TEACHERS' KNOWLEDGE, ATTITUDE AND FIRST AID CARE OF FEBRILE CONVULSION IN NURSERY AND PRIMARY SCHOOLS IN IBADAN NORTH LOCAL GOVERNMENT AREA, NIGERIA

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DEDICATION

This dissertation is dedicated to the Almighty God, the ancient of days, Ebube di ike na agha, for his guidance throughout the period of this course.

CERTIFICATION

I certify that this study was conducted by Miss Chinwendu Nwahuzi ONUMADU in the Institute of Child Health, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria, under my supervision.

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ABSTRACT

Febrile Convulsion (FC) is a major cause of medical emergency in children aged six months to six years and may occur anywhere including school environment. Studies focusing on teachers' practice of First Aid Care (FAC) to children with FC are limited in Nigeria, yet children spend substantial time under teachers' care. This study was conducted to assess teachers' knowledge, attitude and FAC given to children with FC among teachers in nursery and primary schools in Ibadan North Local Government Area (LGA), Nigeria.

Using a two-stage sampling method, 402 teachers from 47 private and 10 public schools were recruited into this cross sectional study. A pre-tested self-administered questionnaire was used to obtain information on socio-demographic characteristics, knowledge of FC, attitude towards children with FC and FAC practice. Knowledge was measured with a 10-point item scale and categorized as good (score >4) and poor (score ≤4). Attitude was measured with a 17-item instrument, each item was scored on a 5-point likert scale with a total of 85 and categorized as poor (≤51) and good (>51). First aid care was assessed as appropriate or inappropriate based on defined protocol**.** Data were analysed using descriptive statistics and Chi-square test.

Mean age of respondents was 35.4±10.6 years, 76.4% were female and 92.3% had post-secondary education. About 41.1% of teachers had ≤5 years teaching experience while 39.6% and 19.0% had more than 11 years and 6-10 years of experience respectively. Majority (85.3%) of respondents had heard about FC; with radio (62.7%) and television (55.2%) being common sources of information. Only 30.6% respondents had good knowledge of FC. Most (90.8%) respondents had good attitude towards children with FC, as 52.0% of respondents would not mind having their biological child play with a child with FC. However, 27% of respondents would not like to have a child with FC in their class. Reasons for the objection were: distraction in class (25.9%), inexperience of care for FC (18.5%), and avoidance of stigmatization from other pupils (14.8%). Forty-one percent of respondents had witnessed a child convulsed in school. Of these,114(69.1%) gave inappropriate care such as putting a spoon into the child's mouth (28.1%) and pouring water on the child's body (15.8%). Teachers with ≥11 years teaching experience (52.1%), compared to those with 6-10 years (45.0%) and those with ≤ 5 years (44.0%) had good attitude towards children who had FC ($p<0.05$). More male (73.5%) than female (66.7%) and more teachers with ≤5 years (76.5%)

teaching experience compared to those with 6-10 years (65.6%) and those with ≤11 years (64.2%) experience gave inappropriate FAC. Sixty-eighty percent of respondents who had good knowledge of FC compared with 69.1% who had poor knowledge of FC gave inappropriate FAC.

Teachers' attitude to febrile convulsion was good while their knowledge and practices of appropriate care were poor. There is the need to design intervention programmes targeted at improving knowledge and appropriate first aid care for febrile convulsion.

Keywords: Febrile convulsion, Teachers' knowledge, First aid care practices.

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TABLE OF CONTENT

CHAPTER THREE: METHODOLOGY

CHAPTER FOUR: RESULT

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Background

Febrile Convulsions (FCs) are the most common form of childhood seizures, usually appearing between six months and six years of age. These childhood seizures are associated with fever but do not show evidence of other defined intracranial infections or defined causes (Nemours, 2010). The key feature of febrile seizure is that the fever itself is presumed to be the underlying cause for the convulsion rather than any direct effect of the fever-inducing infection on the Central Nervous System (CNS) (Sperber et al., 1999). Febrile convulsion occurrence is particularly common in toddlers. Children rarely develop their first febrile convulsion before the age of six months or after three years of age. The peak incidence of a first febrile convulsion occurs in the second year of life (Hauser, 2007) and the older a child is when the FC occurs, the less likely that child is to have more (Schoenstadt, 2008).

The condition is perhaps one of the most prevalent causes of admissions to paediatric emergency wards worldwide (Jones et al., 2007). These seizures generally occur in infancy or early childhood. Frequency of the seizures is not predictable as some children have one-off experience. However many a child suffers these convulsions more than once. Recurrent febrile convulsions are more common in children with a family history of such seizures; those who experience their first seizure at an early age or who experience frequent fevers (Jones et al., 2007). Despite its predominantly benign nature, a febrile convulsion is a terrifying experience for people. For most parents, febrile convulsion is an emotionally traumatic condition which arouses in them fear that their children will die during the seizure. Although febrile convulsions may be very frightening, they are harmless and do not pose a threat to a child's health (Deng, 1996; Parmar, 2001).

Most convulsions are caused by abnormal electrical discharges in the brain. Some convulsions may be the result of another medical problem, such as low blood sugar, infection, a head injury, accidental poisoning, or drug overdose. They also can be due to a brain tumor or other health problem affecting the brain. Symptoms may vary depending on the part of the brain involved, but often include unusual sensations, uncontrollable muscle

spasms, and loss of consciousness. Anything that results in a sudden lack of oxygen or a reduction in blood flow to the brain can cause a seizure (Schoenstadt, 2008).

Febrile convulsions affect two to five percent (2%-5%) of all children and are by far the most common seizures in childhood (Joshi et al., 2005). Between two and four percent of all children in Europe and the United States experience at least one convulsion associated with a febrile illness before the age of five (Hauser, 2007). The cumulative incidence of febrile convulsions among children ranges from about one percent (1%) in China to more than eight percent (8%) in Japan and 14% in Guam (Hauser, 2007). Among children in the United Kingdom, two to seven percent (2-7%) have at least one febrile convulsion. Just over one third will have at least one further febrile convulsion, but the majority stops having seizures of any kind. Only 2.4% of those who were previously normal develop epilepsy; defined as two or more seizures without fever (Verity et al, 1991).

In Zambia, FCs accounted for above 27% of all neurologic admissions (Birbeck, 2000). In Turkey, FCs accounted for 46.8% (73 out of 156) of all paediatric seizures seen on the in-patient service (Cetinkaya et al., 2008). In Kinshasa's tertiary neuropsychiatric unit, over a 21-month period, FCs accounted for almost a quarter of all admissions (Ntihinyurwa et al., 1979). In New Delhi, febrile seizures comprised 28% of all paediatric admissions at a tertiary care center (Sehgal and Bala, 1979). In Ibadan, febrile convulsions accounted for 9.9% prevalence of all the paediatric admission into the emergency room during the study period (Jarrett et al., 2012).

Familusi et al., (1971) study showed 15.1% prevalence of febrile convulsions in Ibadan, Nigeria. In Enugu Nigeria, 15.5% FCs were also found among children (Izuora et al., 1977). In a study in Benin City, 20% of children admitted had febrile convulsions. Five percent (5%) of those children were aged below 5 months and it was confirmed that there is a strong familial predisposition to febrile seizures. Major causes of the rise in temperature in those studied included malaria which accounted for 32.7%; followed by bronchopneumonia (16.8%); measles (15.4%); otitis media (13.4%) and tonsillitis (10.5%) (Obi, 1994). A population-based study in Anambra state of Nigeria including both urban and rural locations also found that among 2,135 children, 172 (8%) experienced febrile convulsion (Iloeje, 1991).

1.2 Statement of Problem

Febrile convulsion is a major cause of medical emergency in children and this can occur anywhere and anytime including when the child is in school. Knowledge of actions to take when seizure occurs is necessary. School teachers sometimes witness seizures among their pupils because they spend a large part of their daytime lives with their pupils. Although studies have examined knowledge of febrile convulsion and practice among several categories of people who care for children including parents and health workers, little attention has been paid to research among nursery and primary school teachers. The management of febrile convulsion may differ depending on the specialty of the attending person. Teachers are often at the forefront in responding to classroom emergencies, recognizing potential health problems and providing support to children with chronic illnesses and disabilities.

1.3 Justification

Teachers are very important in every school child's life because children spend substantial time under the teachers' care. In the school environment a teacher may be the first adult to witness a child having febrile convulsion. Therefore, it is important to find out how much the teachers know about the condition and its management. It is hoped that this study will generate information on teachers' knowledge, attitude and first aid care of FC among nursery and primary school teachers in Ibadan North LGA.

1.4 Objectives

1.4.1 Broad objective

The main objective of this study was to determine the knowledge, attitude and first aid care of febrile convulsion among nursery and primary school teachers in Ibadan North Local Government Area.

1.4.2 Specific objectives

The specific objectives of the study were to:

1. Assess teachers' knowledge of febrile convulsion;
2. Determine teachers' attitude towards febrile convulsion;
3. Determine the association between teachers' knowledge of and attitude to febrile convulsion and;
4. Determine teachers' practice of first aid care given to children with febrile convulsion.

1.5 Research questions

1. What is the level of teachers' awareness and knowledge of Febrile Convulsion?
2. What is the attitude of teachers' towards Febrile Convulsion?
3. What is the level of first aid care given to children with Febrile Convulsion by the teachers?

1.6 Definition of Terms

The definitions of the key terms used in this study are presented as follow:

Febrile convulsions: Convulsions that occur as a result of body temperature rise (rectal temperature>38oC) in children aged six months to six years in absence of Central Nervous System infections.

Epilepsy: A medical disorder involving episodes of irregular electrical discharge in the brain and characterized by the periodic sudden loss or impairment of consciousness, often accompanied by convulsions.

Seizure: A clinical event in which there is a sudden disturbance of neurological function in association with an abnormal or excessive neuronal discharge.

First aid measure: Immediate measures to be taken by the care giver to protect a person from injury and to prevent complications during seizure.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Conceptual Clarification and Historical Overview

Febrile Convulsion (FC) is defined as seizures associated with fever in the absence of central nervous system infection or acute electrolyte imbalance in a young child (Nelson et al., 1976). Febrile convulsions occur between six months and six years of age (American Academy of Pediatrics, 1999). The median age of onset is 18 months (Offringa et al., 1994).

Febrile convulsion, also known as febrile seizure occurs when a child contracts an illness such as an ear infection, cold, or chickenpox accompanied by fever. Two to five percent (2-5%) of children have an FC at some point during their childhood. Why some children have seizures with fevers is yet to be known, but several risk factors have been identified. Children with relatives, especially brothers and sisters who have had febrile seizures are more likely to have a similar episode. Children who are developmentally delayed or who have spent more than 28 days in a neonatal intensive care unit are also more likely to have a febrile convulsion (Christopher et al., 2001). A quarter of children who have a febrile seizure will have another, usually within a year. Children who have had a febrile seizure in the past are also more likely to have a second episode (Christopher et al, 2001).

The National Institute of Health (NIH) consensus statement defines FC as "an event in infancy or childhood usually occurring between three months and five years of age, associated with fever but without evidence of intracranial infection or defined cause for the seizure" (Freeman, 1980). This definition excludes seizures with fever in children who have previously had afebrile seizures. This definition was revised by International League Against Epilepsy (ILAE) as "a seizure in association with a febrile illness in the absence of a central nervous system infection or acute electrolyte imbalance in children older than one month of age without prior afebrile seizures (Commission on Epidemiology and Prognosis, International League Against Epilepsy: Guidelines for epidemiologic studies on epilepsy, 1993).

Febrile Convulsions (FC) are to be distinguished from epilepsy, which is characterized by recurrent non-FC (Guidelines, 1999). Seizures with fever in children who have suffered a previous non-FC are excluded. This definition excludes seizures that accompany meningitis, electrolyte imbalance or toxic encephalopathy. Seizures in these instances may carry a more ominous prognosis than the benign course of FC owing to the effects of associated illness (Stenklyft et al., 1994).

Febrile convulsions have been discussed in the medical literature since the time of Hippocrates, but it was not until the middle of the present century that they were recognized as a separate syndrome distinct from epilepsy. An early classification proposed by Livingston divided them into simple febrile seizure and epilepsy triggered by fever. He included in the later definition febrile seizures that were prolonged or focal or that occurred in a child who has a family history of epilepsy. These definitions are no longer used because it has become clear through prospective epidemiological studies that there is a great distance between febrile seizure and epilepsy. However, in this study the definition of FC as a childhood condition that occurs during body temperature rise in child aged six months to six years will be adhered to. Febrile convulsion is a common paediatric problem and considered to be benign and usually does not require any long term treatment (Provisional Committee on Quality Improvement, Subcommittee on Febrile Seizures Practice Parameter, 1996).

Differentiation of febrile convulsions from acute symptomatic seizures secondary to central nervous system infection or seizures triggered by fever in children with epilepsy is essential. The temperature associated with the febrile illness must be greater than 38.4°C, although the temperature may not be evident until after the seizure. Prior epidemiologic studies have used either one month (Annegers et al., 1997) or three months (Nelson et al., 1976; Nelson et al., 1978) as the youngest age of occurrence, whereas no specific upper age limit was employed. Febrile convulsions have a peak incidence at about 18 months of age, and are most common between six months and five years of age, and onset above age seven years is rare, although it does occur. The child can be neurologically normal or abnormal (Shinner et al., 2002).

An entity of afebrile convulsions (having no fever, or marked by absence of fever) in young children with mild gastroenteritis is increasingly recognized. This disorder was initially observed in Asian countries, but white children from the United Kingdom have recently been reported with the condition (Berge et al., 1993). Whether the racial differences are caused by

underlying genetic or environmental factors or relate to under-recognition is unclear. A large case series found that these children present with clusters of generalised or focal seizures with or without fever over several days in the setting of viral gastroenteritis (Uemura et al., 2002).

2.2 Prevalence of Febrile Convulsion

Febrile convulsions affect two to five percent (2-5%) of all children (Forsgren, 1990; Verity, 1985) and are by far the most common seizures in childhood. Each year, about 150,000 children and adolescents in the United States will come to medical attention for evaluation of a newly occurring seizure disorder of some type. Between two and five percent (2 and 5%) of children have febrile convulsions by their fifth birthday (Verity, 1985).

The cumulative incidence of febrile convulsions among children ranges from 0.35% for Hong Kong and 0.5-1.5% for China (Chung, 2006). In tropical settings, febrile convulsions are one of the commonest causes of paediatric seizures and a frequent reason for paediatric hospital admission. In general, the lifetime risk (LTR) for FC in the tropics appears to be higher than the 2-4% seen in developed, non-tropical regions. A cross-national study in Pakistan, Bangladesh and Jamaica using a standardized assessment to capture neurodisability found that febrile convulsion was the most common of neurodisabilities, with an LTR of 10.9-68.2/1.000 (Durkin et al., 1992). In a birth cohort study among the Chamorro people of Guam, FC occurred in 94/1.000 (Stanhope et al., 1972). In Turkey, the LTR was 9.7% (Aydin et al., 2008). In southern India the LTR was 10.1%, but this FC was associated with a history of perinatal injury and may have included children with previously unrecognized brain injury and provoked seizures rather than an FC (Hackett et al., 1997).

A prospective epidemiological study performed at University Hospital, Sweden, 128 children with convulsion were identified. The annual first attendance rate and annual incidence rate were 500/1,00,000 and 460/1,00,000 respectively in the age group of 0-4 years. The cumulative incidence was 4.1% and convulsions were more common among boys, with a male to female ratio of 1.72 to 1 (Tahis, 2004). A 3-year population-based study of 17.044 children in Tokyo, Japan, found that FC occurred in 8.3% of children-at-risk (9.0% in males and 7.5% in females).

In Miyake Island in Japan overall prevalence of 9.9% was reported (Tsuboi, 1984). A study in Netherlands found the rate of recurrence of febrile convulsions to be as high as 52% (Hirtz, 1997; Rantal, 2000). In a study conducted at Hayat Shaheed Teaching Hospital, Peshawa which involved 100 children aged six months to five years who were sequentially admitted with diagnosis of convulsion, it was shown that convulsions were complex in 35% of cases and out of these there was positive family history of FC in 29% of children. On the whole 44% of the children had first convulsion before 12 months of age and 56% after 12 month of age. This shows that the majority of convulsions occurred in first two years of life (Singh, 2001).

In Netherlands, the rate of recurrence of febrile convulsion was found to be as high as 52% (Berg et al., 1992). Thirty percent (30%) of children have recurrent febrile convulsions during subsequent illnesses (Offringa et al., 1994). Risk factors for recurrence, as distinct from risk of a first febrile convulsion, include onset before 18 months, lower temperature close to 38°C, shorter duration of fever (<1 hour) before the seizure, and a family history of FCs (Berg et al., 1994; Scott et al., 2003; Uemura et al., 2002; Berg et al., 1996). Of children who have all these risk factors, 76% will have a recurrence of febrile convulsion compared with 4% without risk factors (Berg et al., 1997).

Baldin et al. (2012) suggest that the prevalence of febrile convulsion reported was 5.1% in children during their research. In industrialized nations, febrile convulsions occur in 2-5% of children aged 6 months to 5 years. Among children with FC, about 70-75% have only simple febrile convulsion. Another 20-25% have complex febrile convulsions and 55% have symptomatic febrile convulsions (Baumann et al., 2012). The prevalence of febrile convulsions is between three and eight percent (3 and 8%) in children up to seven years of age (Nelson et al., 1976; Kjeldsen et al., 2002). Variation in prevalence relates to differences in case definitions, ascertainment methods, geographical variation, and cultural factors.

Familusi et al. (1971) reported 15.1% prevalence of FC in Ibadan, Nigeria and 15.6% in Enugu, Nigeria (Izuora et al., 1977). Jarrett et al. (2012) in their study on pre-hospital management of febrile convulsion in children seen Ibadan, Nigeria reported that a total of 147 children (83 males and 64 females) had febrile convulsions. In a study, Adeyemo et al., (2011) also reported a total of 223 (86.8%) cases of febrile convulsion. Findings from the Children's Emergency Room of the University of Benin Teaching Hospital in Benin City

Nigeria show that among 1,046 children who were admitted over the course of the study, seven of the 202 patients with febrile convulsions died: five from aspiration pneumonia and two from tetanus following traditional treatment. Five percent (5%) of patients with febrile convulsions were younger than five months or older than 5 years. The male-female ratio was 1.3:1. A hundred and forty (140) children had a family history of febrile convulsion and in 55%, the relatives were close family members. These findings confirm the view that a strong familial predisposition exists for febrile seizures. Observed morbidity and mortality could be attributed to the socio cultural background of this community of which practised modes of therapy are often detrimental to patient health (Obi, 1994).

2.3 Types of Febrile Convulsion

There are two types of febrile convulsion: simple and complex (Shlomo, 2002).

2.3.1 Simple febrile convulsion

This convulsion lasts less than 15 minutes, does not recur within 24 hours, and is generalized; affect a widespread area of the body. Affected by a simple febrile convulsion, the child may be drowsy or confused for a short period of time.The simple convulsion represents the majority of cases and is considered to be less of a cause for concern than the complex. Simple febrile convulsions do not cause permanent brain injury, and do not tend to recur frequently (children tend to outgrow them), and do not make the development of adult epilepsy significantly more likely (about 3–5%) compared with the general public (1%) (Shinnar et al., 2002).

2.3.2 Complex febrile convulsion

This convulsion is characterized by longer duration, recurrence or focus on only part of the body. There may be multiple attacks of seizures in 24 hours. All children with complex febrile convulsion must have medical evaluation by a medical doctor.

Children with FCs are more likely to suffer from a febrile epileptic attack in the future if they have a complex febrile seizure, a family history of a febrile convulsions in first-degree relatives (a parent or sibling) or a preconvulsion history of abnormal neurological signs or developmental delay (Bachur et al., 2011). There is an 80% chance that children who have complex febrile convulsions will have seizures later on in life. Similarly, the prognosis after a

simple febrile convulsion is excellent, whereas an increased risk of death has been shown for complex febrile convulsions, partly related to underlying conditions (Vestergaard et al., 2008).

Two major population studies, the National Collaborative Perinatal Project (NCCP) and the Child Health and Education (CHES) have used certain clinical features to categorize febrile convulsions as simple or complex. A febrile convulsion is considered complex if the seizure is focal or prolonged (longer than 15 minutes), or if there is more than one seizure in 24 hours. These studies demonstrate that approximately 80% of febrile seizures are simple. Focal seizures occurred in four percent (4%) of all FCs, and the seizure lasted more than 15 minutes in eight percent (8%) of cases and more than 30 minutes in 4 to 5% of cases (Nelson et al., 1976: Verity et al., 1993). Recurrent seizures within 24 hours occurred in 16% of cases. Characterization of FC as complex is of limited value in predicting the risk of later epilepsy. Whereas a child with a simple FC has a 98% probability of not developing epilepsy, a child with a complex FC has an 85 to 95% probability of not developing epilepsy (Nelson et al., 1976: Annegers et al., 1987).

2.4 Pathogenesis of Febrile Convulsion

The cells in the brain, known as neurons, communicate with each other using electrical impulses. A seizure occurs when the electrical impulses become disrupted. This can cause the brain and the body to behave abnormally and results in seizure (Gatti et al., 2006; Haspolat et al., 2002).

A high temperature is thought to be caused by a bacterial or viral infection that stimulates the release of cytokines. Cytokines are proteins that affect the parts of the brain and nervous system responsible for regulating the body's temperature. Their release causes a rise in the normal temperature, therefore high level of cytokines may temporarily disturb the working of the brain and nervous system thereby trigging a seizure.

Febrile convulsions represent an age-dependent susceptibility to CNS hyper-excitability and subsequent seizure when exposed to fever. This age-dependent susceptibility is likely related to the intrinsic excitable state of the paediatric (developing) brain relative to the adult brain. The distribution of excitatory neurotransmitters and circuitry is more extensive in the paediatric brain. The distribution of neurotransmitter subtypes differs in the developing

nervous system, with more excitatory pathways active, especially in the limbic region. Furthermore, neurotransmitters, which behave as inhibitory actors in the adult brain, may have different characteristics in the paediatric brain due to either receptor distribution or neurotransmitter subtypes (Fukuda et al., 1997).

There are likely important evolutionary reasons why the developing brain exists on the cusp of hyper-excitability. This state may be more optimal for the neuronal plasticity needed to facilitate the intense learning, for instance language acquisition, associated with early childhood. The consequence however, is that when challenged with a fever, children with a predisposition to this temperature-dependent hyper-excitability may experience a dysfunctional response: a seizure. Additional contributing factors perhaps more common in tropical settings have been hypothesized, including zinc deficiency (Ganesh and Janakiraman, 2008).

Fever is an abnormal elevation of body temperature that occurs as part of a specific biological response that is mediated and controlled by the central nervous system. It is also a response to a variety of conditions, the most common of which is infection. Fever occurs when the body temperature is elevated as a result of the body temperature being reset to a higher than usual temperature. Nearly every child will develop a fever at some point, the challenge for parents and caregiver is to be connected. Because of the normal variation in the body temperature, there is no single value that is defined as fever. However, the following are generally accepted values according to Matsuo et al. (2006):

Rectal temperature above 38°C;

Oral temperature above 37.8°C;

Ear (tympanic membrane) temperature above38°C;

Forehead (temporal artery) temperature above 38°C; and

Axillary (armpit) temperature above 38°C.

The best method to measure temperature depends upon several factors. In all cases, rectal temperatures are the most accurate. However, a measurement of temperature in the mouth (for children older than 4 to 5 years) is accurate when done properly. Temperatures measured in an armpit, an ear, and on the forehead are least accurate, but may be useful as a first test. Glass thermometer is not recommended due to the potential risk of exposure to mercury,

which is toxic but in case another (digital) thermometer is not available, it is necessary to carefully shake down the glass thermometer before use (Fisherman et al., 2012).

Any illness that causes a fever can cause a febrile convulsion. Most FC occurs with common illnesses such as ear infections, coughs, colds, flu and other virus infections. Serious infections such as pneumonia, kidney infections, meningitis and a host of others are less common causes. Febrile convulsions occur in young children at a time in their development when the seizure threshold is low. This is a time when young children are susceptible to frequent childhood infections such as upper respiratory infection, otitis media and viral syndrome. Consequently, they respond with comparably higher temperatures. Animal studies suggest a possible role of endogenous pyrogens such as interleukin-1beta that, by increasing neuronal excitability, may link fever and seizure activity (Matsuo et al., 2006).

Pyrogenic cytokines such as interleukin-1beta have been reported to be involved in the pathogenesis of febrile seizures. A common viral component that induces host cell immune responses is double stranded RNA. There is significant upsurge in the levels of interleukin-1beta production. The increase is noticed from double stranded RNA-stimulated leukocytes in febrile seizure patients in the absence of infection. This suggests that the response of leukocytes to viral infection might be enhanced in patients who experienced febrile convulsions. Research during the past two decades has indicated that both astrocytes and microglia secrete numerous cytokines such as interleukin-1beta, tumor necrosis factor-alpha and interleukin-6. It has also shown that astrocytes and microglia actively participate in inflammation and infection. Elevated concentrations of cerebrospinal fluid proinflammatory cytokines (such as tumor necrosis factor-alpha, interleukin-1beta, and interleukin-6) have been found in children with acute encephalitis or encephalopathy (Lin et al., 2003). Preliminary studies in children appear to support the hypothesis that the cytokine network is activated and may have a role in the pathogenesis of febrile seizures, but the precise clinical and pathological significance of these observations is not yet clear (Gatti et al., 2006; Haspolatet al., 2002).

2.5 Aetiology of febrile convulsion

Viral illnesses are the predominant cause of febrile seizures. Millichap and Kwong (2006) documented the presence of human herpes simplex virus 6 (HHSV-6) as the etiologic agent in roseola (a red rash on the skin, seen in diseases as measles, scarlet fever, and syphilis) in

about 20% of a group of patients presenting with their first FCs. *S*higella gastroenteritis also has been associated with FCs. And there is also a relationship between recurrent febrile seizures and influenza A.

The risk of febrile convulsion may increase after some childhood immunization such as diphtheria, tetanus and pertusis (DPT) or Measles-Mumps-Rubella (MMR) vaccination (Walker, 1988; Barlow, 2001; Davis, 2003 and Vestergaard, 2004). Walker et al. (1988) and Barlow et al. (2001) found a 4-fold increase in the risk of febrile convulsions within 1-3 days of receipt of DTP vaccination. With regard to MMR vaccination, the risk of febrile convulsions increases by 1.5 and 3.0 fold, with the peak occurring 1-2 weeks after vaccination (Griffin, 1991; Davis, 2003). An additional 25-34 febrile seizures have been estimated to occur per 100,000 doses of MMR administered (Davis, 2003). Low-grade fever can sometimes occur after a child has received childhood vaccines. If a febrile convulsion occurs, it is caused by the fever that may accompany the vaccination not the vaccination itself.

In rare cases, febrile convulsions can occur after a child has been vaccinated. Research has shown that for every 100,000 children who have the MMR vaccine which protects against mumps, measles and rubella, 25 to 34 children will have febrile convulsions. A child has a one in 3,000 to 4,000 chances of having an FC after having the MMR vaccine. The risks are even lower with the DTaP/IPV/Hib vaccine, which protects against diphtheria, whooping cough, tetanus, polio and the haemophilus influenzae type b (Hib) virus. For every 100,000 children who receive the DTaP/IPV/Hib vaccine, 6 to 9 will have febrile seizures. This equates to a child having one in 11,000 to 16,000 chances of experiencing a febrile seizure after having the DTaP/IPV/Hib vaccine (NHS, 2010).

Simple febrile convulsions are considered a genetic disorder, but no specific locus nor a specific pattern of inheritance has been described. The mode of inheritance is likely to vary between families and may be mulfactorial (Baumann et al, 2012). Other exogenous circumstances that have been identified as predicting an increased risk of initial febrile seizures include difficult birth, neonatal asphyxia and coiling of the umbilical cord (Tsuboi, 1985). Children with febrile convulsions and the exogenous conditions listed above are likely to have affected family members, and have a risk of recurrence of seizures on ≥ 5 occasions (Tsuboi, 1985).

The occurrence of a child's first (initial) febrile seizures has been associated with first or second-degree relative with history of febrile and afebrile seizures (Bethune, 1993); day care attendance (Shinnar, 2002, Millar, 2006); developmental delay (Bethune, 1993; Millar, 2006); Influenza A viral infection (Gordon, 2000; Chiu, 2001); Human herpesvirus-6 infection (Barone, 1995; Hall, 1994); Metapneumovirus (Peiris, 2005) and iron deficiency anemia (Naveed, 2005).

The middle ear and tonsil are thought to be important sources of infection in children with febrile convulsions. Kinsella's (1995) study on the role of the middle ear and tonsil in the etiology of febrile convulsion suggests that 18 children admitted in paediatric resident, as documented in the clinical records, had acute tonsillitis. In a study carried out in Kaduna, North Western Nigeria, malaria and ARI were identified causes of febrile convulsions (Eseigbe et al., 2012). This was similar to the finding of Osaghae and Mukwuzi-Odum (2011) in Benin City where both conditions were associated with 80% of the children with febrile convulsions.

2.6 Features of Febrile Convulsion

Febrile convulsions (FCs) are the most common form of childhood seizures, usually appearing between six months and six years of age, associated with fever but do not show evidence of other defined intracranial infection or defined cause (Nemours, 2010). A febrile convulsion is a seizure that occurs in children when they have a high fever of 38ºC (100.4ºF) or above. The seizure can last a few seconds or up to 15 minutes and is followed by drowsiness (Matsuo et al., 2006).

Sometimes a child that experiences a febrile convulsion may not show any warning symptoms prior to the seizure occurring. This is due to the fact that the body temperature increases so quickly. In many cases, the child will completely lose consciousness. Such a child may be observed shaking mildly or in a severe fashion (Matsuo et al., 2006).

Some of the features of febrile convulsion are as follow:

1. Loss of consciousness (black out);
2. Twitching or jerking of arms and legs;
3. Breathing difficulty;
4. Foaming at the mouth;

5. Going pale or bluish in skin colour; and
6. Eye rolling, so only the whites of their eyes are visible;

The children may take 10 to 15 minutes to wake up properly afterwards. They may be irritable during this time and appear not to recognize anybody present. Following a febrile seizure, children may be sleepy for up to an hour afterwards.

2.7 Risk Factors Associated with Febrile Convulsion

There are several reports indicating that different factors including the environmental and genetic factors influence the incidence of febrile convulsion (Shlomo, 2006; Gohnston, 2007). It has been emphasized in some studies that the mothers' disease during pregnancy, prematurity and delivery complications could be considered as risk factors for occurrence of the first febrile seizures (Vestergaard et al., 2005).

Several prenatal and perinatal factors have been studied in relation to febrile convulsions. Maternal complications during pregnancy, preterm birth and low birth weight have been suggested to be associated with increased risk of febrile seizures. Maternal smoking during pregnancy also has been reported to be associated with febrile seizures. Although results are inconsistent (Verity et al., 1985; Hauser et al., 1985; Berg, 1995), these findings suggest that adverse fetal environmental exposures may predispose children to febrile convulsions.

Kliegman et al. (2007) show that children with FC were deficient in magnesium. Magnesium is a necessary cofactor for hundreds of enzymes. It is important for membrane stabilization and nerve conduction. Adenosine triphosphate (ATP) and Guanosine Triphosphate need associated cyclases and kinases. Neurological manifestations of magnesium deficiency have been reported to be associated with a number of conditions. Chaparwal et al. (1971) have also shown that children with febrile convulsions have low serum and cerebrospinal fluids (CSF) concentrations of magnesium. They also state that there are certain biochemical changes that occur during the febrile state which possibly precipitate febrile convulsions.

Mishra et al. (2007) explain the significant reduction of serum and CSF levels of magnesium, zinc, Gamma-Aminobytric Acid (GABA) in children with febrile convulsions. They found that a significant positive correlation existed between CSF and serum magnesium in their

study subjects. Kumari et al. (2011) also provide evidence that iron deficiency is also a risk factor for febrile convulsion in children six months to three years. This study was also consistent with another recent study carried out in Kenya, which reported that iron deficiency is a risk factor for simple convulsions but not for other types of acute seizures (Idro et al., 2010). Some associated infections that lead to FC include chicken pox, influenza, tonsillitis, ottis media, respiratory tract infections, bronchitis, gastroenteritis and pneumonia.

2.8 Family History

Febrile convulsions tend to occur in families (Hauser, 1989; Berg, 1995) suggesting that genes or environmental factors shared by the family members play a casual role. In a child with FC, the risk of febrile convulsion is 10% for the siblings and almost 50% for the sibling if a parent has febrile convulsions as well. Although clear evidence exists for a genetic basis of febrile convulsions, the mode of inheritance is unclear (Iwasaki, 2002).While polygenic inheritance is likely, a small number of families are identified with an autosomal dominant pattern of inheritance of FCs leading to the description of a febrile convulsion susceptibility trait with an autosomal dominant pattern of inheritance with reduced penetrance. Although the exact molecular mechanisms of febrile seizures are yet to be understood, underlying mutations have been found in genes encoding the sodium channel and the gamma amino-butyric acid A receptor (Offringa, 1994).

A positive family history of FCs points to the importance of genetic factors and common environmental exposures. Tahird (2000) showed 30 percent of the children who had positive family history of febrile convulsions in his study. Similar result was also found in Saidulhaque, (1981) that 20 percent of children studied had positive family history in his study. Farwel (1994) also reported positive family history in 29 percent of the cases. Family history is the most important risk factor. The risk of having symptoms increases for a child who has a first-degree relative mother, father, sister or brother who has a history of febrile convulsions. The more relatives affected, the higher the risk for the child to experience febrile convulsion which can range from one in ten to one in two. The fact that febrile convulsions run in families is probably the result of one or more genetic mutations that a child inherits from their parents, which makes them more vulnerable to seizures.

A genetic mutation occurs when the normal instructions that are carried in certain genes become scrambled. This means that some of the body's processes will not work in the normal way. A number of potential mutations have been linked to an increased risk of febrile convulsions. However, exactly how and why these mutations develop is unclear (NHS, 2010).

Genetic loci that may account for the susceptibility to convulse with fever have been mapped (Peiffer, 1999; Wallace, 1998) and several models of inheritance have been suggested. Most evidence favours a polygenetic or multifactorial model (Berkovic, 1998). The relative importance of genes and environment has been estimated in twin studies in which the probandwise concordance rate was approximately 35% for monozygotic twins and 15% for dizygotic twins (Corey, 1991; Schiottez, 1972). However, twins often experience a considerable retardation in intrauterine growth, and risk factors identified in twins may not be valid in the general population (Phillips, 1993).

In Jonhston's (2012) 'editorial reports on iron deficiency, febrile convulsions and brain development', It was found that iron deficiency was associated with alterations in synaptic neurotransmitter systems including norepinephine, dopamine, serotonin, glutamate and gramma-amniobutyric acid (GABA).

Iron deficiency anaemia has been found to be commoner in children with FC than febrile controls and may also be related to FC (Daoud et al., 2002). Okposio et al.'s (2012) reports have suggested that low serum zinc levels may be implicated in FC pathogenesis. In a case-control study carried out to determine the serum zinc levels in Nigerian children with febrile convulsions in comparison with matched febrile controls without convulsions, ninety (90) children with febrile convulsions and ninety (90) matched febrile children without convulsions were recruited. Serum zinc was measured using atomic absorption spectrophotometer (Perkin-Elmer 306 USA). The mean serum zinc level of children with febrile convulsion (58.7 ± 25.4 μg/dL) was significantly lower than that of febrile controls.

Çaksen et al. (2001) have reported an immunoglobulin deficiency in FC, which may be of significance in causing febrile convulsion or the fever. Others have reported a possible immunological derangement in the cytokines and interferon axis in febrile convulsion that may correlate with the pathogenesis of FC or the fever (Caksen et al., 2001).

Bernstein (2012) reported a dramatic reduction in the incidence of bacterial meningitis and occult bacteremia since the advent of Haemophilus influenza type b and streptococcus pneumonia immunization. This has made routine laboratory evaluation for these bacterial infections unnecessary in a fully immunized, well appearing child who presents with a simple febrile convulsion. At the same time there is increasing evidence that the neurotropic human herpes virus 6 (HHV-6) and human herpes virus 7 (HHV-7) comprise a significant proportion of viral infection associated with febrile seizure, and may be a primary cause of the seizure in many instances.

2.9 Recurrent Rate

Overall, approximately one third of children with a first febrile seizure will experience a recurrence; 10% will have three or more febrile convulsions. The most consistent risk factors reported are a family history of febrile seizures and onset of first febrile seizure at <18 months of age (Shinnar et al., 2002). This relationship is not attributable to a greater tendency to experience seizures with each specific illness but rather the longer period during which a child with a younger age of onset will be in the age group at risk for febrile convulsions. Two other definite risk factors for recurrence of febrile seizures are peak temperature and the duration of the fever prior to the seizure (Berg et al., 1990; Berg et al., 1992; Offringa et al., 1994; Shinnar et al., 2002).

It was found in a study that those with peak temperature of 101°F had a 42% recurrence risk at one year, compared with 29% for those with a peak temperature of 103°F, and only 12% for those with a peak temperature of 105°F (Berge et al., 1990; Berg et al., 1992; Offringa et al., 1994). It was also acknowledged in the study that the shorter the duration of recognized fever, the higher the chance of recurrence. The recurrence risk at one year was 46% for those with a febrile seizure within an hour of recognized onset of fever, compared with 25% for those with prior fever lasting one to twenty-four hours, and 15% for those having more than 24 hours of recognized fever prior to the febrile seizure. Children with multiple risk increased risk of epilepsy (Verma, 2002).

Even though there is a slight increase in the risk of epilepsy in children with prolonged febrile convulsions, the risk is very small. It has been estimated that the risk of epilepsy in the general population is approximately 0.5%.; the risk of epilepsy in children who have prolonged febrile convulsions is approximately 1.5%; still with 98.5% chance that the child

will not develop epilepsy. At the same time, one can look at this same information and state that children with febrile convulsions have a 3-fold increase in risk of developing epilepsy (Verma, 2002).

Febrile convulsions frequently recur although usually occur as single, isolated incidents, the reoccurrence rate is 30% overall (Huang, 2006) and increases to 50% if the initial febrile seizure occurs in a child under one year of age (Rose, 2005). Of those who experience a second febrile seizure, the risk of recurrence increases 2-fold (Nelson, 1978; Offringa, 1994). Predictors of recurrent FCs include a history of focal, prolonged, and multiple seizures (Berg, 1990; Peiffer, 1999), Influenza A viral infection (Van Zeiji, 2004), family history of febrile convulsions (Offringa, 1994), onset of febrile seizure <12 months of age (Van Stuijvenberg, 1998), temperature <40°C (<104 °F) at time of first seizure (Van Stuivenberg, 1998), and a history of complex, initial febrile convulsions (al Eissa, 1995). A low proportion (2-4%) of children who experience at least one febrile convulsion event (Gordon, 2001; Nelson, 1976) go on to develop recurrent afebrile seizures (epilepsy) (Applegate, 1989; Annegers, 1979).

2.10 Febrile Convulsion and Epilepsy

Many parents worry that if their child has one or more febrile convulsions, they will develop epilepsy when they get older. Epilepsy is a condition where a person has repeated seizures (fits) without fever. While it is true that children who have a history of febrile convulsions have an increased risk of developing epilepsy, it should be stressed that this risk is still quite small. It is estimated that children with a history of simple febrile convulsions have a one in 50 chance of developing epilepsy in later life. Children with a history of complex febrile convulsions have a one in 20 chance of developing epilepsy in later life (NHS, 2010).

Febrile convulsions and epilepsy are two different conditions. The cause of a febrile convulsion is related to feverish illness and is not due to epilepsy or any brain abnormality. Epilepsy causes seizures without a fever. Although the bulk of researches carried out over the last 25 years is indicative of a good prognosis regarding most of the cases of febrile convulsions, there are also reports in which the risk of developing epilepsy to more than 9% in presence of risk factors in these patients is highlighted (Gohnston, 2007; Khazaie et al., 2007)

About two percent (2%) children who have a febrile convulsion develop epilepsy in later childhood. This is very slightly higher than the chance of epilepsy developing in children who have never had an FC. But this is probably because a small number of children are prone to develop both epilepsy and febrile convulsions. So, having a febrile convulsion does not cause epilepsy to develop (Scheffer, 2007). Nelson and Ellenberg (1978) reported that neurologically normal children with simple febrile seizure without family history of epilepsy have 0.9% chance of developing epilepsy by seven years of age.

Ellenberg's (2005) study on febrile convulsions among children in Belmure, Canada, examined the frequency of febrile convulsions in 1,706 children who had experienced at least one febrile convulsion and were followed up to the age of seven. Thirty percent (37%) of the group had two or more febrile convulsions by the age of seven and would be considered to have epilepsy.

The vast majority of children with febrile seizures do not develop epilepsy. Febrile convulsions are classified as simple or complex. Complex febrile seizures are associated with an increased risk of epilepsy. Complex febrile seizures are defined by at least one of the following features: duration longer than 15 minutes, multiple seizures within 24 hours, and focal features (Nelson, 1976). These features are absent in simple febrile seizures, which make up 75% of attacks (Annegers, 1987). Large prospective cohort studies of children have identified other risk factors for epilepsy. These risk factors include neurological abnormality, a family history of epilepsy, and short duration of fever (<1 hour) before the seizure (Nelson, 1976; Berg, 1996). Children with no risk factors have a 2.4% chance of developing afebrile seizures by 25 years compared with 1.4% for the general population (Annegers, 1987).

Children with a history of at least one complex feature, a neurological abnormality and a family history have a ten percent (10%) risk of developing epilepsy by the age of seven (Nelson, 1976). Prolonged febrile convulsions increase the incidence of epilepsy to 21% (Annegers, 1987). For children with all three features of a complex febrile convulsion, the risk increases to 49% (Annegers, 1987).

The relation of epilepsy to seizures with fever is complex; three different scenarios deserve consideration. The first is where the seizure with fever is essentially the onset of the epilepsy syndrome. The best example is severe myoclonic epilepsy of infancy (or Dravet syndrome) in which infants classically present with febrile status epilepticus at around six months. The

syndromic diagnosis is not initially apparent until the infant later develops afebrile seizures. Another example is the syndrome of febrile seizures plus, in which seizures with fever persist beyond the age of five years or afebrile seizures also occur. By definition, these children have epilepsy and do not fit the definition of febrile seizures, but they carry a similarly good prognosis (Narula, 2005).

In the second scenario, a period of freedom from seizures follows febrile seizures before the development of a specific epilepsy syndrome such as childhood absence epilepsy. In the third scenario, the child has previously had afebrile seizures and has a diagnosis of epilepsy and then subsequently presents with seizures with fever. These seizures are triggered by fever; these are not febrile convulsions but may be confused with them.

The outlook for children with febrile convulsions is excellent. Almost all children make a complete recovery, and there is not a single reported case of a child dying as the result of a febrile convulsion. In addition, one of the biggest studies of its kind looked at more than 1.5 million children with a history of febrile convulsions and found no evidence of an increased risk of death in later childhood or adulthood. Tests may also be needed to identify what is causing the child's high temperature. This is particularly the case in children who are under 12 months old and in those where there is no clinically obvious source of the fever. There is no specific treatment for febrile seizures other than treating the underlying cause of the child's high temperature, such as using antibiotics to treat an infection (NHS, 2010).

According to Fisherman et al. (2012), a child who has a febrile convulsion should be seen by a healthcare provider as soon as possible to determine the cause of the fever. Some children, particularly less than 12 months of age may require testing to ensure that the fever is not related to meningitis, a serious infection of the lining of the brain. The best test for meningitis is a lumbar puncture also known as a spinal tap, which involves inserting a needle into the low back to remove amount of fluid (cerebrospinal fluid or CSF) from around the spinal cord. Treatment for prolonged seizures usually involves an anti-seizure medication and monitoring the child's heartbeat, blood pressure and breathing. After simple convulsion, most children do not need to stay in the hospital unless the seizure was caused by a serious infection requiring treatment in the hospital.

Identifying the cause of fever should be the top priority when evaluating infants or young children after a simple febrile convulsion, and the differential diagnoses should always

include meningitis according to a new clinical practice guideline published by the American Academy of Paediatrics. In most situations, however, a simple febrile convulsion does not usually require further evaluation, specifically electroencephalography, blood studies, or neuroimaging (Mahoney, 2011).

2.11 Socio/Cultural Management of Febrile Convulsion and Other Childhood Illness in Nigeria

It is documented that the outcome of FC is influenced by the age of child, severity of symptoms, time of intervention and quality of treatment received (Ogunrinde et al., 1999; Jiya et al., 2006). Naturally caregivers of children play a pivotal role in the provision of care for childhood diseases. Since most children cannot fend for themselves, time of intervention and quality of care received depend on the actions of the caregiver. Understanding the concept and consequences of disease, knowledge of treatment modalities, and the capacity to provide or access care are some of the factors that could influence the health care seeking behaviour of caregivers.

The use of traditional medicine (TM) is widespread in developing countries (WHO, 2002). In Africa, rural and urban dwellers often supplement the treatment of orthodox medical practitioners with treatment from traditional healers (Fasola, 2006). World Health Organization (2002) estimated that TM provided 80%–90% of healthcare in Africa, and this is supported by findings that in Ghana, Mali, Nigeria and Zambia which show that the first-line treatment for 60% of children with high fever from malaria was herbal medicines at home (Peltzer, 2009).

Among Nigerians, there are powerful cultural and religious beliefs and practices relating to health. Approximately 85% of the population use traditional medicine (TM) and consult TM practitioners for health care (Adesina, 2011). Nigeria's 70% rural population (Momodu, 2002) relies almost exclusively on TM for their healthcare needs (Olusegun, 2009) and this has been attributed to poverty (Adesina, 2011), low or no access to quality orthodox medicine, illiteracy and ignorance (Mafimisebi et al., 2010).

The use of herbal concoction in 6 (18.2%) cases in a study in Sokoto reflects, to some degree, the practice of the use of traditional medicine in tropical Africa where 70–80% of the populations patronize traditional healers (Coker et al., 2006). The use of herbal mixtures is

founded in the belief that herbs are efficacious in the management of diseases. In the south eastern Nigeria for example, Iloeje (1989) observed that 28.3% of parents believed that the best treatment for febrile convulsion is traditional medicine. Ehiemere et al. (2012) also mentioned that the most common home remedies used by caregivers for febrile convulsion were herbal preparations.

Some people use crude oil to cure convulsion and this practice, among inhabitants of oil producing area of Nigeria, has been documented. The side effects of such practice include chemical pneumonitis and CNS complications **(**Okojigo et al., 1993; Anochie et al., 2000; Ofovwe et al., 2002). Osowole et al. (2005) found that respondents treated febrile illnesses using diverse methods. Treatment modalities mentioned were the use of liquid herbs, powdered herbs, medicinal scarifications, incantations and sacrifices. These modalities brought to the fore the traditional healers' perception of the different illnesses and perceived threats to life as liquid and powdered herbs are usually used in treating febrile illnesses considered minor while scarification and sacrifices are used for perceived life-threatening cases.

Twenty percent of urban and twenty-two percent of rural mothers use urine (human and or cow's) for treating FCs at home. Other home remedies include kerosene, fuel and crude oil. Based on certain traditional points of view, consumption of (cow urine) and human urine is a common form of traditional remedy for convulsion and related health conditions in children in some cultural settings in Nigeria (Oforvwe et al., 2002). Similarly, current propaganda on urine therapy has also started to rise but it is known that some parents use human and cow urine as a form of folk medicine in paediatric ill health, most especially in cases of febrile convulsion (Kayserilli et al., 2008). Kafaru (1992) stated that many of the Nigerian older people used human urine in serious cases of ill-health such as wound sores, diabetes and even when poison was suspected; while cow urine was mixed with herbal preparation for treating convulsion in babies. Shodipe (1986) reported that in traditional treatment of sickle cell anaemia, ingredients for the herbal concoction include ground leaves of tobacco (*Nicotianatabacum*), cow urine, rock salt and alcohol.

Iloeje (1989) reported some of the actions taken by the parents whenever a child became febrile or had febrile convulsions. Mostly mentioned was a native concoction containing palm-kernel oil, *ude-aku*. This was rubbed all over the body, instilled into the eyes and ears,

and forced into the mouth of the affected child to drink. As part of the treatment, a convulsing child is made to sit on a clay pot placed upside-down. A special leaf called *ncheanwu* (*occimumbasilicum*) which has a strong smell is placed on the child's head. A fire is lit nearby using the leaves of this plant, and the child is made to inhale the smoke from the fire. Other harmful actions taken by the parents include burning the sole of his feet, making scarification marks on the child's body and taking the child to a prayer house.

2.12 Attitude of Caregivers/Parents towards Febrile Convulsion

Parental reaction and response to febrile seizure occurrence in children can manifest physically, psychologically and behaviourally. Common physical symptoms experienced by parents following their child's febrile seizure include dyspepsia (Kurugo et al., 1995), anorexia (Parmer 2001) and sleep disruption (Parmer 2001; Flury et al., 2001). Psychological reactions experienced by parents include fear of reoccurrence (Van Stuijvenberg et al., 1999), fear of subsequent development of epilepsy (Parmer 2001), apprehension, and excessive anxiety and worry about low-grade fevers (Crocetti et al., 2001).

A focus group discussion (FGD) was conducted in two communities, Uselu (urban) and Evbuomodu village (rural), both in Edo State, southern Nigeria among urban and rural mothers. Seventy-five percent of mothers from rural community and 28.6% of urban mothers attributed the cause to witchcraft and/or evil spirits. Twenty-five percent of rural mothers also attributed abnormality of the spleen as a cause of FC. All the mothers, both urban and rural, were not directly involved in the management of the convulsive episode due to panic and confusion. Ninety-two percent of urban and all the rural mothers permitted the use of traditional medicine while 7.1% of urban mothers employed prayers during convulsion. Twenty percent of urban and twenty-two percent of rural mothers use urine (human and or cow's) for treating FC at home. Other home remedies include kerosene, fuel and crude oil. Mass enlightenment campaign for the community, especially the rural, against use of harmful traditional remedies to treat FC at home is strongly advised (Ofovwe et al., 2002)

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Location

The study was conducted in Ibadan North Local Government Area. Ibadan is the third largest city in Nigeria by population and the largest by geographical area. It is located in South-Western Nigeria, 128 km inland Northeast of Lagos and 530 km Southwest of Abuja, the Federal Capital Territory and is a prominent transit point between the coastal region and the areas to the north (Wikipedia, 2010). Ibadan had been the centre of administration of the old Western Region, Nigeria since the days of the British colonial rule, and parts of the city's ancient protective walls still stand to this day. The principal inhabitants of the city are the Yoruba-speaking people.

The Ibadan North Area was established by the Federal Military Government of Nigeria on the 27th September, 1991. It was carved out of the defunct Ibadan Municipal Local Government along with others. The population of Ibadan North is 3,800,000 (National Population Commission, 2006) covering an area of 128 km². Majority of the population of Ibadan North Area are in the private sector. They are mainly traders and artisans. A good number of their workers are civil servants who live predominantly around Bodija Estate, Agbowo, Sango, Mokola, the University of Ibadan and the Polytechnic Ibadan.

3.2 Target Population

The target population for this study was male and female teachers in both private and public nursery and primary schools in Ibadan North Area. The population was narrowed to nursery school teachers and primary 1-3 teachers in Ibadan North Area.

3.3 Unit of Enquiry

The unit of enquiry was teachers teaching nursery schools and primaries 1-3.

3.4 Inclusion Criteria

All nursery and primary 1-3 teachers in public and private schools in Ibadan North Area were included in the study.

3.5 Study Design

A cross-sectional quantitative method of data collection was used to obtain information on teachers' knowledge, attitude and first-aid care of nursery and primary school teachers on febrile convulsion in Ibadan North LGA.

3.6 Sample Size Determination

- The minimum sample size was estimated using the sample size formula for cross-sectional studies.

  This formula is given as:

$$S = \frac{Z^2pq}{d^2}$$

z= standard normal deviation corresponding to level of significance of 5% (1.96)

P= prevalence of 50% since the prevalence is not known.

q=1- p

d=level of precision taken as 5%

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

p= 50%

q=1-p=0.5

d=5% (margin of error permissible)

n= sample size

$$n= \frac{1.96^2x0.5x\ 0.5}{0.0025}$$

$$\frac{3.8416\ x0.5x0.5}{0.0025}=384$$

This estimated sample was further increased by 18, which represents 4.7% of the sample, thus bringing the total sample size to 402.

3.7 Sampling Method

A two-stage sampling technique was used in this study. List of all private and public Primary schools in Ibadan North Local Government Area was obtained from Oyo State Education Management Board. The registered schools constituted 74 public and 114 private schools.

First stage involved selection of 10 public and 47 private schools using a simple random technique. The first number on the list of the public schools was selected randomly between one and eight. Thereafter every 8th school on the list was selected as a sample. Likewise on the private schools list, the first number was selected randomly between one and three. This was followed by selection of every (third) 3rd school on the list. Second stage involved random selection of 176 and 226 teachers from the selected public and private primary schools respectively.

3.8 Pilot Study

A self-administered questionnaire was pre-tested in nursery and primary schools teachers in Ibadan North East Local Government Area, Oyo State to modify some of the items used in the final questionnaire. Irrelevant questions were then eliminated and confusing ones got restructured to ensure reliability and validity of the questionnaire before carrying out the study. Based on the pilot study, the questionnaire was reviewed and appropriate coding guide was established.

3.9 Data Management/ Analysis

Data file was created using Statistical Package for Social Sciences (SPSS 16). All responses were numerically coded on each questionnaire item using the SPSS version 16. Summary statistics such as frequencies, percentage and appropriate charts of variables were generated. Mean, median, standard deviation and range were computed depending on each variable type. Results were presented in frequency tables and charts. Cross tabulations between socio-demographic characteristics, knowledge, attitude and first-aid care for febrile convulsion among teachers were tested using the Chi-square. Associations between other variables (knowledge and attitude) were also tested using Chi-square.

The questionnaire was designed to broadly cover four sections: socio-demographic characteristics; knowledge of FC; attitude of teachers to FC and first aid care of FC. Knowledge of FC was measured with a 10-item scale and categorized as good (score >4) and poor (scores≤4) while attitude was measured with a 17-item scale. Each item was scored on a 5-point Likert Scale with a total of 85 of which less than or equal to 51 (≤51) was categorized as negative and more than 51 (>51), as positive. First aid care was also assessed as appropriate or inappropriate based on defined protocol.

In scoring the knowledge questions, each right answer was scored two (2) while each wrong answer attracted one (1) mark. Attitude to FC was also scored as agree (1 mark), strongly agree (2 marks), not sure (3 marks), disagree (4 marks) and strongly disagree (5 marks). They were later re-categorized into three (3): agree, not sure and disagree. Right answers were then scored as two (2) while wrong answers as one (1). Each first aid care item response was graded less than or equal to five (≤5) for inappropriate and more than five (>5) for appropriate measures.

3.10 Ethical Considerations

Ethical approval was obtained from the Oyo State Ethical Review Committee to carry out this study. A proposal was submitted to the Oyo State Ethical Review Committee to make sure the study was clear and risk-free.

Absolute confidentiality was fully maintained. All information collected from respondents was treated with utmost respect and confidentiality was assured and maintained as name was not written on questionnaire copies.

Approval was obtained from the head teachers of affected nursery and primary schools before the study was carried out. This was done to ensure that the study was transparent, risk-free and to enjoy respondents' cooperation. The teachers' consents were also obtained after provision of adequate, clear and complete information about what the study entailed. It was well articulated that at any point in time any participant who wished to withdraw was free to do so. Only willing participants were recruited into this study. There were no forms of coercion or force used when recruiting the participants. Participation was voluntary. Participants did not benefit directly in this study. Information obtained from this study would be useful for programmes targeting school health. The study was relatively risk-free as it was non-invasive.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-demographic Characteristics of Respondents

Majority (76.4%) of the respondents were females. The mean age of the respondents was 35.4±10.6 years. Most of the teachers (36.3%) were aged 21-30, followed by those aged 31-40 (21.1%) and those who were 51 years and above (7.7%). Almost two-third (65%) of respondents were married, about a third (32.3%) were single and the remaining (3.0%) were either separated, divorced or widowed. Most (92.3%) of respondents were Yoruba. Christianity (80.8%) was the most practised religion among the respondents. Forty-one percent of the teachers had between one to five years of teaching experience followed by those who had 11or more years of teaching experience (39.6%) and 6-10 years of teaching experience (19.0%) (Table 1) Majority (68.2%) of the teachers had the National Certificate of Education (NCE), 21.4% had a university degree and only 2.7% had a postgraduate certificate (Figure 1).

Table 1: Demographic Characteristics of the Respondents in Ibadan North Area

Characteristics	N	%
Gender		
Male	95	23.6
Female	307	76.4
Age		
≤ 20 years	30	7.5
21-30 years	146	36.3
31-40 years	85	21.1
41-50 years	110	27.4
51+ years	31	7.7
Years of teaching		
≤ 5	159	41.4
6-10	73	19.0
≥11	152	39.6
Marital status		
Single	130	32.3
Married	260	64.7
Separated/divorced/widow	12	3.0
Religion		
Christianity	325	80.8
Islam	77	19.2
Ethnicity		
Yoruba	372	92.5
Others *	31	7.7
Total	**402**	**100.0**

**** Others**

Igbo	**17**	**4.5%**
Hausa	**6**	**1.5%**
Ghanaians	**7**	**1.7%**

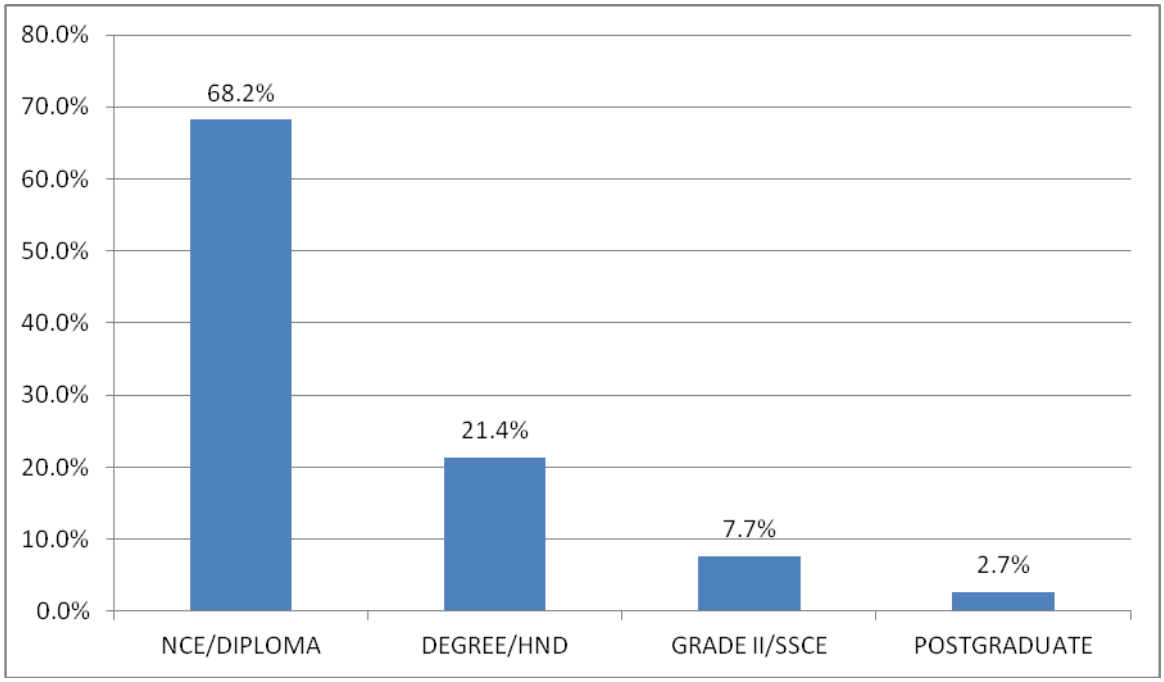

Figure 1: Respondents' Level of Education in Ibadan North Area.

4.2 Teachers' Awareness and Knowledge of Febrile Convulsion

Majority (85.3%) of the respondents claimed to have heard about FC. The commonest source of information mentioned by the respondents was the Radio (62.7%). Other sources were television (55.2%), family (48.8%) and newspaper (40.0%) (Figure 2)

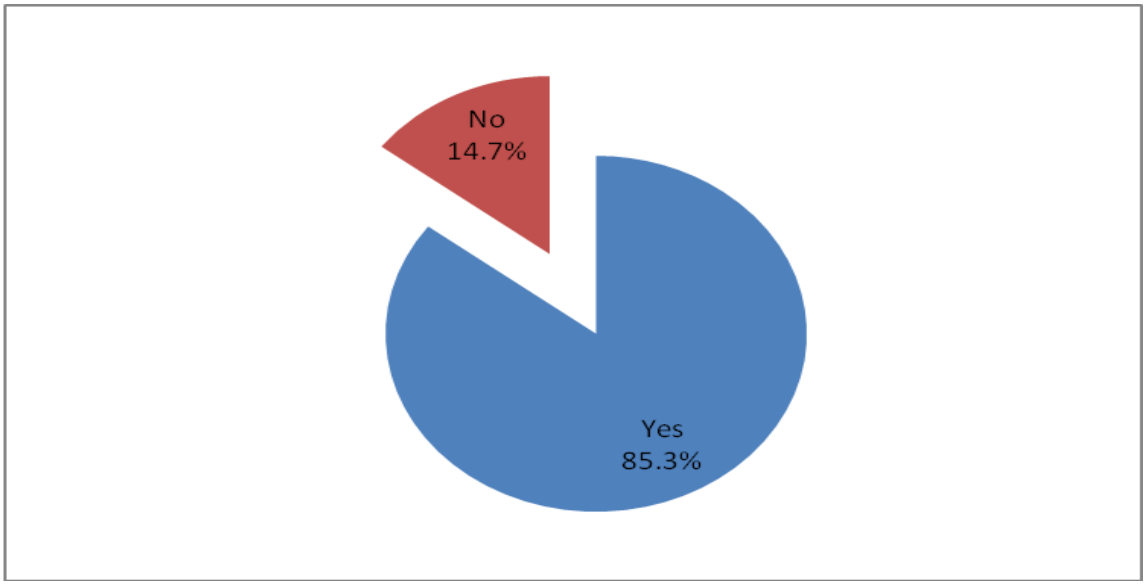

Figure 2: Percentage of Teachers Who Had Previously Heard of FC in Ibadan North Area

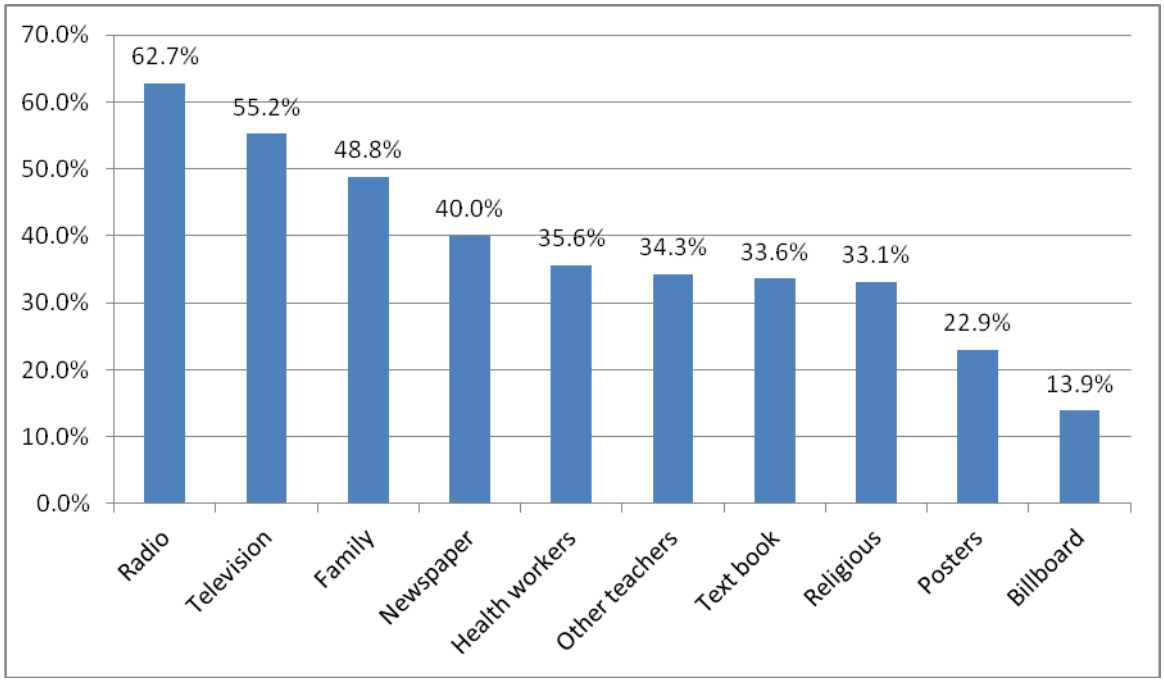

Figure 3: Respondents' Sources of Information about FC in Ibadan North Area.

4.3 Proportion of the Respondents Who Had Ever Witnessed Febrile Convulsion and Actions Taken

Forty-one percent (41%) of the respondents reported to have witnessed a child convulse in school (Figure 4). This set of respondents who witnessed a child convulsed in school, 54.1% indicated that the child fainted with foam in the mouth. Almost twenty-one percent (20.9%) maintained that the child had high temperature while 15.8% attested to have witnessed the victim shaking and shivering with mouth closed (Table 2).

Respondents who claimed to have witnessed a child convulse in school reported that they took actions to help the child. Some of the actions claimed to have been taken by the respondents include putting iron spoon in child's mouth (28.1%), rushing the child to the hospital (16.9%) while others reported pouring water on child's body (15.9%) (Table 3)

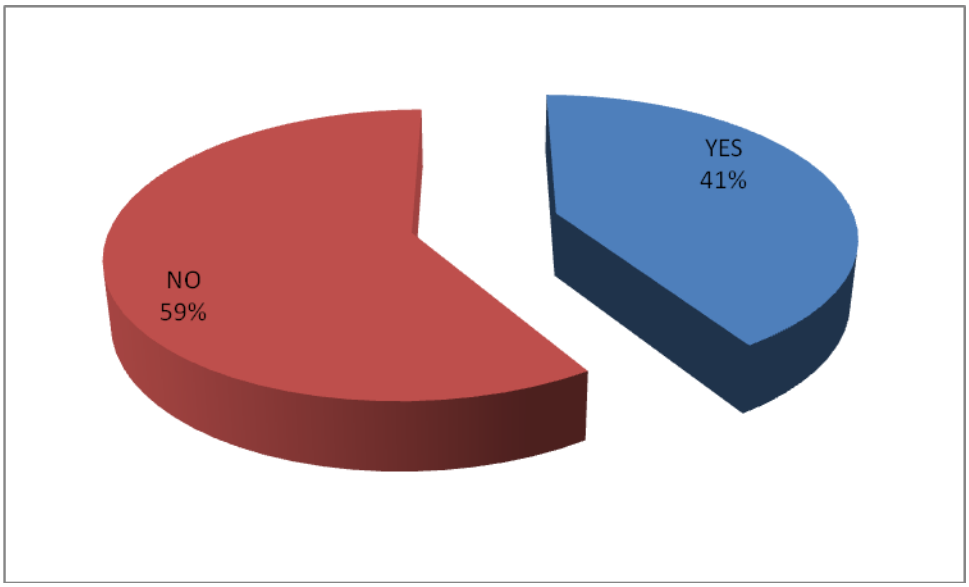

Figure 4: Percentage of the Respondents Who Had Ever Witnessed a Child Convulse in School

Table 2: Percentage Distribution on Signs Respondents Saw before a Child Convulsed

Response	No	Percentage
Fainted with foam in the mouth	91	51.4
Shaking and shivering with the mouth close	28	15.8
High temperature	37	20.9
Stiffness of the body and later unconsciousness	13	7.3
Vomiting and later fainted	8	4.5

Table 3: Actions Taken by the Respondents When a Child Had Febrile Convulsion

Actions taken	Frequency	Percentage
Put iron spoon inside the child's mouth	113	28.1
Rushed to hospital	68	16.9
Poured water on the child's body	64	15.9
Gave water and salt	18	4.5
Allowed ventilation and removed uniform	13	3.2
Gave milk and onions	12	3.0
Shouted the child's name	11	2.7
Gave paracetamol	10	2.5
Called the parents	8	2.0
Applied *aboniki*	2	2.0
Prevented teeth from locking	6	1.5
Total	**325**	**100**

4.4 Respondents' Description of Febrile Convulsion

Respondents were asked to describe febrile convulsion. Fifty percent (50%) of the respondents described febrile convulsion as a malfunction of the brain while 44.3.1% said that it is a natural disease. Few (5.4%) of the respondents claimed that febrile convulsion is a supernatural disease while others (5.0%) said it is due to careless attitude of the care giver (Figure 5). Correct answers correspond to the definition of febrile convulsion as a natural condition that happens when there is a temperature rise. Responses such as associating febrile convulsion with supernatural force and malfunction of the brain are wrong answers.

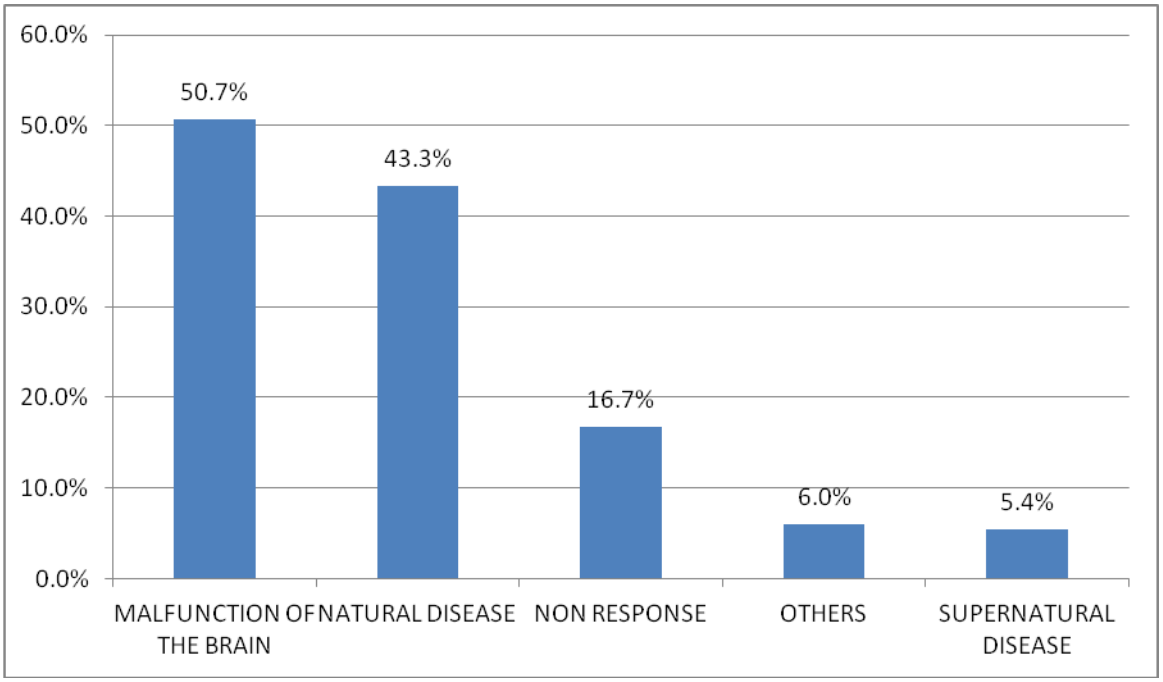

Figure 5: Respondents' Description of Febrile Convulsion in Ibadan North Area

4.5 Respondents' Knowledge of Causes and Symptoms of Febrile Convulsion

Respondents were asked what they believed was the cause of febrile convulsion. Some of the causes of febrile convulsion mentioned by them included persistent high temperature (37.0%), fever/malaria (12.5%), shortage of blood (11.1%) and hereditary (2.6%) (Table 4) Regarding symptoms of febrile convulsion, the most commonly mentioned symptoms were gnashing of teeth (28.1%), fainting/weakness (28.2%), unconsciousness/turning of the eyeballs (17.7%) and high fever (9.9%) (Table 5) About 30.6% of the respondents reported that the older a child is as at first febrile convulsion, the less likely the child is to have a repeat of febrile convulsion (figure 6)

Table 4: Respondents' Mentioned Causes of Febrile Convulsion in Ibadan North Area.

Causes of FC	No	%
Persistent high temperature	130	37.0
Fever/malaria	43	12.5
Shortage of blood	38	11.1
Inadequate balanced diet/no care	36	10.5
Low immunization	31	9.0
Dirty environment	21	6.1
Malfunction of the brain	20	5.8
Spiritual attack	15	4.4
Heredity	9	2.6
Total	**343**	**100**

Table 5: Symptoms of Febrile Convulsion Mentioned by the Respondents

Symptoms of FC	**No**	**%**
Gnashing of teeth	69	38.1
Fainting/weakness	51	28.2
Turning of eyeball	32	17.7
High fever	18	9.9
Vomiting	6	3.3
Shaking of the body	5	2.8
Total	**181**	**100**

4.6 Respondents' Knowledge on Actions to Take if a Child Has Fever in Class

Some of the things mentioned by the respondents to do if a child has fever in school included give paracetamol (27.0%), pour water on the child's face (16.0%), do nothing, go to hospital (11.7%) and wrap the child with a blanket (8.1%) (Table 6)

Knowledge of febrile convulsion was measured with a 10-point item scale and categorized as good knowledge (>4) and poor knowledge (≤4). Figure 6 shows that only 30.6% of respondents had good knowledge of FC.

Table 6: Actions Reported by the Respondents to Take if a Child Has Fever in School

Actions to take*	Frequency	Percentage
Give paracetamol	307	27.0
Apply tepid sponging	241	21.6
Pour water on the child's face	179	16.0
Fan the child	158	14.1
Do nothing, go to hospital	131	11.7
Wrap the child with blanket	91	8.1
Don't know	16	1.4
Total	**1118**	**100.0**

***Multiple response

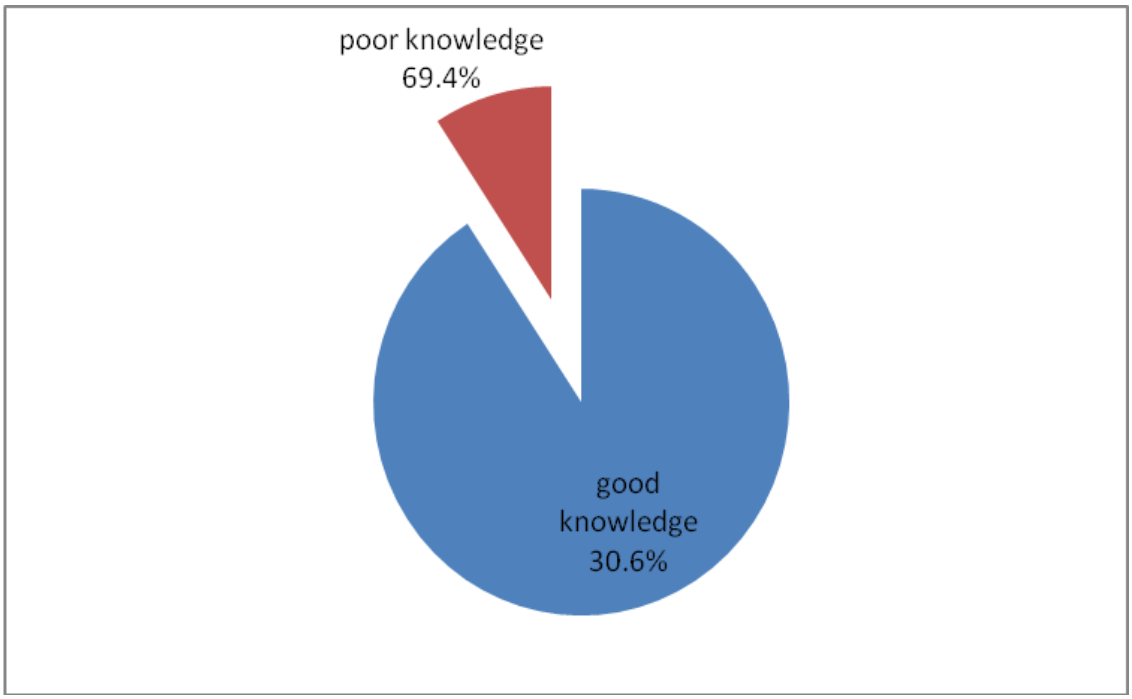

Figure 6: Respondents' Knowledge of Febrile Convulsion

4.7 Respondents' Knowledge of FC by Social Demographic Characteristics

Table 7 shows the association between the knowledge of FC and the respondents' socio-demographic characteristic. Under the gender category, there was no significant difference in the knowledge of febrile convulsion between female (30.9%) and male (29.5%). Also, marital status and religion had no significant influence on knowledge of febrile convulsion.

However, good knowledge was significantly higher among respondents whose ages were 51 years and above with 48.8% compared with the remaining age brackets. In descending order, the rest are 21-30 years (37.0%), ≤ 20 years (36.7%), and 41-50 years (35.5%), and 31-40 years (21.0%) (X^2= 9.650, p=0.047). Similarly, years of teaching experience had a significant effect on knowledge of FC. Teachers with more than 10 years of teaching experience were 39.5% compared with those who had 6-10 years experience's 27.4%. And respondents with ≤5 years (24.0%) of teaching experience had good knowledge of FC (X^2= 8.660, p=0.013).

Table 7: Association between Knowledge of FC and Socio-demographic Characteristics

Characteristics	Knowledge of FC		D	Total	X^2	P
	Poor	Good				
Sex (n=402)						
Male	67(70.5%)	28(29.5%)		95		
Female	212(69.1%)	95(30.9%)	1	307	0.074	0.446
Age (n=402)						
≤ 20 years	19(63.3%)	11(36.7%)		30		
21-30 years	109(74.7%)	37(37%)		146		
31-40 years	64((75.3%)	21(21%)	4	85	9.650	0.047
41-50 years	71(64.5%)	39(35.5%)		110		
51+ years	16(51.6%)	15(48.8%)		31		
Years of teaching(n=402)						
≤ 5	120(75.5%)	39(24%)		159		
6-10	53(72.6%)	20(27.4%)	2	73	8.660	0.013
≥11	92(60.5%)	60(39.5%)		153		
Marital status (n=402)						
Single	97(74.6%)	33(25.4%)		130		
Married	176(67.7%)	84(32.3%)	2	260		0.126
Separated/divorced/widow	6(50.0%)	6(50.0%)		12	4.149	
Religion (n=402)						
Christian	220(67.2%)	8(25.8%)		228		
Islam	59(76.6%)	18(23.4%)	1	77	2.338	0.133
Ethnicity (n=402)						
Yoruba	256(69.0%)	115(31.0%)		371		
Others	23(67.6%)	8(25.8%)		31	0.363	0.686

4.8 Respondents' Attitude towards Febrile Convulsion

Teachers' attitude towards febrile convulsion was investigated. Attitude was measured with a 17-item scale and each item was scored on a 5-point Likert Scale: agree, strongly agree, not sure, disagree and strongly disagree with a total of 85 and categorized as negative attitude (≤51) and positive attitude (>51). However, for the purpose of descriptive statistics attitude was re-categorised into a 3-point scale: agree, not sure and disagree. Table 8 shows the results obtained.

Majority (87.1%) of the respondents disagreed that children's temperature should be taken regularly. Forty-five percent of the respondents agreed that sibling of a child with febrile convulsion will also have it, in other words, that febrile convulsion runs in the family, while 51.7% of the respondents disagreed. Respondents were further asked if they believed that febrile convulsion was hereditary. Only 19.7% indicated that they believed that febrile convulsion was hereditary while 51.7% disagreed. Twenty-two percent of the respondents were of the opinion that febrile convulsion can lead to epilepsy while 46.8% disagreed. Some respondents (11.9%) indicated their belief that febrile convulsion can cause death while a majority (67.9%) disagreed (Table 9).

Regarding respondents' attitude to having a child with febrile convulsion in their class, 27.0% of respondents said they would not like to have a child with febrile convulsion in their class while majority (73.0%) of the respondents reported that they would accept such a child (figure 7). Respondents' reasons for objecting to having a child who has suffered febrile convulsion in their class included causing a distraction in the class (25.5%), not having experience to take care of the child (18.9%) and discrimination from other pupils (14.2%) (Table 9)

Table 10 shows that 73.0% did not object to having a child with FC in their class and some of reasons given were febrile convulsion is not communicable (35.3%), every child has right to education (17.9%), they are normal children (11.0%), it is curable and a child can outgrow FC (5.2%).

Table 11 shows the association between teachers' willingness to have a child who has suffered FC in their class and selected socio-demographic characteristics. There were significant associations between willingness and age (p= 0.001); willingness and marital

status (p=0.001); and willingness and years of teaching experience (p= 0.001). Seventy-five percent of female respondents were not willing to have a child with FC in their class compared to their male counterparts (67.0%). More of respondents aged 50 and above were unwilling to have a child with FC compared with respondents who were young. The proportion of respondents who were not willing to have child with FC was significantly low for those who had been teaching for ≤ 5 years (62.0%).

Attitudes to FC were also scored as one (1) for agree, two (2) for strongly agree, three (3) for not sure, four (4) for disagree and five (5) for strongly disagree. These were later re-categorized into three (3) as agree, not sure and disagree. Attitude was measured with a 17-item scale. Each item was scored on a 5-point Likert Scale with a total of 85 and categorized as negative (≤51) and positive (>51).

About (90.8%) of the respondents indicated having positive attitude to febrile convulsion (figure 4.9). Association between teachers' attitude about FC and selected socio-demographic characteristics revealed that there was a significant influence between attitude and gender (p < 0.003). Also, marital status had a significant relationship to attitude to febrile convulsion. Respondents who were married (59.4%) had positive attitude to febrile convulsion compared to those who were separated/divorced/widowed (41.7%) and the single (41.5%) to FC (p = 0.003) (Table 12). The proportion with negative attitude was highest for those who had been teaching for ≤ 5 years (56.0%). There was no significant association between attitude and level of education.

Table 8: Respondents' Attitude towards Febrile Convulsion

Attitude to FC	Agree N(%)	Not sure N (%)	Disagree N (%)
Child with FC will not survive	21(5.2)	49(12.2)	332(82.6)
Mothers offended the gods	7(1.7)	31(7.7)	364(90.5)
High fever can lead to FC	48(11.9)	46(11)	308(76.6)
Low socio economic class	68(16.9)	79(19.7)	255(63.4)
Should not be admitted to school	26(6.5)	31(7.7)	345(65.8)
My child will not play with them	33(8.2)	34(8.5)	335(83.3)
Restricting their activities	118(29.4)	77(19.2)	207(51.1)
Different from others	94(23.4)	44(10.4)	264(65.7)
Develop epilepsy	87(21.6)	127(31.6)	188(46.8)
Transfer to others	286(7.7)	53(13.2)	63(15.7)
Hereditary	79(19.7)	115(28.6)	208(51.7)
Grow out of it	50(12.4)	87(21.6)	265(65.9)
Siblings will have it	18(45)	96(23.9)	288(51.7)
Have at young age will have it again	275(68.4)	98(24.40	29(7.2)
Cause death	48(11.9)	81(20.1)	273(67.9)
Temperature should be taken regularly	21(5.2)	31(7.7)	350(87.1)
Will have it always	85(21.70	146(36.3)	171(42.5)

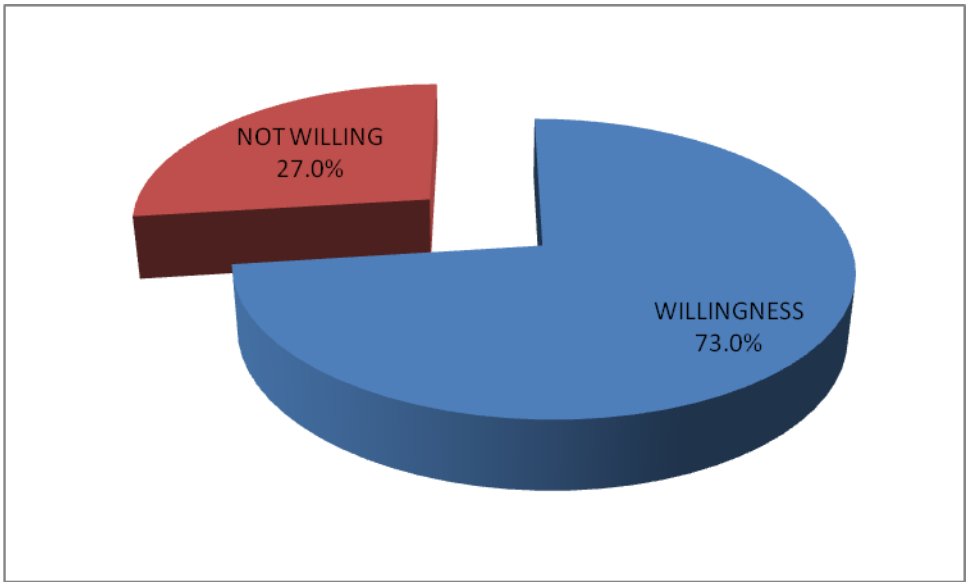

Figure 7: Respondents' Willingness to Have a Child Who Has Suffered FC in Their Class

Table 9: Respondents' Reasons for Objecting to Having a Child with Febrile Convulsion in Class

Responses	N	%
Distraction in the class	27	25.5
Have no experience to take care of the child	20	18.9
Problem to the teacher	20	18.9
Discrimination from other pupils	15	14.2
Others	10	9.4
Cannot withstand it	8	7.5
The child cannot cope in the class	3	2.8
Can lead to death	3	2.8
Total	**106**	**100.0%**

Table 10: Respondents' Reasons for not Objecting to Having a Child with Febrile Convulsion in the Class

Responses	N	%
Not communicable	61	35.3
Have right to education	31	17.9
They are normal children	19	11.0
Prayers can solve the problem	18	10.4
Don't discriminate	15	8.7
It's curable/natural	14	8.1
Grow out of it	9	5.2
Will survive	6	3.5
Total	**173**	**100.0%**

Table 11: Respondents' Willingness to Have a Child with Febrile Convulsion in Class According to Selected Characteristics

Selected Characteristics	willing	Not willing	Total	D	X^2	P
Gender						
Male	31(33.3%)	63(67.0%)	94			
Female	77(25.2%)	229(74.8%)	306	1	2.228	0.001
Age						
≤20 years	17(56.7%)	13(43.3%)	30			
21-30 years	55(37.7%)	91(62.3%)	146			
31-40 years	17(22%)	67(78.8%)	84	4	37.612	0.001
41-50 years	17(15.6%)	92(84.4%)	109			
51+ years	2(6.5%)	29(93.5%)	31			
Years of teaching						
≤5	60(38.0%)	98(62.0%)	158			
6-10	19(26.4%)	53(73.6%)	72	2	22.000	0.001
≥11	22(14.5%)	130(85.5%)	152			
Marital status						
Single	53(40.8%)	77(59.2%)	130			
Married	54(20.9%)	204(79.1%)	258			
Separated/divorced/widow	1(8.3%)	11(71.7%)	12	2	19.449	0.001
Level of education						
Grade 11/SSCE	12(38.7%)	19(61.3%)	31			
NCE/Diploma	78(28.6%)	195(71.4%	273	2	7.769	0.051
Degree/HND	14(16.5%)	71(83.5%)	85			
Postgraduate	4(36.4%)	7(63.6%)	11			
Total	**108(27.0%)**	**292(73.0%)**	**402**			

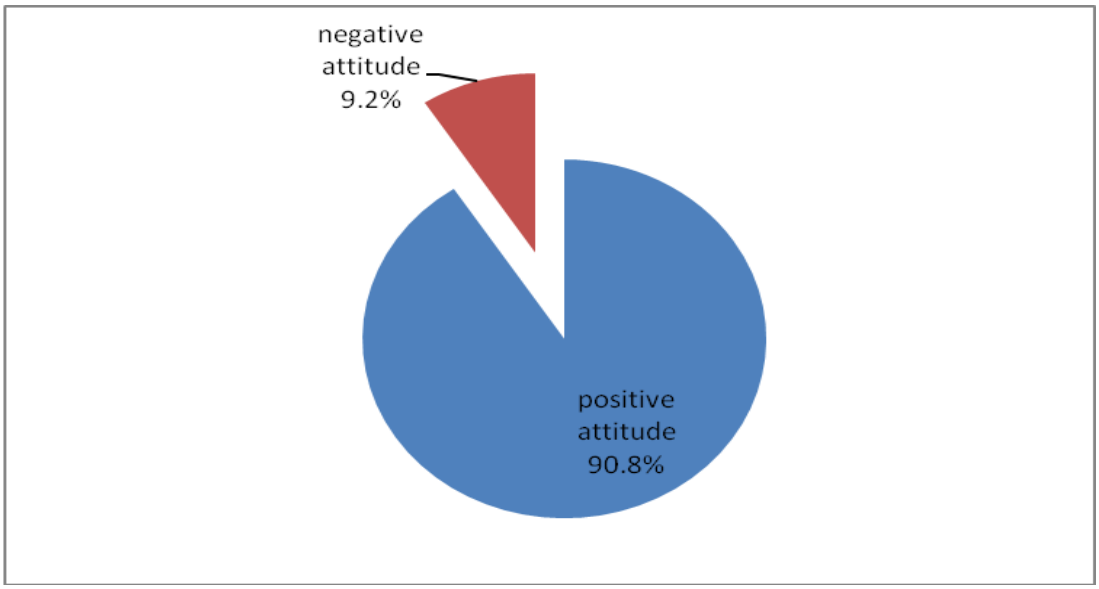

Figure 8: Respondents' Attitude to Febrile Convulsion in Ibadan North Area

Table 12: Association between Attitude to FC and the Respondents' Socio-demographic Characteristics

Selected Characteristics	Attitude		Total	D	X^2	P
	Negative	Positive				
Gender (n=402)						
Male	14(14.7%)	81(85.3%)	95			
Female	23(7.5%)	284(92.5%)	307	1	4.557	0.033
Age (n=402)						
20 years	2(6.7%)	28(93.3%)	30			
21-30 years	20(13.7%)	126(86.4%	146			
31-40 years	7(8.7%)	78(91.8%)	85	4	5.987	0.200
41-50 years	6(5.5%)	104(94.5%	110			
51+ years	2(6.5%)	29(93.5%)	31			
Years of teaching (n=402)						
≤5	22(13.8%)	137(86.2%	159			
6-10	8(11.0%)	85(89.0%)	73	2	9.211	0.010
≥11	6(3.9%)	146(61.1%	152			
Marital status (n=402)						
Single	17(13.1%)	113(86.9%)	130			
Married	20(40.8%)	154(59.4%)	260			
Separated/divorced/widow	0(0%)	12(100%)	12	2	4.261	0.119
Level of education (n=402)						
Grade 11/SSCE	2(6.5%)	29(93.3%)	31			
NCE/Diploma	29(10.9%)	245(89.4%	274	3	2.150	0.542
Degree/HND	5(5.8%)	81(94.2%)	86			
Postgraduate	1(9.1%)	10(90.9%)	11			
Total	**37(9.2%)**	**365(90.8%**	**402**			

4.9 Respondents' First Aid Care Practice on Febrile Convulsion

First aid care of febrile convulsion was measured as appropriate and inappropriate care. This was done using series of multiple response questions and thereafter categorized as "appropriate" (score >5) and "inappropriate" (score ≤5). Result showed that only 31.3% of respondents took appropriate care towards a child with febrile convulsion (Figure 9). Appropriate care included remove nearby objects that can injure the child, protect the child's head, place the child on his/her back and take the child to hospital. Inappropriate care included put spoon inside the child's mouth, shake the convulsing child, firm application of broken onions at the nostrils with forceful closure of the mouth, attempt mouth to mouth resuscitation, massage the child's chest and pour olive oil.

Some of the things respondents reported to do in case a child convulse in school were protect the child's head (15.1%), take the child to hospital (15.0%), put spoon in the child's mouth (10.1%) and massage the chest of the child (9.7%) (Table 13)

Other actions considered necessary to take when a child has febrile convulsion in school included call the parents (32.1%), give salt and milk (11.4%), fan and allow appropriate ventilation (8.3%) and pray (3.6%) (Table 14)

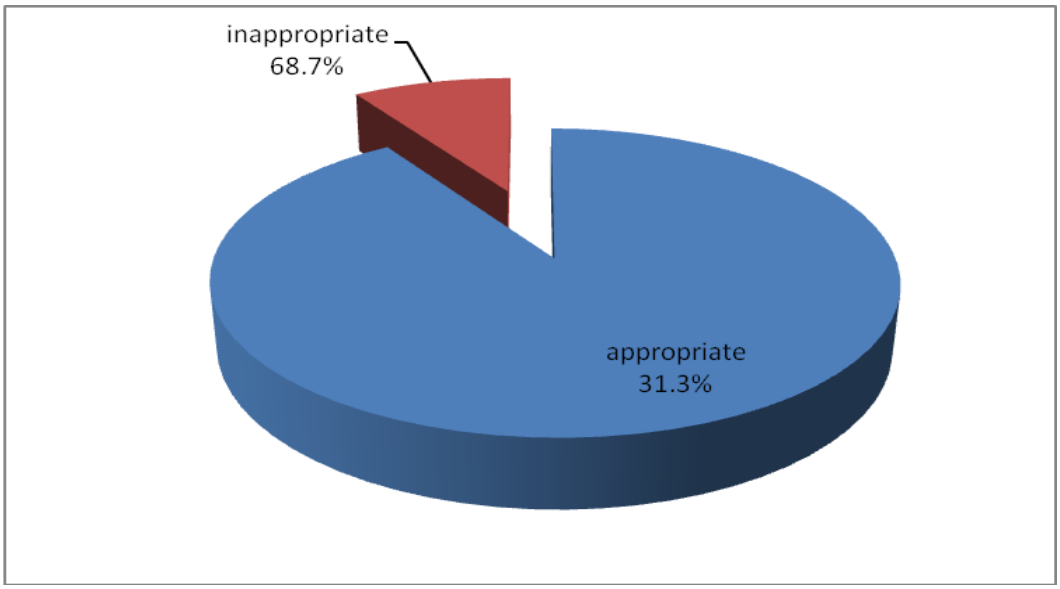

Figure 9: Percentage of the Respondents Who Gave Appropriate First Aid Care

Table 13: Actions to Take if a Child Has Febrile Convulsion in School

Actions to take	Frequency	Percentage
Protect the head	305	15.1
Take the child to the hospital	302	15.0
Remove nearby objects	285	14.1
Put spoon inside the mouth	203	10.1
Massage the child's chest	196	9.7
Shake the convulsing child	161	8.0
Place the child on his/her back	154	7.6
Firmly apply broken onions at the nostrils with forceful closure of the mouth	130	6.5
Attempt mouth to mouth resuscitation	98	4.9
Pour olive oil	56	2.8
Total	**2015**	**100.0**

Table 14: Other Actions Considered Necessary to Take in School When a Child Has Febrile Convulsion

Other Actions to take in school	No	%
Call the parents	62	32.1
Give salt and milk	22	11.4
Put spoon and pour water on the child's body	30	15.5
Fan and allow appropriate ventilation	16	8.3
Remove cloth and sharp object	14	7.3
Give *ogede-odo* (Banana) mixed with honey	10	5.2
Put finger in the child's mouth	10	5.2
Shout the child's name	9	4.7
Put onions in the child's mouth and nostril	7	3.6
Pray	7	3.6
Put mother's urine in the child's mouth	6	3.1

4.10 Respondents' First Aid Care Practice for Febrile Convulsion According to Selected Socio-demographic Characteristics

Table 15 shows that there is association between teachers' first aid care practice and selected socio-demographic characteristics. Marital status of respondents significantly influenced care practice of febrile convulsion. Majority (86.7%) of respondents with less than or equal to 20 years compared with those between 21-30 years of age (73.3%), 41-50 years (65.5%), 51 years and above (64.5%) and 31-40 years (60.0%), gave inappropriate first aid care (p= 0.146). Likewise 94.6% of single teachers compared to 66.5% married and 50.0% of those divorced/separated/widowed gave inappropriate first aid care to children with febrile convulsion. This was inferred from their response in the questionnaire (X^2 =4.628, p =0.099).

Table 15: Respondents' First Aid Care Practice for Febrile Convulsion According to Selected Socio-demographic Characteristics

Selected characteristic	First aid care		Total	X^2		D
	Inappropriate care	Appropriate care	P			
Gender						
Male	67(70.5%)	28(29.5%)	95			
Female	209(68.1%)	98(31.9%)	307			
				0.202	1	0.653
Age						
≤20 years	26(86.7%)	4(13.3%)	30			
21-30 years	107(73.3%)	39(26.7%)	146			
31-40 years	51(60.0%)	34(40.0%)	85			
41-50 years	72(65.5%)	38(34.5%)	110			
51+	20(64.5%)	11(35.5%)	31	9.708	4	0.146
Years of teaching						
≤5	117(73.6%)	42(26.4%)	159			
6-10	51(69.9%)	22(30.1%)	73			
≥11	98(64.5%)	54(35.5%)	152	3.045	2	0.218
Marital status						
Single	97(74.6%)	33(25.4%)	130			
Married	173(66.5%)	87(33.5%)	260			
Separated/Divorced/widowed	6(50.0%)	6(50.0%)	12	4.628	2	0.099
Level of education						
Grade 11/SSCE	23(74.2%)	8(25.8%)	31			
NCE/Diploma	190(69.3%)	84(30.7%)	274			
Degree/HND	55(64.0%)	31(36.0%)	86			
Postgraduate	8(72.7%)	3(27.3%)	11			
				1.470	3	0.689
Total	**276(68.7%)**	**126(31.3%)**	**402**			

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

Majority of the respondents were females; this is presumed that women are better care givers than males. This also corroborates with Harma's (2011) assertion that many of the primary and nursery schools in Nigeria have higher proportions of female than male teachers. This may account for the higher proportion of female teachers (76.4%) observed in this study. In Nigeria, the National Policy on Education (2008) stipulates that the minimum qualification for entry into the teaching profession shall be the Nigeria Certificate of Education (NCE) (Federal Republic of Nigeria, 2008). This is evident in the present study as most of the teachers had a National Certificate of Education (NCE). However the situation is different from the findings of Oluogun et al. (2006) who observed that only 22% of those who participated in their study had post-secondary education.

Over half of the respondents in this study claimed to have never witnessed a child convulse in school but majority implied they had heard about febrile convulsion as against only 20% of mothers in Libya who indicated they had heard or even observed seizures caused by fever (Zeglam et al., 2010). In addition, the major sources of this information for respondents in current study who claimed to have heard about febrile convulsion were radio and television.
Only 30.6% of respondents indicated that they had good knowledge of febrile convulsion. Small proportions of teachers in the present study mentioned persistent high temperature and fever/malaria as causes of febrile convulsion. Few respondents attributed the causes of febrile convulsion to spiritual attack, dirty environment, shortage of blood and heredity. These findings are consistent with the result obtained in a study conducted among mothers in southern Nigeria, where febrile convulsion was said to be caused by fever, witchcraft and/or evil spirit (Ofovwe et al., 2002). Similar observations were also reported by Gururaj et al. (2001); Parmar et al. (2001); Matsuo et al. (2006) and Chomba et al. (2008).

Although there is no proven relationship between family history and febrile convulsion, teachers in this study felt that febrile convulsion was hereditary. Iloeje (1991), Gururaj et al. (2001) and Chomba et al. (2008) also had similar observations where they found family history to be a risk factor for febrile convulsions. These support the suggestion of Tahird

(2000) and Iwasaki (2002) that genes or environmental factors shared by the family members play a causal role in febrile convulsion.

Reports showed that only 10% of teachers in Port Harcourt, Nigeria (Alikor et al., 2005) and in India (Thacker et al., 2008) had an overall good knowledge of febrile convulsion. Similarly, the present study found that in general, teachers had poor knowledge of febrile convulsion. Results from the present study show that increased years of teaching experience was significantly associated with good knowledge of febrile convulsion. However the general poor knowledge of febrile convulsion observed among teachers (in various settings) who also spent a substantial amount of time with children raises the need for prompt action. Teachers need to be educated on febrile convulsion and its management in order to mitigate its potential effect.

Most of the respondents in this study demonstrated good attitude towards children with febrile convulsion. A study carried out by Elaine (2006) has shown that monitoring children's temperature very closely especially whenever they are feeling ill or acting differently than normal reduces the occurrence of febrile convulsion. The attitude of this study respondents reinforces the practice as some of them stated that children's temperature should be checked regularly. It is noteworthy that in spite of the anxiety and apprehension posed by febrile convulsions, majority of the respondents in the current study reported that they would accept to have a child with febrile convulsion in their class. One of the reasons they gave for this acceptance readiness was that febrile convulsion is not contagious and every child has a right to education. They also believed children with febrile convulsion are normal children who can outgrow it with time. These findings correspond with the National Institute of Neurological Disorders and Stroke's report, which expressed that most children with febrile convulsion will outgrow having the convulsions by the time they are about five years old. Shinnar et al. (2002) also support the above findings that febrile convulsion does not tend to recur frequently, that is, children tend to outgrow it, and does not cause permanent brain injury.

However some of the respondents expressed unwillingness to have a child who has had an episode of febrile convulsion in their class. This refusal was informed by the arguments that these children would be a distraction to the class, that they lacked experience in handling such children and because other pupils may stigmatize them: previously affected pupils.

Others also believed that having febrile convulsion is associated with low academic performance. This is contrary to findings of Chang et al. (2001) which reported that children in Taiwan who had febrile convulsions performed as well as, and some even better than, those who did not have the convulsions in terms of measures of intelligence, academic achievement, behaviour and working memory. This is a manifest evidence that febrile convulsion does not hinder children's cognitive and psycho motive competence.

First aid care practice of febrile convulsion was assessed. Of those who claimed to have witnessed a child convulse in school, majority (69.1%) gave inappropriate care. This corroborates the study of Parmer et al. (2001) in which only few of their respondents took the correct preventive measures. Although respondents in the current study gave inappropriate care to children who had febrile convulsion, many of them felt that the actions they took were to help the child. Some of them put iron spoon in the child's mouth, some rushed the child to the hospital while some others poured water on the child's body. The situation is similar in Libya where many mothers did not know how to manage a child with febrile convulsion and would prefer to rush them to hospital (Zeglam et al., 2010). The poor knowledge of febrile convulsion demonstrated by the respondents in the current study could be a possible explanation for the inappropriate care they gave.

In response to cases of febrile convulsion in their schools, some respondents claimed they called the child's parents, gave the child salt and milk or put fingers in the child's mouth. Others expressed that they shouted the child's name, put onions in the child's mouth and nostril or put mother's urine in the child's mouth. In Nigeria, management of febrile convulsion has also been attributed to the administration of some indigenous concoctions before the children are taken to hospital (Okoji et al., 1993; Anochie et al., 2000; Ofovwe et al., 2002).

5.2 Conclusion

The study revealed that a high proportion of the respondents had heard of febrile convulsion with different sources of information and some had also witnessed a child convulse in school. Substantial proportion of the teachers had positive attitude towards children with febrile convulsion and were willing to have such children in their class without any objection. However many of them seemed to give inappropriate care in the management of these children who had febrile convulsion. The study highlighted the need to improve teachers'

awareness and established appropriate caregiver health seeking behaviour towards children with febrile convulsion.

5.3 Recommendation

There is need for education and re-orientation of teachers through seminars and workshops, in-service training education programme to equip them properly on the appropriate way to take care of a child with febrile convulsion in school.

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APPENDIX

INDIVIDUAL CONSENT FOR THE INTERVIEW

My name is ONUMADU chinwendu, a postgraduate student in the Institute of Child and Adolescent Health, University of Ibadan. I am conducting a research on Teachers knowledge, attitude and first aid care for febrile convulsion in nursery and primary schools in Ibadan North Local Government Area, Oyo state. It is expected that this study will provide information on teachers' knowledge, attitude and first-aid care on febrile convulsion. The questionnaire is anonymous and therefore does not require your name. Please kindly fill it as honestly and complete as possible.

The responses provided for this questionnaire will be treated with outmost confidentiality and will not be used for any purpose other than the study. Please your participation in this study is entirely voluntary. You can also choose to withdraw from the study at any point in the course of the interview.

I agree to be part of this study (please tick) [ ]

INSTITUTE OF CHILD HEALTH

FACULTY OF PUBLIC HEALTH

UNIVERSITY OF IBADAN, NIGERIA

QUESTIONNAIRE ON TEACHERS' KNOWLEDGE, ATTITUDE AND FIRST-AID CARE FOR FEBRILE CONVULSION IN NURSERY AND PRIMARY SCHOOLS IN IBADAN- NORTH LOCAL GOVERNMENT AREA, NIGERIA.

Section A: Social Demographical characteristics of the teachers

1. Teachers' age (as at last birthday)_____
2. Gender: Male ( ) Female ( )
3. Religion:1. Christian ( ) 2. Moslem ( ) 3. Islam ( ) 4. Others ( )
4. How long have you been teaching? _____
5. Level of Education 1. Grade 11 ( ) 2. Diploma in Education ( ) 3. National certificate in Education (NCE) ( ) 4. B.ED/B.Sc (ed) BA (edu) ( ) 5. Postgraduate ( ) 6. Others (please specify)
6. Ethnicity 1. Yoruba ( ) 2. Igbo ( ) 3. Hausa ( ) 4 others ( )
7. Marital status: 1. Single ( ) 2. Married ( ) 3. Single parent ( ) 4. Divorced ( ) 5.Widowed ( ) 6.Others, specify_____
8. If married, no of children._____

Section B: Knowledge of the teachers on first aid and febrile convulsion

9. Have you heard or read about febrile convulsions (commonly caused by fever in children)? 1. Yes ( ) 2. No ( )

10. Which of these best describes your major source of information in the last 6months?

		YES	NO
a.	Newspapers and magazines		
b.	Radio		
c.	TV		
d.	Billboards		
e.	Brochures, posters and other printed materials		
f.	Health workers (Nurses/Doctors/Ward maids)		
g.	Family, friends, neighbours.		
h.	Religious organisation		
i.	Other Teachers		
J	Textbook		
K	Others		

11. Have you ever witnessed a child convulsing in school before? 1. Yes ( ) 2. No ( )

12. Please, describe what you saw: _____

_____

_____

13. What did youdo after that?

_____

14. When was the last time you saw a child convulsing? (write your answer in months)

_____

15. What age was this child? _____

16. Which one best describes febrile convulsion?

1. A natural disease ( )
2. A supernatural disease ( )
3. Malfunction in the brain ( )
4. Others _____

17. What causes febrile convulsion? (Please write as many causes as possible)_____

_____

18. Symptoms of febrile convulsion include(Please write as many as you know)_____

_____

19. The older a child is as at first convulsion, the less likely the child is to have more convulsions? 1. Yes ( ) 2. No ( )

20. Have you ever heard about First Aid? 1. Yes ( ) 2. No ( )

21. Do you have First Aid kit in your school? 1. Yes ( ) 2. No ( )

22. Who do you think should administer First Aid?

    1. Don't know ( )
    2. School teachers ( )
    3. Doctor /Nurses ( )
    4. Anybody trained in the first aid ( )
    5. Everybody ( )
    6. Others (specify)

23. How many persons are required to provide First Aid?

    1. Don't know ( )
    2. Single person ( )
    3. More than one ( )
    4. It depends on the situation ( )

24. What will you do if a child has fever in your school? (Multiple responses is allowed, please tick option)

		Yes	No
a.	Pour water on face.		
b.	Wrap with blanket		
c.	Do nothing, go to a doctor.		
d.	Don't know		
e.	Tepid sponging		
f.	Give paracetamol		
g.	Fan the child		

25. If a person starts having fits what will you do at home? (Multiple responses is allowed, please tick option).

		Yes	No
a.	Don't know		
b.	Just keep the person under control. Do not use force to stop the convulsions		
c.	Remove objects that may cause injuries.		
d.	Give metal keys in his/her hand.		
e.	Do nothing only go to a doctor		
	Others (specify)		

Section C: Attitude of nursery and primary school teachers to febrile convulsion.

Questions 26		Strongly agreed	Disagreed	Not sure	Agreed	Strongly agreed
a.	I believe convulsing children are different from other pupils?					
b.	My child will not play with a child with febrile convulsion					
c.	Restricting the activities of children with febrile convulsion is good.					
d.	Convulsing children should not be admitted to school					
e.	Convulsion occurs mostly in children of low socio economic class.					
f.	Febrile convulsion will develop to epilepsy.					
g.	High fever will lead to convulsion.					
h.	Febrile convulsion can pass from one person to another.					
i.	Febrile convulsion can cause death.					
j.	A child can grow out of febrile convulsion.					
k.	Children's temperature should be taken frequently.					
l.	A child who has had it before will have it again.					
m.	The brothers and sisters of a child with febrile convulsion will also have it.					
n.	A child can have it if it is present in the family.					
o.	A child who has febrile convulsion at a young age will be having it again and					

	again?					
p.	I believe children with convulsion or their mothers have offended the God.					
q.	I do not believe children with convulsion will survive.					

27. Do you object to having a child with febrile convulsion in your class? 1. Yes ( ) 2. No ( )

28. Give reasons to your answer in Q 44 above_____

_____

_____

Section D. First-aid care by teachers' towards febrile convulsion

29. Which of the following will you do in school if a child is convulsing?

	Questions	Yes	No
A	Remove nearby objects		
B	Protect the head		
C	Take to the hospital		
D	Wait for the end of the seizure.		
E	Put spoon inside the mouth		
F	Pour olive oil		
G	Attempt mouth to mouth resuscitation		
H	Shake the convulsing child.		
I	Place the child on his/her back		
J	Perform cardiac massage		
K	Firm application of broken onions at the nostrils with forceful closure of the mouth		

30. Please tell me any other things considered necessary that should be done when a child is convulsing in the school that is not included in Q 29 above? (Please respond as much as possible)_____

TELEGRAMS.....

TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....
All communications should be addressed to
the Honourable Commissioner quoting
Our Ref. No: AD 13/479/116

Date: 9th May, 2011

The Principal Investigator,
Institute of Child Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Onumadu, Chiwendu Nwahuzi.

Ethical Approval for the Implementation of Your Research Proposal in Oyo State.

This acknowledges the receipt of the corrected version of your Research Proposal titled *``Teachers' Experience and Attitude Towards Childhood Febrile Seizures (Convulsions) in Nursery and Primary Schools in Ibadan North Local Government Area, Nigeria''.*

The Committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

Please, note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

Wishing you all the best

OYO STATE RESEARCH ETHICAL REVIEW COMMITTEE
Signature & Date 9/5/11
MINISTRY OF HEALTH, IBADAN

Mr. I. O. Okediran.
Deputy Director, Planning, Research & Statistics
Coordinator, Oyo State, Research Ethical Review Committee.