	4	1.9
Home delivery	6	7.7
Visit to the doctor for advice on how to be pregnant before you became pregnant		
Yes	12	5.8
No	196	94.2
Child diagnosed of any infection at birth		
Yes	12	5.8
No	196	94.2

4.7 TEST OF HYPOTHESES

4.7.1 HYPOTHESIS 1

The Null hypothesis states that there is no association between general knowledge on cerebral and the knowledge of the prevention. Knowledge was categorized into good, fair and poor knowledge. Chi-square was used to test for association and the result is presented below

Table 4.7.1: Association between respondents' general level of knowledge of cerebral palsy and knowledge of prevention of cerebral palsy

Knowledge of prevention	General knowledge of CP		
	Good (%)	Fair (%)	Poor (%)
Poor	88 (42.3)	8 (3.8)	2 (1)
Good	85 (40.9)	22 (10.6)	3 (1.4)
Total	173 (83.2)	30 (14.4)	5 (2.4)

$$X^2 = 6.113$$

$$Df = 2$$

$$P\text{-value} = 0.047$$

P- value is less than 0.05. Therefore there is significant association between the general level of knowledge of cerebral palsy and knowledge of prevention of cerebral palsy. Hence we reject the null hypothesis

4.7.2 HYPOTHESIS 2

The Null hypothesis states that there is no association between general knowledge on cerebral and complete vaccination of the child. Knowledge was categorized into good, fair and poor knowledge. Chi-square was used to test for association and the result is presented below

Table 4.8: Association between general knowledge and vaccination of children

Vaccination	General knowledge		
	Good(%)	Fair (%)	Poor (%)
Yes	163(78.4)	9 (4.3)	1 (0.5)
No	9 (4.3)	3 (1.4)	0.17(0.08)
Not sure	1 (0.5)	0.17(0.08)	0.17(0.08)
Total	173(83.1)	12.17(5.9)	1.34 (0.6)

$$X^2 = 1.588$$

$$Df = 4$$

$$P\text{-value} = 0.811$$

P- value is more than 0.05. Therefore there is no significant association between the general level of knowledge of cerebral palsy and vaccinating children against infection. Hence we fail to reject the null hypothesis

CHAPTER FIVE

DISCUSSION

This study investigated knowledge of women of childbearing age on the prevention of cerebral palsy among children in Ibadan north local government Area, Oyo State. Below are the explanations on the previous chapter.

5.1 Socio demographic characteristics

Two hundred and eight women of childbearing age both singles and married who have given birth and are residents in Ibadan North Local government, between the ages of 15 to 49 participated in this study. These age groups falls in childbearing age and as a result of cultural impacts in Nigeria, mothers mostly take over the responsibility for physically challenged children and have to be interested in the challenges stemming from the disability alone for a long time. It is considered that mothers, undertaking the most significant role in the rehabilitation and caring for the child, therefore mothers should be interested in prevention of CP among children. Majority of the respondent were between the ages of 15 to 34.

The occupation of most of the respondents was trading and majority level of education attained was primary education. This revealed that certain issues of economic and social standing increase the likelihood of a child developing cerebral palsy. Lack of access to health care, lack of insurance coverage, and lack of prenatal care are socio-economic factors that can create risk during pregnancy. Low income and lack of education are also socio-economic factors linked to an increased risk of cerebral palsy. Some believe unemployment, low income, lack of education, and/or low social class can lead to limited access to appropriate medical care. Communities worldwide now recognize this correlation and have instituted programs to help women gain appropriate access to health care, health care facilities, and high-risk pregnancy care.

5.2 General knowledge on cerebral palsy

The respondents general knowledge on cerebral palsy is high, majority of them are aware of cerebral palsy and they know is not a communicable disease. The respondents also are very

sure that cerebral palsy has to do with malformation of the brain or brain damage which could be congenital or acquired and the abnormalities in the cerebral cortex disrupt the brain's ability to control both movement and posture in children. Respondents are likewise familiar with various types of cerebral palsy which includes: hemiplegia, diplegia, monoplegia, and quadriplegia and they attributed inability to roll over, sitting, standing, or walking to early sign of cerebral palsy in children. The result of this finding is in agreement with that of Sillanpaa (1990) which ascertained that out of 1,200 people randomly sampled from the total Finnish population, cerebral palsy was known to 95.4% and its meaning to 60.7%. Nine of ten (88.4%) would let their children play with a child suffering from cerebral palsy. A total of 48% stated that they would, other circumstances being equal, hire persons with cerebral palsy. Half (47.5%) of the subjects regarded it as possible and a further 28.0% as fully possible for individuals with cerebral palsy to make and maintain a family of their own. A good knowledge of cerebral palsy was independently related to a good basic education, age of more than 24 years, female sex and Finnish as native language Sillanpaa (1990).

5.3 Knowledge of Prevention

Majority of the respondents were of the opinion that cerebral palsy can be prevented, they agreed to the fact that it has no cure but can be managed but they did not support that multiple births can predispose children to the development of cerebral palsy and having infection during pregnancy without being treated could lead to the development of cerebral palsy in children. Greater numbers of respondents have done assisted reproductive technology, and few reported they were diagnosed of infections during pregnancy. This is supported by (Ogunlesi, et al, 2008) in their study which stated that: cerebral palsy can be prevented and there is no cure for cerebral palsy, some risk factors exist which can increase the likelihood of a child developing cerebral palsy. The more attention pays on prevention of cerebral palsy, the better it can alleviate or minimize risk.

5.4 Knowledge of risk factors

The respondents are fully aware of vaccination and ensured their children were vaccinated but they did not have the idea that complication during delivery could result to cerebral palsy in children. Some of the respondent children have had head injury as a result of fall several times while some have people that smoke in their apartment and they stayed there during

pregnancy. They did not know these are predisposing factors to development of cerebral palsy in children and therefore didn't report and seek medical attention. The result of this finding is supported by Lagunju (2008), which postulated that any exposure to risk factors prior to conception and during pregnancy should be immediately discussed with a doctor in order to treat and minimize risk. The Cerebral Palsy Risk Factor Checklist helps parents determine if they may have been exposed to risk factors for cerebral palsy.

5.6 Implication for health promotion and education

The outcome of this study provided basis for educating expectant parents, medical practitioners, researchers, teachers and government policy makers who plays important roles in quest to reduce the chances of a child developing cerebral palsy in the study area. Health education is a combination of planned learning experiences based on sound theories that provide individuals, groups, and communities the opportunity to acquire information and the skills needed to make quality health decisions (Manoj and Romas, 2013). It is concerned with reinforcement and change of knowledge, attitude and behaviour of people through effective communication of fact based information, with the intention of helping them to ensure an optimum wellness. Health education would therefore be an avenue for which the gap between general knowledge of cerebral palsy and knowledge of prevention of cerebral palsy could be bridged in communities.

The use of mass media in the dissemination of information cannot be over emphasized. Mass media such as Newspaper, magazine, internet, Television, Radio and Billboards advert can be used to reach the mothers and intending mothers on how to prevent chances of development of CP in children. The gap in knowledge can be bridged by educating parents on mode of prevention, this could be done on radio and television, seminars can be organised in religious places in communities in order to cover a larger audience. Effective collaboration among public health agencies, health facilities and Traditional birth attendants is required to referral pregnant women to hospitals for proper prenatal and postnatal care in order to prevent CP in children.

5.7 Conclusion

Women of childbearing age in Ibadan North are fully aware of what to be done during pregnancy to prevent their children from developing any form of diseases or disability especially cerebral palsy which most of them were subjective to as being synonymous to

polio but their knowledge of risk factors predisposing children to the development of cerebral palsy is very poor. Knowledge of the preventive factors will minimize the risk factors. Therefore, the findings of this study will facilitate awareness on the preventable lifestyle associated with the development of cerebral palsy through appropriate prenatal care during pregnancy, safety protection and vaccination.

5.8 Recommendations

Health education in the form of enlightenment will be put in place in the communities to bridge these gaps in knowledge among women of childbearing age on the prevention of cerebral palsy. The potential for mitigating cerebral palsy is at its highest level when government, medicine, research, and parents successfully play their role in all prevention activities.

- 1) Parents play the most important role in prevention. Through their own activities, parents should to a large extent influence the health of a pregnancy. Of course, most expectant parents should be intensely interested in knowing everything they can about birth before a child is born. Preventing cerebral palsy in large part occurs because of a parent's measures – a parent should look at all of the medical information and research, and ask questions before, during and after the birth of a child that can change the course of how a child comes into the world
- 2) The government role in prevention of cerebral palsy should be centred on funding research, collecting data, and examining causal factors through its various agencies. Due to governmental activities, people would know more about cerebral palsy and what causes it than ever before. Because of the data compiled by the government, professionals on the front lines of preventative activities would know where to allocate funding and resources.
- 3) The research community's role should be to carry out more findings about what causes cerebral palsy so that measures can be made to educate and inform medical professionals and parents. The job of researchers is meant to focus on probing questions on the causes and genetic factors that could increase the chances of development of cerebral palsy in children. Also identify what practices expectant mothers engage in that might mitigate the chances that a child will have cerebral

palsy? Through guided study, the goal of the researcher would be to seek answers and inform the public.

- 4) The medical community's role supersedes simply treating cerebral palsy. Because premature births are a major cause of the condition, the physicians, nurses and medical professionals that have direct access to expectant mothers play the pivotal role of seeing a pregnancy through birth, and addressing any complications as they come occur. The medical community should be the source of advice for parents; they are meant to be the guidepost for parents that look to them to ensure a birth is event-free.

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QUESTIONNAIRE

INFORMED CONSENT FORM

My name is **BAMGBADE BUNMI O.** a Masters of Public Health Student from the Department of Health Promotion and Education (Health Promotion and Education track), University of Ibadan. Am currently carrying out a research on, **KNOWLEDGE OF WOMEN OF CHILDBEARING AGE ON PREVENTION OF CEREBRAL PASLY AMONG CHILDREN IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE.**

The outcome of this study may provide basis for educating expectant parents, medical practitioners, researchers and government policy makers who plays important roles in the quest to reduce the chances of a child developing cerebral palsy.

You are therefore invited to participate in this research, participation involve providing answers to the interview questions. Information provided will be kept confidential and used for research purposes only. This questionnaire would be interview administered for proper data collation.

This study has been reviewed and granted approval by the Oyo State Ethics Review Committee. The researcher would like to conduct an interview for respondents who are willing to share their knowledge and perception on prevention of cerebral palsy among children based on the information on the questionnaire. You are permitted to refuse to participate if you are not interested though the research is risk free and participation is entirely voluntary. If you are willing to participate, please indicate by circling Yes and if not No.

1. Yes
2. No

Thanks for your cooperation.

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Respondent's signature/Thumb print Interview

Date

**KNOWLEDGE OF WOMEN OF CHILDBEARING AGE ON PREVENTION OF
CEREBRAL PALSIA AMONG CHILDREN IN IBADAN NORTH LOCAL
GOVERNMENT AREA, OYO STATE.**

Section A: SOCIO DEMOGRAPHIC DATA

Note: please circle the appropriate responses

1. Community name: _____
2. Marital status: 1. Single 2. Married 3. Others (specify) _____
3. Religion: 1. Christianity 2. Islam 3. Traditional 4. Others (specify) _____
4. Age in years (at last birthday) _____
5. Ethnic Group: 1. Yoruba 2. Igbo 3. Hausa 4. Others (specify) _____
6. Occupation: 1. Civil servant 2. Trader 3. Artisan
4. Others (specify) _____

S/N	General Knowledge of cerebral palsy	Yes	No`
7	Have heard about cerebral palsy?		
8	Do you know cerebral palsy is not a communicable disease?		
9	Cerebrum is the largest portion of the brain affected by cerebral palsy.		
10	The abnormalities in the cerebral cortex disrupt the brain's ability to control both movement and posture.		
11	The damage done to the brain in cerebral palsy cannot cause further degeneration of the brain.		
12	Congenital cerebral palsy is a disorder that was present at birth		

13	Acquired cerebral palsy are acquired after birth as a result of infection, head trauma or some other causes of brain damage.		
14	Hemiplegia cerebral palsy affects one side of the body.		
15	Diplegia cerebral palsy has to do with the leg only.		
16	Monoplegia cerebral palsy affects only the arm.		
17	Quadriplegia is the type of cerebral palsy that affects the four limbs.		
18	Inability to roll over, sitting, standing or walking might be attributed to early sign of cerebral palsy.		

SECTION C: Knowledge of prevention of cerebral palsy

S/N	Knowledge of prevention of cerebral palsy	Yes	No
19	Do you know cerebral palsy is caused by malformation of the brain?		
20	Can cerebral palsy be prevented?		
21	Have you heard about the risk factors predisposing children to the development of cerebral palsy?		
22	Cerebral palsy has no cure but can be managed?		
23	Visiting doctor regularly during pregnancy can help in preventing cerebral palsy in children?		

24. What type of food do you eat during pregnancy?

Please specify _____

C. Knowledge of predisposing factors to cerebral palsy among children

25. What was your child’s weight at birth?

(1.) 1.5kg (2.) 2kg (3). 2.5kg (4) 3kg (5) 3.5kg and above

26. At what month did you deliver?

(1) 6months (2) 7months (3) 8months (4) 9 months (5)10 months

S/N		Yes	No
27	Multiple births can predispose children to the development of cerebral palsy		
28	Ever done assisted reproductive technology		
29	Having infection during pregnancy without being treated could lead to development of cerebral palsy in children		

30. Were you diagnosed of any infection during pregnancy? please specify the type of such infection_____

S/N		Yes	No
31	Is your child completely vaccinated?		
32	Complications during delivery can result to cerebral palsy in children		
33	Has your child ever had head injury as a result of fall several times?		
34	Do you smoke or have someone that smoke in your apartment?		

Neonatal care

S/N	Neonatal care	Yes	No
35	Did your child ever have jaundice?		
36	Were you discharged before eight days of delivery?		
37	Did visited doctor for advise on how to be pregnant before you became pregnant?		

38. If yes to 27, why? Please specify_____

S/N	Neonatal Care	Yes	No
39	Was the child diagnosed of any infection at birth?		
40	Do you have preterm pregnancy?		

YORUBA VERSION

FOMU WI FUN ATI ILOHUNSI (INFORMED CONSENT FORM)

Oruko mi ni **Bamgbade Bunmi**, mo je akeko oni pele keji ni Ile iwe University of Ibadan, eka ti o nko ni nipa ilera gbogbo eniyan. Mo nse ise iwadi lori **Imo ati Oju Iwoye awon Obirin ti o ti to bimo lori Diden a Aidape larin awon omo wewe ni Ijoba Ibile Ariwa Ibadan**.

Esi ise iwadi yii yio fun wa ni gbedeke ti a le fi ko awon ti o palemo fun omo bibi, awon olutoju alaisan, ati eka ijoba ti o nkopa ti o se yebi ye lori didena ki omo wa laidape.

A npe yin lati kopa ninu ise iwadi yii. Kikopa yio je tinutinu nipa di dahun awon ibeere ti a ti ko si isale wonyin. Awon idahun yin la o lo fun ise iwadi yii. A ko sin i je ki eni ti ko ban i se pelu ise yii rii idahun yin.

Ti e ba se tan lati kopa e fala sii beeni, ti e ko bas i fe lati kopa e fala sii beeko.

1. Beeni 2. Beeko

E see pupo.

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Fifiowosiwe/Onte

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Ojo

IMO ATI OJU IWOYE AWON OBIRIN TI O TI TO BIMO LORI DIDENA AIDAPE LARIN AWON OMO WEWE NI IJOBA IBILE ARIWA IBADAN.

Ipele A: Socio Demographic Data

Akiyesi: E jowo e yi oodo si awon idahun ti e ba mu

1. Agbebege:.....
2. Ipo igbeyawo: 1. Omidan 2. Abileko 3. Idahun miran.....
3. Esin: 1. Kiristiani 2. Musulumi 3. Esin ibile 4. Idahun miran.....
4. Ojo ori yin nigbati ti e se ojo ibi keyin.....
5. Eya 1. Yoruba 2. Hausa 3. Igbo 4. Idahun miran.....
6. Ise ti e nse: 1. Osise ijoba 2. Onisowo 3. Onise owo 4. Idahun miran.....

Akiyesi: E jowo maaki () idahun ti e ba mu ni isale yii

Ipele B: Imo ti o wopo nipa wiwa laidape

S/n	Imo ti o wopo nipa aidape (General Knowledge of cerebral palsy)	Beeni	Beeko
7	Nje e ti gbo nipa aidape?		
8	Ki omo wa laidape ki se arun ti a le ko lati ara enikan si ekeji.		
9	Apa ibi ti a npe ni cerebrium ti o nse akoso lilobibo apa ati ese, ironu, eero, iriran, sisoro pelu gbighoran ninu opolo ni ohun ti o nfa ki omo wa laidape ma nba ja julo.		
10	Aisedede ti o wa ni ibi ti a npe ni o nse akoso ironu pelu lilo bibo apa ati ese laise afipa se (cerebral cortex) ninu opolo ni o ma nfa ki omo ma le rin tabi daduro		
11	Ijanba ti aidape maa nse ninu opolo ko le fa ifasehin siwajusi ba opolo		

12	Ki omo wa laidape lati igba ti a ti bi ni a ma npe ni aidape ti ibi (congenital cerebral palsy)		
13	Aidape ti o sele leyin ti a ti bimo tan ni a npa ki omo subu ki o si fi ori gba, tabi nipa arun kan tabi omiran ni a npe ni aidape ti a gba mora (acquired cerebral palsy)		
14	Nje e ti ri omo ti o wan i aidape ti o je apa ati ese ti apa otun tabi osi ni o dun.		
15	Se e ti ri omo ti o je wipe ese nikan ni o tin i alebu ti ko si je ki irin re da pe.		
16	Nje e ti ri omo ti o je wipe apa nikan ni o dun ti ko si je ki o le lowo naa bi o ti ye.		
17	Se e ti ri omo ti apa ati ese mejeji dun, ti ko si le lo apa mejeji pelu ese mejeji rara fun nkankan.		
18	Ki omo ma le yi si otun tabi si osi fun rara re, tabi ki o ma le dide duro nigbati o ye ki o ti ma duro fun rara		
	re tabi ki o ma le rin ni akoko ti o ye ki o rin		
	Le je amii tabi aapeere iberepepe aidape.		

S/N	Imo nipa didena aidape (knowledge of prevention of cerebral palsy)	Beeni	Beeko
19	Nje e mop e ki omo wa laidape nipa ki o ma lerin daradara tabi ki owo ma dun je alebu ti o tinu opolo wa		
20	Se eti le mope a le dena ki omo wa laidape bi?		
21	Nje e ti gbo nipa awon ohun ti o le se okunfa ki omo wa laidape.		

22	Ki omo wa laidape ko se wosan patapata sugbon o se boju to.		
23	Lilo si ile iwosan lorekore lati gba itoju ninu oyun, je ona lati dena ki omo wa laidape.		

24. Iru ounje wo le ma nje ninu oyun? E jowo e se alaye

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Ipele D: Knowledge of predisposing factors to cerebral palsy

25. Kini iwon ti omo yin won ni kete ti e bii?.....

26. Osu melon i e bi mo?

S/N		Beeni	Beeko
27	Nje e lo gba itoju lodo dokita fun idi kan tabi omiran ki e to bimo.		
28	Bibi omo pupo lekan na le fa ki omo wa laidape.		
29	Ni ni arun ti o ma ti ara enikan de ekeji ninu oyun ti a ko si lo ogun ti o ye si le fa ki omo na ni aisan ti o le je ki o wa laidape.		

30. Ti idahun yin ba je beeni si ibere kejilelogbon (28), e jowo e so iru arun na ti e mo.....

S/N		Beeni	Beeko
31	Nje e gba gbogbo abere ajesara fun omo yin?		
32	Idiju tabi ilolu ninu oyun le fa ki omo wa laidape ti a ba bii.		

33	Nje omo yin ti subu ri ti o si fi ori gba ni opolopo igba bii?		
34	Se ari eni ti o mu siga ninu ile yin tabi se eying an maa nmu bii?		

Ipele E: Itoju omo kekere (Neonata Care)

S/N	Itoju omo kekere (Neonatal Care)	Beeni	Beeko
35	Nje omo yin ni iba poju rib ii?		
36	Nigbati e bimo se ki ojo mejo to pe ni a ti fi yin sile ni ile iwosan		
37	Nje e lo lati rii dokita fun imoran lori ati loyun kii o to di pe e loyun nii?		
38	Nigbati e bimo, nje dokita so fun yin pe omo naa ni aisan kan tabi omiran bii?		
39	Nje oyun yin pe osu mesan kii e to bimo?		

40. Ti idahun yin ba je beeni si ibeere 36, e jowo salaye

siwajusi.....