“A STUDY OF RISK FACTORS IN CHILDREN ADMITTED WITH FEBRILE SEIZURES IN A TERTIARY CARE HOSPITAL”

By

Dr. JEFRIN ANTO B C

DISSERTATION SUBMITTED TO SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH CENTER, KOLAR, KARNATAKA

In partial fulfillment of the requirements for the degree of

DOCTOR OF MEDICINE

IN

PAEDIATRICS

Under the Guidance of

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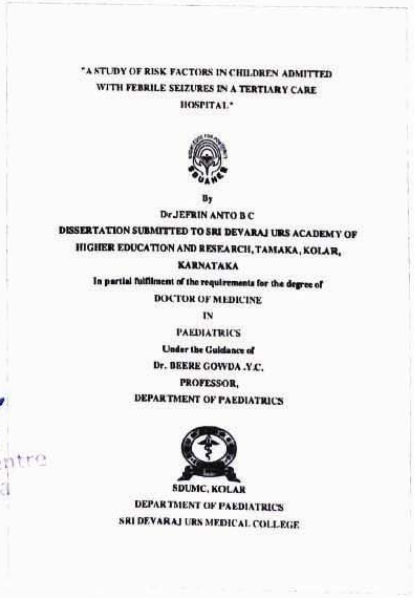

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Date : **Dr. JEFRIN ANTO B C**

Place : Kolar

ABBREVIATIONS

GLOSSARY	ABBREVIATIONS
FS	Febrile Seizure
SFS	Simple Febrile Seizure
CFS	Complex Febrile Seizure
FSE	Febrile Status Epilepticus
PFS	Prolonged Febrile Seizure
GEFS+	Generalized Epilepsy with Febrile Seizure Plus
EEG	Electroencephalogram
CT	Computed Tomography
MRI	Magnetic Resonance Imaging
CNS	Central Nervous System
ICP	Intra Cranial Pressure
LP	Lumbar Puncture
CRP	C Reactive Protein
CSOM	Chronic Suppurative Otitis Media
CBC	Complete Blood Count
IDA	Iron Deficiency Anemia
MCV	Mean Corpuscular Volume
MCH	Mean Corpuscular Hemoglobin
NICU	Neonatal Intensive Care Unit
NI	Not Implicated
SX	Symptoms/Signs
ILAE	International League Against Epilepsy

NIH	National Institutes of Health
AAP	American Academy of Pediatrics
LC	Lower Class
ULC	Upper Lower Class
LMC	Lower Middle Class
UMC	Upper Middle Class
UC	Upper Class
LBW	Low Birth Weight
ED	Emergency Department
OR	Odds Ratio
CI	Confidence Interval
SD	Standard Deviation
RLJH & RC	R.L. Jalappa Hospital and Research Centre
SDUMC	Sri Devaraj Urs Medical College
SDUAHER	Sri Devaraj Urs Academy of Higher Education and Research

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ABSTRACT

BACKGROUND:

Most children who have their first seizure do so between the ages of 6 months and 5 years, and the most typical age range for febrile seizures is between 18 months and 24 months. There are likely several causes of febrile seizures, and it will be necessary to identify each one. Early identification and management of risk factors can prevent the occurrence and recurrence of febrile seizures. The purpose of the current research was to identify potential risk factors for febrile seizures in children in a tertiary treatment centre in Kolar.

OBJECTIVE:

To identify the various risk factors associated with children presenting with febrile seizures.

MATERIAL AND METHODS:

This was a hospital-based cross-sectional study of 96 children diagnosed with febrile seizures and hospitalised to the paediatric ward. Children of both sexes with simple or complex febrile seizures between the ages of 6 months and 60 months were hospitalised, and their possible risk factors for febrile seizures were explored. History, clinical examination, and appropriate investigations ruled out other potential causes of the patient's febrile seizures.

RESULTS:

A total of 96 patients were enrolled after being screened for candidacy. Among 96 children with febrile seizure were 38.5% of children are between 6 – 18 months, 67.7% are males, 34.4% belongs to ULC, 66.7% are from rural residence. In children, 67.7% experienced febrile seizures within 24 hours of fever onset, 60.4% experienced Simple febrile seizures, 22.9% had a history of febrile seizures in their past, 15.6% had a history of febrile seizures in their family, 19.8% had a history of 2nd degree consanguineous marriage in their parents, and 18.3% had a history of 3rd degree consanguineous marriage in their parents.

38.5% of febrile seizure children were exclusively breastfed; 80.2% of febrile seizure children had anemia; 20.8% of febrile seizure children had a history of NICU hospitalisation; 60.4% of febrile seizure children are Term at birth; 61.5% of febrile seizure children had Low birth weight.

There is a statistically significant relationship between the presence of a family history of febrile seizures and the correlation between birth weight and age. There is a statistically significant correlation between a past history of febrile seizures and female gender.

Breast feeding, Anemia with Socio-Economic Status and History of NICU admission with Residence shows highly statistical significance.

CONCLUSION:

The majority of patients who experienced febrile seizures were male, between the ages of 6 and 18 months, members of ULC, living in rural areas, and had their first episode within the first 24 hours of developing a fever, according to our analysis of the risk factors associated with children presenting with febrile seizures (FS). Additionally, we discovered that the majority of patients with Simple febrile seizure had neither a personal nor a family history of febrile seizures. It has been shown that the most important risk factors for febrile seizures include anemia, not nursing exclusively breastmilk, having a low birth weight, and having spent time in the neonatal intensive care unit previously.

INTRODUCTION

Children between the ages of 6 months and 5 years old typically experience febrile seizures, which are defined as seizures that occur in conjunction with a fever greater than 38°C (100.4°F) and in which there is no evidence of an intracranial cause (such as infection, head trauma, or epilepsy) or another definable cause of seizure (such as electrolyte imbalance, hypoglycemia, drug use, or withdrawal). [1,2]

The International League Against Epilepsy (ILAE) defines febrile seizures as those that occur during infancy or children and are accompanied by temperatures higher than 38 degrees Celsius, but when there is no evidence of acute electrolyte imbalances or a history of central nervous system (CNS) infection. Since febrile seizures are so common in infants and toddlers and likely to recur, they provide a significant challenge to paediatricians.

The two main types of febrile convulsions are simple febrile convulsions and complex febrile convulsions. It is vital to distinguish between simple and complex febrile seizures since they need distinct treatments and diagnostic procedures.[3,4]

Simple febrile seizures are more common than complex febrile seizures, simple febrile seizures are defined by a generalised seizure that lasts less than 15 minutes and does not repeat within 24 hours.

To be categorized as a complex febrile seizure, at least one of the following characteristics must be present: focality, duration more than 15 minutes, or recurrence

within 24 hours. Seizures that are complex febrile are linked to a condition called mesial temporal sclerosis, which causes epilepsy to manifest in the occipital lobe.

Children of all ethnic group are at risk for febrile seizures; however, they are more common among children of Asian descent (5-10% of Indian children and 6-9% of Japanese children).[5] In certain Guamese communities, the rate is as high as 14%. An estimated 1.6–1.8 males for every female. It is estimated that one in every 25 children will suffer from an FS at some point while growing up. Children from poorer socioeconomic backgrounds have a higher prevalence of the illness, perhaps because of a lack of access to proper medical treatment. Febrile convulsions are more common in the afternoon and throughout the winter. [6,7]

The causes of febrile seizures are multifactorial, including both genetics and the surrounding environment. Among kids who suffer febrile seizures, 24 percent have a relative who also had febrile seizure, and 4 percent have epilepsy in the family. [8] Several chromosomal locations and a few genes have been found for febrile seizures, which typically have a polygenic inheritance pattern but have been seen in a limited number of families. [9] Having a low blood sodium level has been linked to an increased likelihood of suffering febrile convulsions, according to research. Fever, epilepsy, hypoglycemia, hypocalcemia, a head injury, poisoning, medication misuse, a respiratory infection, or gastroenteritis are some of the most major risk factors.

Recent research suggests that missense mutations in the sodium channel genes SCN1A and SCN2A may put young infants at risk for severe febrile seizures.[10] Persistent alterations in hippocampal neuronal circuits in balance between excitatory and inhibitory responses, as well as mesial temporal sclerosis, may result after febrile

convulsions, particularly if the seizures are frequent, severe, and protracted. White matter development, and the ensuing neuroplasticity and microstructural rearrangement, may be disrupted by prolonged febrile convulsions.[11]

Therefore, it is essential to discover new possible risk factors for FS in order to enhance prognosis, aid in prevention, and treat the condition. The current research aims to examine and identify the numerous risk variables connected with children hospitalised with febrile seizures at a tertiary care hospital in Kolar, where no previous studies have addressed the sociodemographic risk factors associated with FS among children.

OBJECTIVE

To identify the various risk factors associated with children presenting with febrile seizures.

REVIEW OF LITERATURE

About 2-5% of children have febrile seizures (FS), the most frequent kind of childhood seizures, between the ages of 3 months and 5 years, with a peak incidence at 18 months.[12–14] It is unusual for FS to develop in a child older than 6 years. Although most benign and self-limiting childhood febrile seizures are benign , most parents find it distressing to observe such seizures.[15]In the past, Livingston had differentiated between "simple febrile seizures" and "epilepsy induced by fever." He concluded that children with a family history of epilepsy were more likely to have prolonged or focused febrile seizures. No longer do these terms apply.[16]Simple and complex febrile seizures are distinguished by their duration, physical manifestations, and recurrence patterns. (Table A)

DEFINITION:

Infants older than one month may have febrile seizures, which are defined by the International League Against Epilepsy (ILAE) as "seizures linked with fever that do not result from an infection of the central nervous system"[16]. A case of FS is one that occurs between the ages of 3 months and 5 years old and is accompanied by fever but there is no evidence of cerebral infection or a recognised cause [17], as defined by the NIH Consensus Conference. "A seizure followed by fever (temperature 100.4F or 38°C), without central nervous system illness, that occurs in babies and children 6 through 60 months of age," was the description given by the American Academy of Pediatrics (AAP) in 2011.

TABLE A : CLASSIFICATION OF FEBRILE SEIZURE [18]

	Simple Febrile Seizure (All criteria must be met)	**Complex Febrile Seizure (One or more of the following)**
Duration	short (under 15 minutes) Self – limiting	Long-lasting febrile seizures (> 15 minutes). Febrile status epilepticus (> 30 minutes).
Phenotype	Generalized tonic-clonic	Features or onset that are local Either clonic or tonic The loss of muscle tone Moving from focused to a broad generalized pattern Turning one's head or gazing off to one side
Recurrence Frequency	Within 24 hours, there was no recurrence.	Repeated within a day
Prior Neurologic Diagnosis	None	Present
Post-ictal Pathology	None	Present (Unilateral weak muscles and sleepiness)

PATHOGENESIS:

Age-specific risk factors, the environment (fever)and genetics have a role in the development of febrile seizures. Mutations in the SCN1A gene, GABAA receptor genes, and interleukin genes are all genetic risk factors for different types of seizure disorders, many of which initially present as febrile seizures. Dravet syndrome, a kind of severe myoclonic epilepsy in infants, is included in this category along with SFS and Generalized Epilepsy With Febrile Seizures Plus (GEFS+).[19,20] Other pathways include inflammatory processes that encourage the release of cytokines, which in turn promote neuronal excitability, and temperature-sensitive ion channels that modify neuronal activity.[21,22]

Febrile seizures, which may occur in as many as 20% of infants, have been associated to a wide variety of diseases, such as influenza A, shigella gastroenteritis, and human herpes simplex virus-6 (roseola infantum).[22–25] Immunizations including measles, mumps, and rubella as well as diphtheria, tetanus, and pertussis are linked to dramatically increased chances of febrile seizures.[25] It is unknown whether the correlation between diseases and vaccinations is caused by the intensity of the fever or some other unknown component.[22]

PROVOKING FACTORS:

Genetics:

In 25%-40% of cases when a kid is diagnosed with FS, a positive family history of FS is identified.[26–28]SCN1A, SCN1B, and GABGR2 genetic alterations are frequently observed in these families. [26]

Intrauterine risk factor:

Harmful perinatal exposure to environmental and genetic variables has been linked to a higher risk of FS in the offspring. Numerous studies, including the Danish birth cohorts, have shown that low birth weight and premature delivery are significant risk factors for FS (Aarhus Birth Cohort, Aalborg-Odense cohort, and the Danish National Birth Cohort).[26]

Vaccinations:

In one-third of Dravet syndrome patients, vaccinations can cause the development of seizures.[27] Numerous research have been conducted due to the concern that vaccinations can cause FS. When given along with a varicella vaccination, children under the age of two have a higher chance of developing FS after receiving their first dose of a measles-containing vaccine.[28,29]An connection between FS and whole-cell vaccines is well-established; however, a less reactogenic vaccine has been developed and is currently in use; it does not increase the risk of FS.[30]

Metabolic abnormalities and deficiencies:

Low zinc levels in FS patients when compared to children with the same fever but no seizures of the same age have been associated in certain research to an increased risk of iron deficiency anaemia. [31-33] There may be a link between FS and systemic respiratory alkalosis, according to some other research.[34]

Evaluation:

At this stage, it is very important to pinpoint what's causing the fever so you can begin treating it. Inquire about antibiotic use, vaccinations, a family history of epilepsy, the duration of the seizure and the postictal period, as well as any specific symptoms.[19,35]

LABORATORY STUDIES :

There is insufficient evidence that laboratory testing is especially effective in the management of a child with simple FS unless there are symptoms or indications suggesting a major concurrent condition.

Tests for serum electrolytes, calcium, phosphorus, a complete blood count, and blood glucose are unnecessary in a kid with simple FS; however, a urine sample should be analysed for infection.[36]

Lumbar puncture:

It is normal practice to do a lumbar puncture on children between the ages of 6 and 12 months who have been pre-treated with antibiotics and whose immunisation status against Haemophilus influenzae type b and S. pneumoniae is inadequate or unclear. If

child have meningeal symptoms or any other physical exam or history findings that raise suspicion of an intracranial infection, we should definitely get it.[35]

According to the AAP, a lumbar puncture should be performed for any child who had three days or more of vomiting and drowsiness, complex FS, or who has signs of petechiae, nuchal stiffness, drowsiness, irritability, or a swollen fontanelle.[35]

EEG:

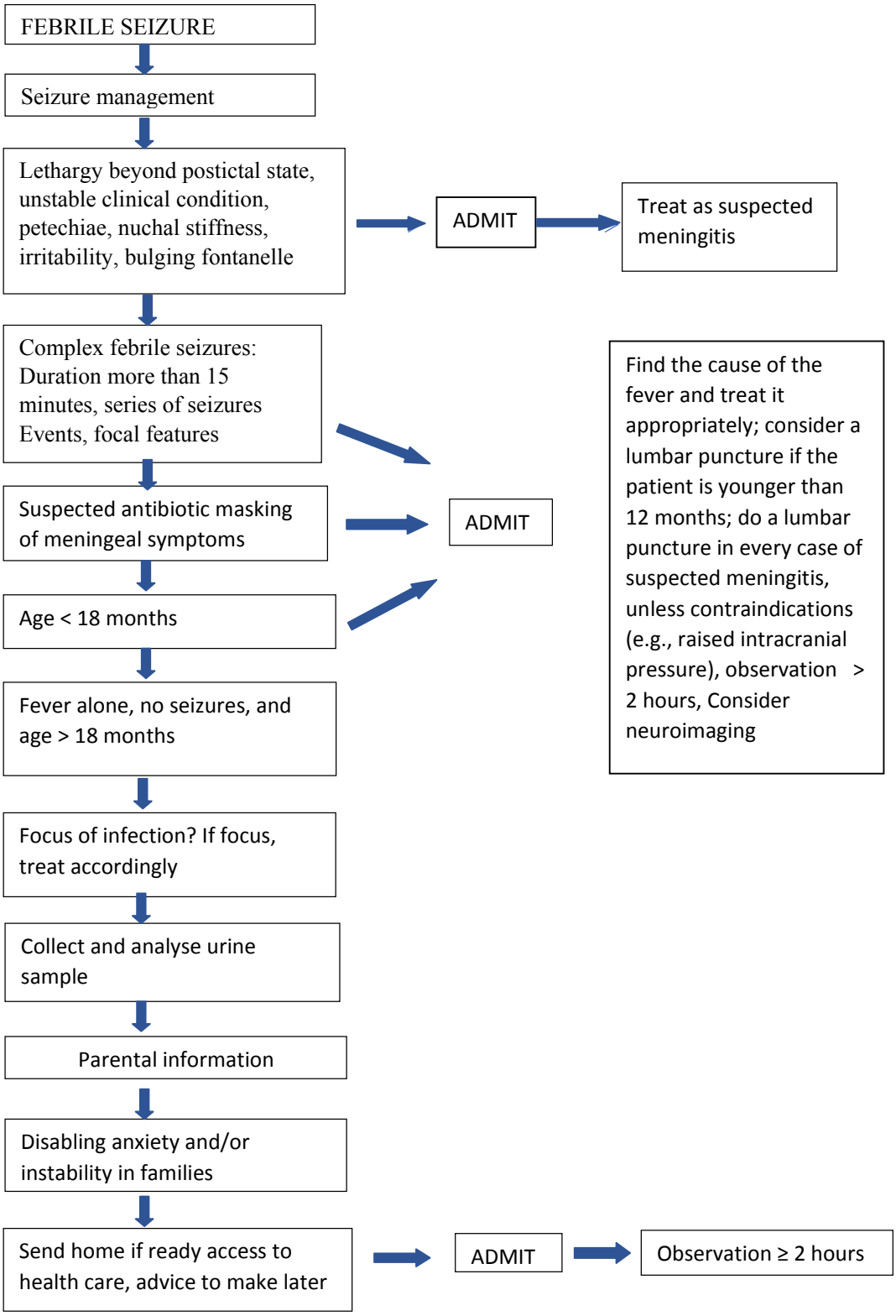
In children who have a simple febrile seizure, there is no evidence that an EEG can predict whether they develop epilepsy or not. If there are multiple complicated features, an EEG should be taken into consideration [37], however, it is not acceptable to routinely get an early EEG in neurologically healthy children who are experiencing complex febrile seizures. [38]

Imaging:

In the case of a simple febrile seizure, neuroimaging is not recommended. [39] The patient with focal complex FS and/or FSE may benefit from an MRI of the brain to rule out any underlying structural abnormalities as a possible cause of the convulsions.[40] When a head MRI is not available, computed tomography might be used to look for anomalies that could trigger seizures.

ASSESSMENT :

The removal of many potentially fatal illnesses requires a thorough history and a focused physical examination. Initial evaluation of FS[36] is shown in a flowchart below.



A Diagnostic flowchart for febrile seizure

PREVENTION:

Although continuous antiepileptic therapy has been shown to reduce the recurrence rate of febrile seizures in several studies, the Royal College of Paediatrics and Child Health and the AAP do not recommend using prophylactic oral antiepileptic medication in children with either SFS or CFS due to significant associated side effects. [18]

Practical techniques to long-term follow-up for CFS are essential for avoiding needless diagnostic and treatment procedures.

Future management of Febrile Seizures will be advances in the diagnosis, treatment, and prevention of FSE, as well as an improved understanding of long-term consequences. (Table B).[41]

TABLE B : MANAGEMENT OF FEBRILE SEIZURES

Diagnostic Criteria	**SFS (Simple):** Short (< 15 minutes), self-limiting, tonic/clonic generalized, non-recurrent	**CFS (Complex):** Febrile seizure lasting more than 15 minutes. Febrile status epilepticus due to febrile seizures (> 30 minutes). Onset that are focal, Clonic and/or tonic, recurrent	**PFS/FSE:** (Prolonged)>15 minutes
Acute Management	Comfort measures, Observe post-ictal state, Identify the cause of the fever.	Comfort measures, Monitor post-ictal state, Find the cause of the fever.	Give an antiepileptic drug, Monitor post-ictal state, Find the causes of a fever
LP	Consider LP: •S/X of meningitis •Concern for exam reliability	Consider LP if: • S/X of meningitis • Not returning to pre-illness levels • Exam reliability concerns	Consider LP if: • S/X of meningitis •Failure to revert back to previous condition •Consideration for Exam Reliability
Imaging (CT)	NI	NI	NI unless there are S/X of space occupying lesion or any bleeding
Labs	NI	NI	NI
Follow-Up Management	Parental Education/Support	Parental Education/Support	Parental Education/Support
EEG	NI	NI routinely, consider if: • More than one complex feature •Neurodevelopmental disorders •Epilepsy in the family	Indicated
Imaging (MRI)	NI	NI	Indicated
Prophylaxis	NI	NI	Acute Intermittent Therapy

Note: NI (not implicated) implies based on seizure alone. SFS= simple febrile seizure; CFS = complex febrile seizure; CT = computed tomography; EEG = electroencephalogram; FSE = febrile status epilepticus; LP = lumbar puncture; MRI = magnetic resonance imaging; PFS = prolonged febrile seizure; S/X = symptoms/signs. Data from American Academy of Pediatrics

RELEVANT STUDIES CONCERNED TO THIS CURRENT STUDY:

In **2015, Hussain S. et al.** performed prospective research in which 100 children were included; 68 (68%) were male and 32 (32%) were female; the goal was to determine the demographic, clinical, and etiological features of paediatric patients hospitalised with febrile seizures. From the onset of fever to the onset of seizures, the average time period was 17.68±12.09 hours. A total of 78 individuals (78%) ended up having simple febrile seizures. A positive family history was present in only 30% of patients, and recurrent seizures occurred in 35% of patients during the same disease episode. Acute respiratory infection was the leading cause FS in 72 of the patients. [42]

In **2016, Indar et al.** performed a cross-sectional, case-control research on 70 children between the ages of 6 months and 5 years to identify potential risk factors for the onset of febrile seizures. Male gender, history of febrile seizures in the family, high body temperature, low serum calcium, low serum sodium, low serum blood glucose, and microcytic hypochromic anaemia were shown to be the most significant risk factors.[43]

Francis JR et al., in 2016, after conducting an observational study, determined that few febrile seizures happened after vaccination. After collecting data on the demographics, health, and vaccination status of 150 children aged 6 months to 5 years, virological testing was performed on nose and rectal swabs. 143/151 (about 95%) samples underwent successful virological testing. In 102/143 patients (71%) found evidence of at least one virus. It was found that rhinoviruses (31/143, 22%), adenoviruses (30/151, 21%), enteroviruses (28/143, 20%), influenza (19/143, 13%), and HHV6 (17/143, 12%) were the most common viruses. In 16/151 (11%) cases, febrile seizures started within 14 days following vaccination.[44]

Kantamalee W et al., in 2017, assessed the clinical traits of kids who had febrile seizures and the danger signs of getting them again. In all, 335 people between the ages of 6 months and 5 years old were diagnosed with febrile seizures. The average onset age of febrile seizures was found to be 1.85±0.95 years, and it was shown that the recurrence of febrile convulsions was more likely the lower the start age of the first febrile seizure was and if there was a history of febrile seizures in the family.[45]

In 2017 retrospective research by **krystyna et al.,** 176 children aged 6 months to 5 years old participated in an evaluation of the risk factors for febrile seizures, and it was observed that the occurrence of febrile seizures was connected with a quick increase in temperature on the first day of a fever, upper respiratory tract infection, diarrhoea, otitis media, and children who had had a vaccine within a week before the seizure was a predisposing factor.[46]

Children with chronic diseases requiring continuous treatment, children with developmental delays, children who had previously been admmitted to the NICU, mothers with a history of prenatal hypertension, and mothers with lower educational levels were more likely to have children who had febrile seizures, according to cross-sectional research on sociodemographic risk factors for febrile seizures in Turkish children done by **Merve A et al. in 2018**.The study included 3806 children, and found that the prevalence of febrile seizures had decreased from 9.7% to 4.3% as medical technology improved.[47]

In **2019, researchers Paranjape VP et al**. analysed the prevalence of febrile seizures in children from September 2018 to September 2019 using data from a sample size of 100. Infants and young children (between 6 months and 5 years) who were diagnosed with febrile seizures were included in the research. In children, simple febrile seizures were the most common type, occurring more often in boys and being linked to a

favourable family history. Upper and lower respiratory tract infections as well as acute gastroenteritis were the most common illnesses connected to febrile seizures. [48]

The causes of febrile seizures in young Tunisian children were investigated in a case control study by **Salem Y et al. in 2019**. The research, which included 120 children, revealed that the risk of febrile seizures increased for kids who had family history of FS, who stopped breastfeeding before the age of six months, who had a rapid increase in body temperature, and who had anaemia caused by a lack of iron in their bloodstream. Children with a history of febrile seizures in the family should be exclusively breastfed and monitored for nutritional deficiencies, especially iron deficiency. [49]

Ishaq et al. performed a descriptive-analytical investigation in 100 feverish children in 2020 to identify the important clinical risk factors for febrile seizures in children aged 6-60 months and found that upper respiratory tract infection, epilepsy, and a family history of febrile seizures were the most significant risk factors.[50]

Peng X et al. 2020 did case control research on the effectiveness of breastfeeding in preventing febrile seizures. The results of this research, which analysed data from 336 babies with febrile seizures between the ages of 6 and 60 months, indicate that exclusive breastfeeding is an additional protective factor against FS. Furthermore, the research showed that the method of feeding did not increase the risk of febrile seizures. [51]

In **2021, Choudhary B.R. et al.** did a case control study to investigate the association between febrile seizures and iron deficiency anaemia among children in a tertiary care setting. This research indicated that iron deficiency anaemia is a risk factor for febrile seizures in children. The study included 136 children aged 6-60 months, including 68

cases and 68 controls. Children with febrile seizures who have iron deficiency anaemia should be evaluated and treated. [52]

The 372 CFS visits made by 350 developmentally normal children between the ages of 6 and 60 months were analysed retrospectively by **Kannikeswaran N et al. in 2021.** A total of 372 patients were present, with a mean age of 19.8±11.3 months and a male gender makeup of 57.1 percent. While 97 (26.1%) children experienced a seizure in the paediatric emergency room, 42 (11.3%) of them had active seizures and 35 (9.4%) suffered status epilepticus. As a result, children with CFS had low rates of significant bacterial infections, EEG yield, and recurrent seizures while being treated in the hospital.[53]

Balajichinnasami D et al., in 2021, investigated the clinical characteristics and treatment of children with febrile seizures who were hospitalised to a tertiary care hospital. Fifty children, aged 6-60 months, who had been diagnosed with febrile seizures took part in the trial. Data obtained using a standardised questionnaire including history, clinical examination, laboratory results, treatment, and outcome showed that cough and coryza were the most common symptoms connected with febrile seizures at presentation. Upper respiratory tract infection was shown to be the leading cause of fever and febrile seizures. Less than 15 minutes of the seizure lasted with 50% and 20% of patients respectively had leukopenia and elevated CRP.[54]

In **2021, Christensen K J et al.** did a cohort study looking at the connection between preterm birth and febrile seizures. This research included 2,103,232 children who were born in Denmark between 1977 and 2011 and were still living at the age of three. In the Danish National Patient Register, febrile seizure cases in children were identified up to the age of 5. All members of the cohort may have turned five by the end of 2016, thus we stopped following up with them on December 31. The results of

this research showed that low birth weight and advanced maternal age both increased the likelihood of febrile seizures. The correlation between birth weight and age at first febrile seizure provides more evidence that the onset of febrile seizures is linked to the stage of brain development. [55]

In **2022, Mitsuda N et al.** did a cohort research to examine the link between breastfeeding and the occurrence of febrile seizures during the first three years of life. A total of 84,321 children were surveyed, and 6.4% of them reported experiencing at least one episode of FS within the first three years of life. This study found a tiny but protective impact of continued breastfeeding until age 2, the most vulnerable period for FS.[56]

MATERIALS AND METHODS

1. **Study site:** This study was conducted in the Department of Paediatrics at R L Jalappa Hospital & Research Centre (RLJH&RC), Kolar, Karnataka.
2. **Source of data:** All children hospitalised to the paediatric ward with a diagnosis of febrile seizures participated in this cross-sectional study.
3. **Study design:** A hospital based cross sectional study.
4. **Study period:** The study lasted from January of 2021 to December 2021
5. **Method of collection of data:**

   All children admitted to the Paediatric ward with diagnosis of febrile seizures.

Inclusion Criteria:

- Children aged 6 months to 60 months with both simple and complex febrile seizures admitted in R L Jalappa Hospital, Kolar.

Exclusion Criteria:

Children with any of the following were excluded from the study:

- Children with fever associated seizures age less than 6 month or more than 5 years (60months).
- Previous episode of afebrile seizure.
- Known neurologic abnormality (e.g., cerebral palsy).
- Suspicious neurological findings after the seizure: loss of consciousness, weakness.
- Children with signs of meningeal irritation.
- Refusal by parents or guardians to participate in the study.

6. **Sample size**:

One of the major risk factors considered is body temperature as reported in the study by krystyna et al which is 53.4%. Considering this proportion with 10% absolute error the estimated sample size was 96 Febrile seizure cases for this cross-sectional study.

7. Sampling Technique:

As soon as the appropriate inclusion and exclusion criteria were met, a consecutive sampling procedure was performed.

8. Ethical considerations:

Institutional Ethical Committee approval was obtained before the study was begun. All people who took part in the research also gave their written informed consent. Risk and benefits involved in the study and the voluntary nature of participants were explained before obtaining consent. Confidentiality and privacy were ensured at all stages.

9. **Methodology**:

This study was conducted in RLJH&RC affiliated to Sri Devaraj Urs Medical College (SDUMC), a constituent college of Sri Devaraj Urs Academy of Higher Education and Research (SDUAHER).

This study was started after obtaining ethical clearance from the institutional ethical committee. Data of infants and children who satisfy the eligibility criteria was included in the study. Parents were explained about the study and a written informed consent was obtained from them (Annexure).

Data collection tools: The detailed information regarding the various risk factors associated with febrile seizures was collected, based on predesigned data sheet which includes history, relevant clinical examination and laboratory investigations.

History:

Information about the patient's history, including their name, age, gender, and address, as well as any pertinent details concerning their current medical condition. If the patient complaints of a seizure accompanied by fever, a thorough history should be taken, including information about the patient's breastfeeding status, vaccination record, and developmental milestones, as well as the patient's and family members personal and family histories of febrile seizures and epilepsy. Children who have a history of febrile seizures are additionally asked about the age of onset, the number of seizures experienced, and the specific kind of seizure that occurred.

A. **Clinical examination:**

Once the most obvious causes of a seizure-related fever have been ruled out based on the patient's history, the remaining children will be evaluated for secondary causes, such as characteristics of elevated ICP and CSOM. The following inquiries will be conducted on the remaining children.

B. Lab investigations:

- Random blood sugar
- Serum electrolytes & calcium.
- CBC with Peripheral smear
- Urine routine
- When a central nervous system infection or other seizure problem is suspected, brain imaging and EEG is indicated.
- CSF analysis:

1. LP will be performed when there are meningeal signs or symptoms or other clinical features suggestive of a possible meningitis or intracranial infection.
2. children between the ages of 6 and 12 months old may be candidates for LP if their vaccination status against H.influenzae type b or Streptococcus pneumoniae is unknown or insufficient.
3. LP will be considered when the patient is on antibiotics since antibiotic therapy can mask the signs and symptoms of meningitis.

Statistical analysis:

IBM SPSS Statistics for Windows, Version 23.0 was used to analyse the gathered data (Armonk, NY: IBM Corp). Descriptive statistics such as frequency analysis and percentage analysis were used to describe the categorical variable, while the mean and standard deviation were used to describe the continuous variables. The Chi-Square test was employed to determine statistical significance in 2x2 tables with categorical data, whereas the Fisher's Exact test was used when the anticipated cell frequency was less than 5. The significance threshold used by the aforementioned statistical methods is set at a p-value of 0.05.

RESULTS AND OBSERVATIONS:

Table 1: Age distribution in children with febrile seizure (n=96)

Age distribution		
	Frequency	**Percent**
6 - 18 months	37	38.5
19 - 30 months	20	20.8
31 - 42 months	20	20.8
43 - 60 months	19	19.8
Total	**96**	**100.0**

Figure 1: Bar diagram representing Age distribution in children with febrile seizure(n=96)

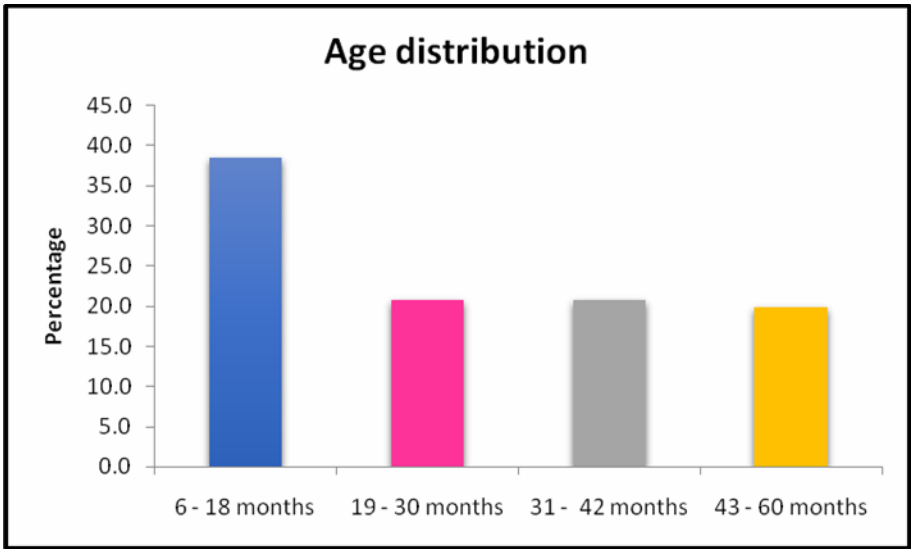


Table 1 and Figure 1 depict the distribution of Age among 96 children with febrile seizure were 38.5% of children are between 6 - 18 months, 20.8% of children are between 19 - 30 months, 20.8% of children are between 31 - 42 months, and 19.8% of children are between 43 - 60 months.

Table 2: Gender distribution in febrile seizure (n=96)

Gender distribution		
	Frequency	Percent
Male	65	67.7
Female	31	32.3
Total	96	100.0

Figure 2: Pie diagram showing Gender distribution in children with febrile seizure (n=96)

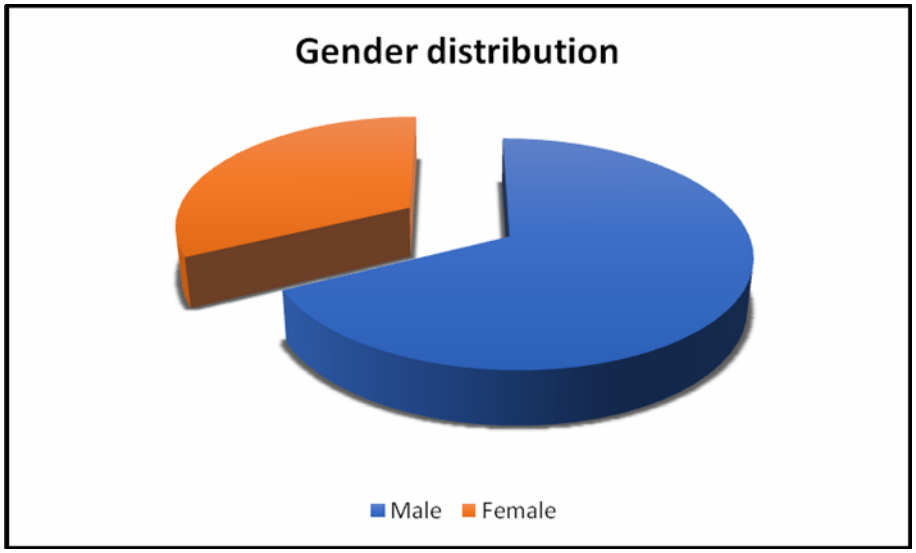


Table 2 and Figure 2 depict the distribution of Gender among 96 children with febrile seizure were 67.7% are males and 32.3% are females.

Table 3: Socio-Economic Status Distribution in children with febrile seizure (n=96)

Socio-Economic Status		
	Frequency	**Percent**
LC	23	24.0
ULC	33	34.4
LMC	21	21.9
UMC	14	14.6
UC	5	5.2
Total	**96**	**100.0**

Figure 3: Bar diagram representing Socio-Economic Status Distribution in children with febrile seizure (n=96)

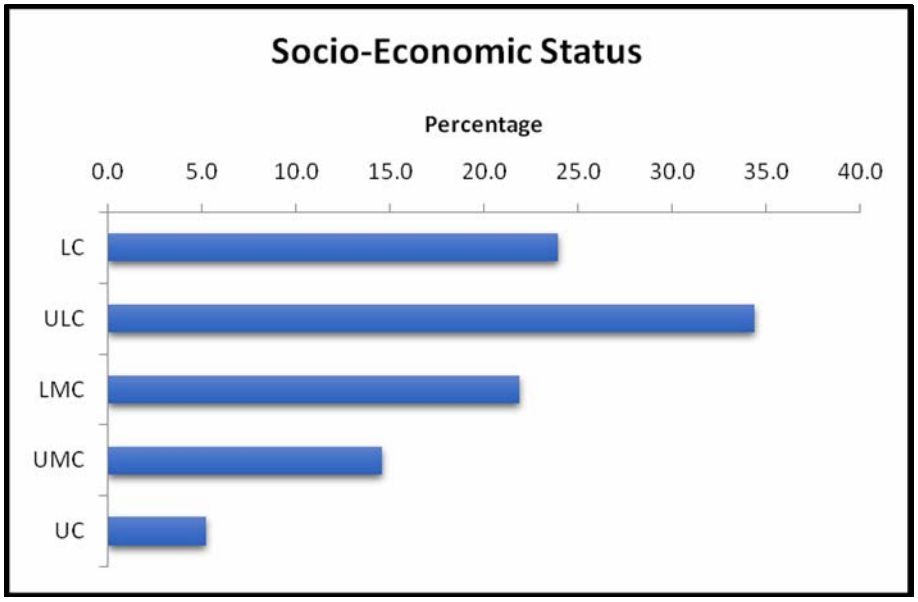


Table 3 and Figure 3 depict the distribution of Socio-Economic Status among 96 children with febrile seizure were 24.0% belongs to LC, 34.4% belongs to ULC, 21.9% belongs to LMC, 14.6% belongs to UMC and 5.2% belongs to UC.

Table 4: Residence distribution in children with febrile seizure (n=96)

Residence		
	Frequency	**Percent**
Rural	64	66.7
Urban	32	33.3
Total	**96**	**100.0**

Figure 4: Pie diagram representing Residence distribution in children with febrile seizure (n=96)

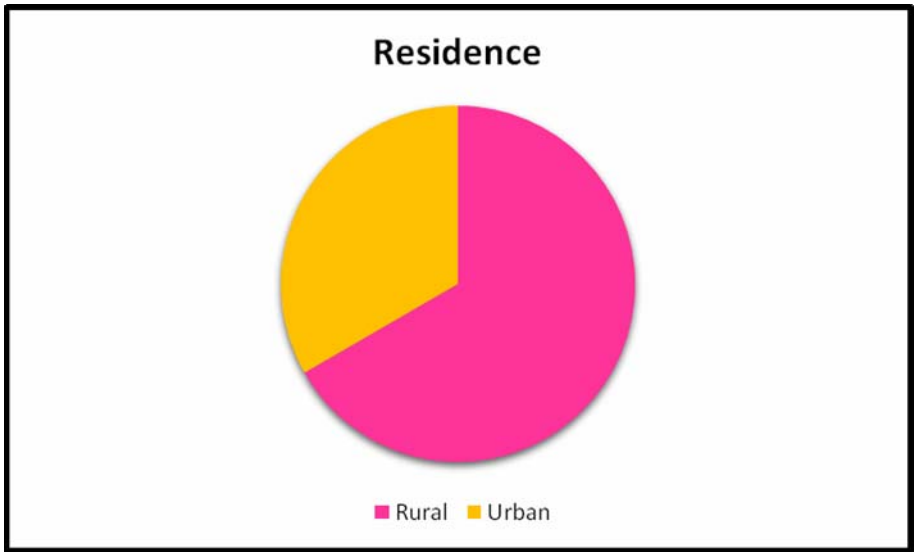


Table 4 and Figure 4 depict the distribution of Residence among 96 children with febrile seizure were 66.7% are from Rural and 33.3% are from Urban residence.

Table 5: Distribution of Time of onset of febrile seizure with respect to the onset of fever (n=96)

Time of onset of febrile seizure with respect to the onset of fever		
	Frequency	Percent
<24 hours	65	67.7
24 to 48 hours	22	22.9
>48 hours	9	9.4
Total	96	100.0

Figure 5: Pie diagram representing distribution of Time of onset of febrile seizure with respect to the onset of fever (n=96)

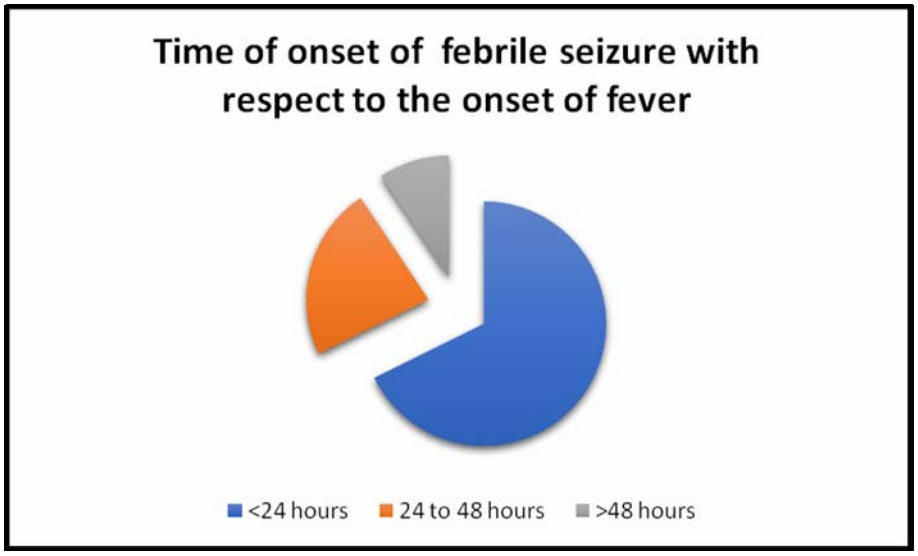
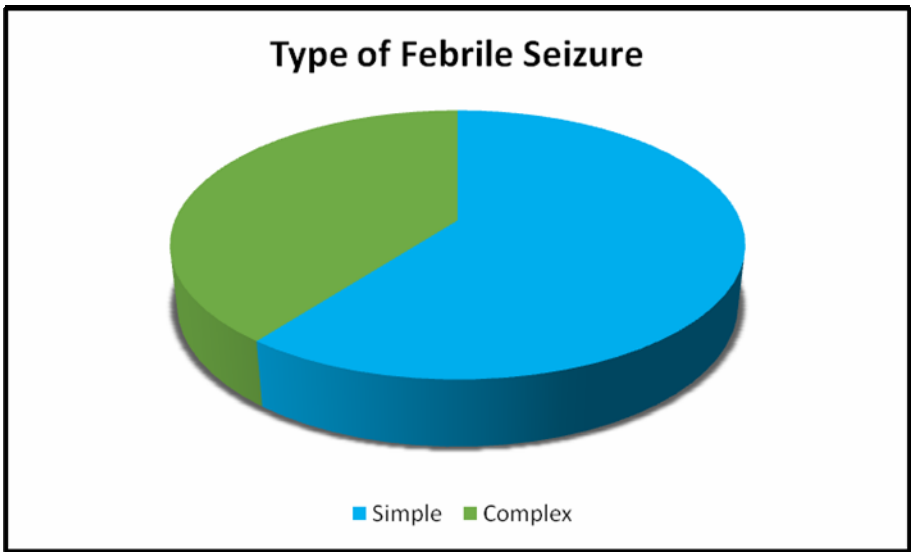


Table 5 and Figure 5 shows the frequency distribution of when febrile seizures began after the onset of fever in 96 children who experienced them. 67.7% of the children experienced their first seizure within 24 hours of developing a fever, 22.9% experienced their first seizure between 24 and 48 hours after developing a fever, and 9.4% experienced their first seizure more than 48 hours after developing a fever.

Table 6: Distribution of Type of febrile seizure in children with febrile seizure (n=96)

Type Of Febrile Seizure		
	Frequency	Percent
Simple FS	58	60.4
Complex FS	38	39.6
Total	**96**	**100.0**

Figure 6: Pie diagram representing distribution of Type of febrile seizure in children with febrile seizure (n=96)



There were 96 children diagnosed with febrile seizures, and as shown in Table 6 and Figure 6, 60.4% of these children had Simple febrile seizures whereas 39.6% experienced Complex febrile seizures.

Table 7: Distribution of Past history of febrile seizure in children with febrile seizure (n=96)

Past History Of Febrile Seizure		
	Frequency	**Percent**
Yes	22	22.9
No	74	77.1
Total	**96**	**100.0**

Figure 7: Pie diagram representing distribution of Past history of febrile seizure in children with febrile seizure (n=96)

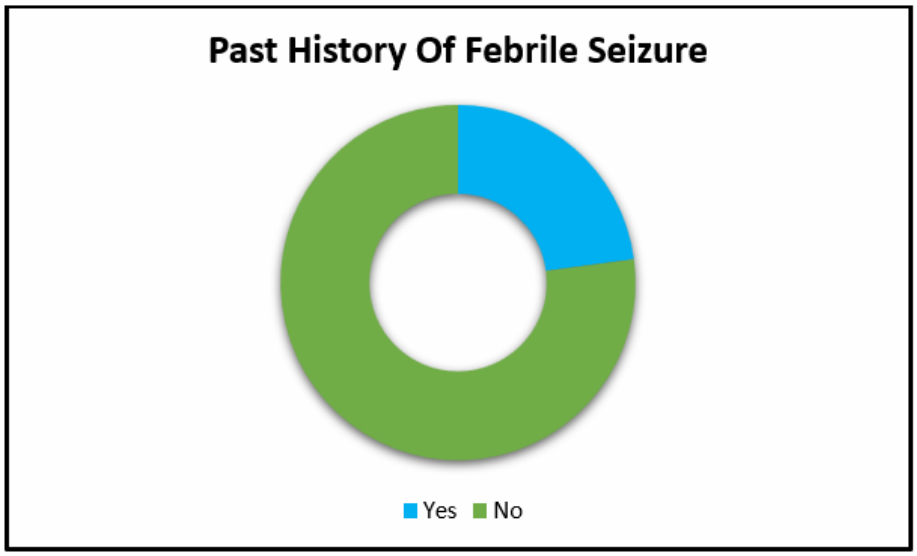
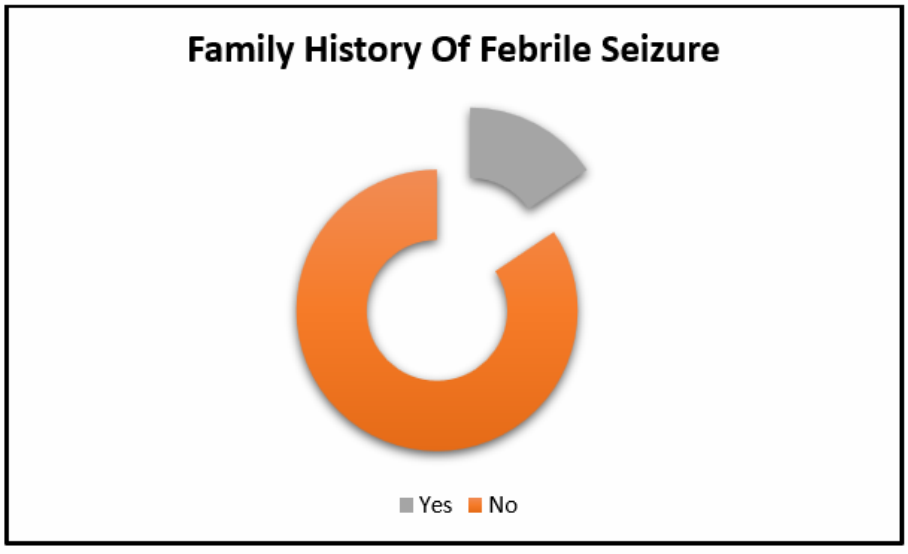


Table 7 and Figure 7 show the percentage of children having a past history of febrile seizures out of a total of 96 with febrile seizure. Only 22.9% of the children with febrile seizures had a history of febrile seizures in the past, while 77.1% had not.

Table 8: Distribution of Family history of febrile seizure in children with febrile seizure (n=96)

Family History of Febrile Seizure		
	Frequency	**Percent**
Yes	15	15.6
No	81	84.4
Total	**96**	**100.0**

Figure 8: Pie diagram representing distribution of Family history of febrile seizure in children with febrile seizure (n=96)



The distribution of the family history of febrile seizure among the 96 children with febrile seizure is shown in Table 8 and Figure 8. Overall, 15.6% of the children with febrile seizure had a family history of febrile seizure, whereas 84.4% did not.

Table 9: Distribution of History of consanguineous marriage in parent's of children with febrile seizure (n=96)

History of consanguineous marriage in parent's		
	Frequency	**Percent**
Non consanguineous marriage	**69**	**71.9**
2nd degree	**19**	**19.8**
3rd degree	**8**	**8.3**
Total	**96**	**100.0**

Figure 9: Pie diagram representing distribution of History of consanguineous marriage in parent's of children with febrile seizure (n=96)

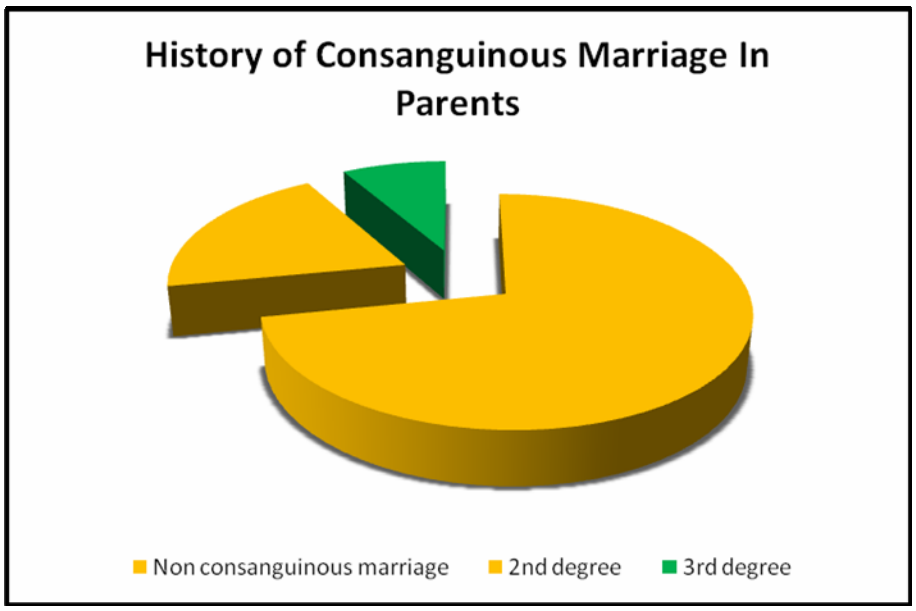


Table 9 and Figure 9 depict distribution of history of consanguineous marriage in parent's among 96 children with febrile seizure were 71.9% children had history of non-consanguineous marriage in parent's, 19.8% of children had history of 2nd degree consanguineous marriage in parent's and 18.3% of children had history of 3rd degree consanguineous marriage in parent's.

Table 10: Distribution of History of exclusive breast feeding in children with febrile seizure (n=96)

History of Exclusive Breast Feeding		
	Frequency	**Percent**
Yes	37	38.5
No	59	61.5
Total	**96**	**100.0**

Figure 10: Pie diagram representing distribution of History of exclusive breast feeding in children with febrile seizure (n=96)

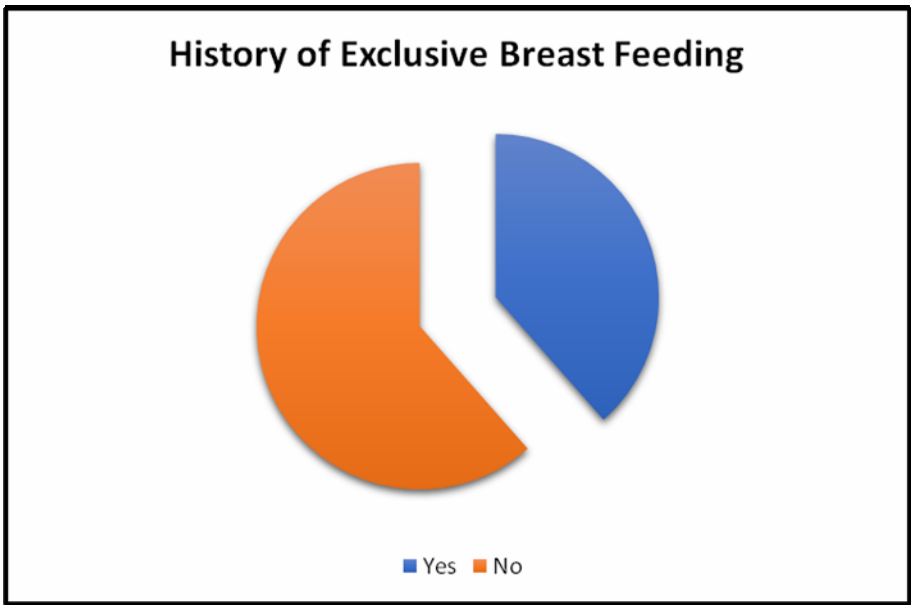


Table 10 and Figure 10 show the percentage of children who were exclusively breastfed and the percentage who were not among 96 children with febrile seizures. 38.5% of the children with febrile seizures were exclusively breastfed, whereas 61.5% were not.

Table 11: Distribution of Anemia in children with febrile seizure (n=96)

Anemia		
	Frequency	**Percent**
Yes	77	80.2%
No	19	19.8%
Total	**96**	**100.0**

Figure 11: Pie diagram representing distribution of Anemia in children with febrile seizure (n=96)

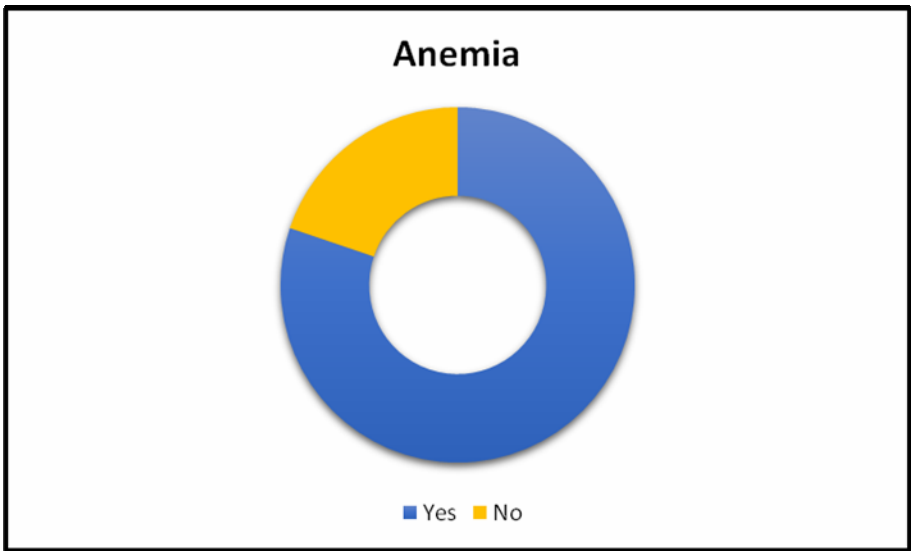


Table 11 and Figure 11 depict distribution of anemia among 96 children with febrile seizure were 80.2% of children with febrile seizure had anemia and 19.8% of children with febrile seizure had no anemia.

Table 12: Distribution of History of NICU Admission in children with febrile seizure (n=96)

History of NICU Admission		
	Frequency	**Percent**
Yes	20	20.8
No	76	79.2
Total	**96**	**100.0**

Figure 12: Pie diagram representing distribution of History of NICU Admission in children with febrile seizure (n=96)

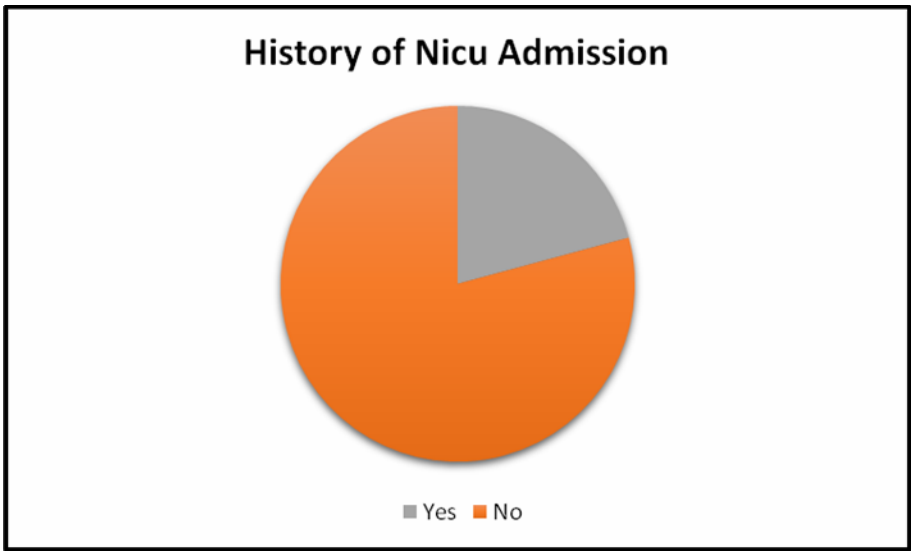
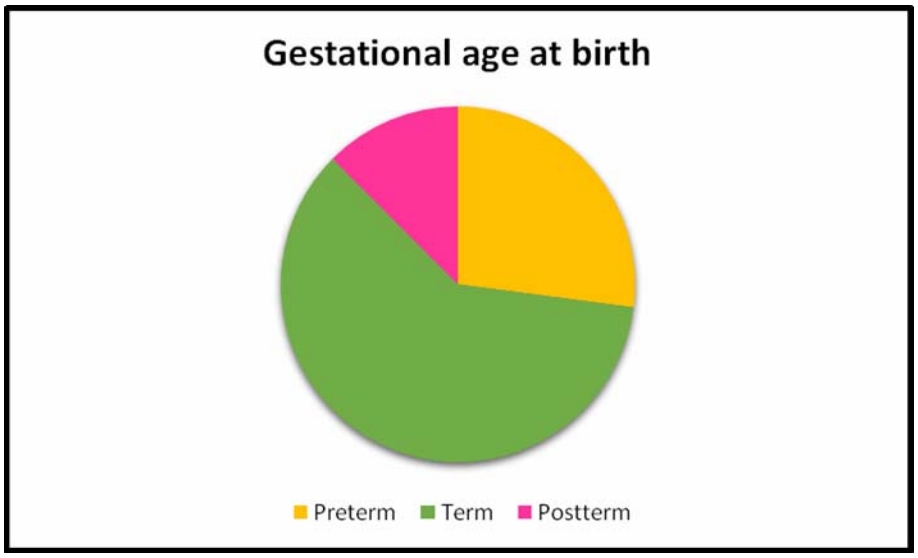


Table 12 and Figure 12 exhibit distribution of History of NICU admission among 96 children with febrile seizure were 20.8 percent of children with febrile seizure had history of NICU admission, 79.2 percent of children with febrile seizure had no history of NICU admission in the past.

Table 13: Distribution of Gestational Age at birth in children with febrile seizure (n=96)

Gestational age at birth		
	Frequency	**Percent**
Preterm	26	27.1
Term	58	60.4
Post-Term	12	12.5
Total	**96**	**100.0**

Figure 13: Pie diagram representing distribution of Gestational Age at birth in children with febrile seizure (n=96)



In Table 13 and Figure 13, we see that among the 96 children with febrile seizures, 27.1% were born prematurely, 60.4% were born as Term babies, and 12.5% were born post-Term.

Table 14: Distribution of Birth Weight in children with febrile seizure (n=96)

Birth Weight		
	Frequency	**Percent**
LBW	59	61.5
Normal	37	38.5
Total	**96**	**100.0**

Figure 14: Pie diagram representing distribution of Birth Weight in children with febrile seizure (n=96)

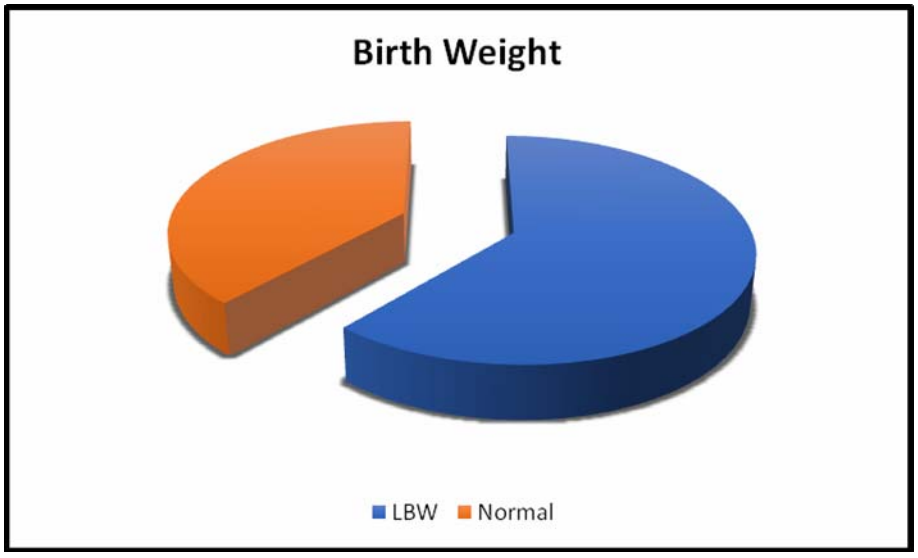


Table 14 and Figure 14 show the percentage of birth weight among the 96 children with febrile seizures. 61.5% of the children with febrile seizures were born at a low birth weight, while 38.5% were born at a normal weight.

Table 15: Comparison of Clinical Variables with Age distribution among children with febrile seizure by Pearson's Chi-Square test

		Age distribution among children with febrile seizure								Total		p-values
		6 - 18 months		19 - 30 months		31 – 42 months		43- 60 months				
		n	%	n	%	n	%	n	%	n	%	
Time of onset of febrile seizure with respect to the onset of fever	<24 hrs	26	70.3%	14	70.0%	12	60.0%	13	68.4%	65	67.7%	0.643 #
	24 to 48 hrs	10	27.0%	3	15.0%	5	25.0%	4	21.1%	22	22.9%	
	>48 hrs	1	2.7%	3	15.0%	3	15.0%	2	10.5%	9	9.4%	
Types of febrile seizure	Simple	19	51.4%	12	60.0%	14	70.0%	13	68.4%	58	60.4%	0.466 #
	Complex	18	48.6%	8	40.0%	6	30.0%	6	31.6%	38	39.6%	
Past history of febrile seizure	Yes	13	35.1%	6	30.0%	3	15.0%	0	0.0%	22	22.9%	0.018 *
	No	24	64.9%	14	70.0%	17	85.0%	19	100.0%	74	77.1%	
Family history of febrile seizure	Yes	2	5.4%	3	15.0%	7	35.0%	3	15.8%	15	15.6%	0.035 *
	No	35	94.6%	17	85.0%	13	65.0%	16	84.2%	81	84.4%	
History of consanguineous marriage in parents	Yes	13	35.1%	3	15.0%	4	20.0%	7	36.8%	27	28.1%	0.265 #
	No	24	64.9%	17	85.0%	16	80.0%	12	63.2%	69	71.9%	

* Statistical significant at $p < 0.05$ and # No Statistical significance at $p > 0.05$ level

Table 15 reveals that among the 96 children who had a febrile seizure, the proportion of those having a Past history of febrile seizures was highest among those aged 6-18 months (35.1%), indicating a statistically significant difference between this age group and the others ($P=0.018<0.05$). In a similar vein, $P=0.035<0.05$ statistically significant difference was found between the percentage of children aged 31–42 months old who had a family history of febrile seizures than the percentage of

children aged 0–30 and 43-60 months old who had a family history of febrile seizures, suggesting that this difference is clinically meaningful. While there is no statistical significance (p=0.643>0.05, p=0.466>0.05, and p=0.265>0.05) between the ages of children withTime of onset of febrile seizure with respect to the onset of fever, Types of febrile seizure, History of consanguineous marriage in parents respectively.

Table 16: Comparison of Postnatal Variable with Age distribution among children with febrile seizure by Pearson's Chi-Square test

		Age distribution among children with febrile seizure								Total		p-values
		6 - 18 months		19 - 30 months		31 - 42 months		43 – 60 months				
		n	%	n	%	N	%	n	%	n	%	
History of exclusive breast feeding	Yes	18	48.6%	5	25.0%	7	35.0%	7	36.8%	37	38.5%	0.351 #
	No	19	51.4%	15	75.0%	13	65.0%	12	63.2%	59	61.5%	
History of NICU admission	Yes	6	16.2%	4	20.0%	4	20.0%	6	31.6%	20	20.8%	0.609 #
	No	31	83.8%	16	80.0%	16	80.0%	13	68.4%	76	79.2%	
# No Statistical significance at p > 0.05 level												

Table 16 shows that there is no statistically significant difference in the distribution of ages among the 96 children who had febrile seizures based on whether or not they had a history of exclusive breast feeding or of hospitalisation to the neonatal intensive care unit with p=0.351>0.05, p=0.609>0.05 respectively

Table 17: Comparison of Birth Characteristic with Age distribution among children with febrile seizure by Pearson's Chi-Square test

		Age distribution among children with febrile seizure								Total		p-values
		6 - 18 months		19 - 30 months		31 - 42 months		43 - 60 months				
		n	%	n	%	N	%	n	%	n	%	
Gestational age at birth	Preterm	11	29.7%	7	35.0%	3	15.0%	5	26.3%	26	27.1%	0.848 #
	Term	22	59.5%	10	50.0%	14	70.0%	12	63.2%	58	60.4%	
	Post-Term	4	10.8%	3	15.0%	3	15.0%	2	10.5%	12	12.5%	
Birth weight	LBW	21	56.8%	12	60.0%	9	45.0%	17	89.5%	59	61.5%	0.030 *
	Normal	16	43.2%	8	40.0%	11	55.0%	2	10.5%	37	38.5%	
* Statistical significant at p < 0.05 and # No Statistical significance at p > 0.05 level												

Table 17 depict the comparison between Gestational age at birth with Age distribution among 96 children with febrile seizure, which shows no statistical significance with p=0.848>0.05, Whereas, comparison between Birth weight with Age distribution among 96 children with febrile seizure shows statistical significance with p=0.030<0.05, which shows that low birth weight is higher in age group of 43 – 60 months (89.5%) when compared to other age groups.

Table 18: Comparison of Anemia with Age distribution among children with febrile seizure by Pearson's Chi-Square test

		Age range distribution among children with febrile seizure								Total		p-values
		6 - 18 months		19 - 30 months		31 - 42 months		43 - 60 months				
		n	%	n	%	n	%	n	%	n	%	
Anemia	Yes	30	81.1%	16	80.0%	14	70.0%	17	89.5%	77	80.2%	0.501 #
	No	7	18.9%	4	20.0%	6	30.0%	2	10.5%	19	19.8%	
# No Statistical significance at p > 0.05 level												

Table 18 demonstrates a non-statistically significant correlation (p=0.501>0.05) between anaemia and age in a sample of 96 children with febrile seizures.

Table 19: Comparison of Clinical Variable with Gender distribution among children with febrile seizure by Pearson's Chi-Square test

		Gender distribution among children with febrile seizure				Total		p-values
		Male		Female				
		n	%	n	%	n	%	
Time of onset of febrile seizure with respect to the onset of fever	<24 hrs	45	69.2%	20	64.5%	65	67.7%	0.887 #
	24 to 48 hrs	14	21.5%	8	25.8%	22	22.9%	
	>48 hrs	6	9.2%	3	9.7%	9	9.4%	
Types of febrile seizure	Simple	36	55.4%	22	71.0%	58	60.4%	0.144 #
	Complex	29	44.6%	9	29.0%	38	39.6%	
Past history of febrile seizure	Yes	10	15.4%	12	38.7%	22	22.9%	0.011 *
	No	55	84.6%	19	61.3%	74	77.1%	
Family history of febrile seizure	Yes	10	15.4%	5	16.1%	15	15.6%	0.925 #
	No	55	84.6%	26	83.9%	81	84.4%	
History of consanguineous marriage in parents	Yes	19	29.2%	8	25.8%	27	28.1%	0.727 #
	No	46	70.8%	23	74.2%	69	71.9%	
* Statistical significant at $p < 0.05$ and # No Statistical significance at $p > 0.05$ level								

Table 19 shows a statistically significant difference between the proportion of female and male patients with past history of febrile seizures; this difference, at $p=0.011<0.05$, indicates that more females (38.5%) than men (15.4%) in the study sample of 96 children who had a past history of febrile seizures. Comparing Time of onset of febrile seizure with respect to the onset of fever, Types of febrile seizure, Family history of febrile seizure, History of consanguineous marriage in parents with the gender distribution among 96 children with febrile seizures does not indicate any statistical significance ($p=0.887>0.05$, $p=0.144>0.05$, $p=0.925>0.05$, and $p=0.727>0.05$, respectively).

Table 20: Comparison of Postnatal Variable with Gender distribution among children with febrile seizure by Pearson's Chi-Square test

		Gender distribution among children with febrile seizure				Total		p-values
		Male		Female				
		n	%	n	%	n	%	
History of exclusive breast feeding	Yes	28	43.1%	9	29.0%	37	38.5%	0.186 #
	No	37	56.9%	22	71.0%	59	61.5%	
History of NICU admission	Yes	12	18.5%	8	25.8%	20	20.8%	0.407 #
	No	53	81.5%	23	74.2%	76	79.2%	
# No Statistical significance at p > 0.05 level								

Table 20 reveals that there is no statistically significant difference between males and females in terms of exclusive breastfeeding or history of NICU hospitalisation among 96 children with febrile seizures (p=0.186>0.05 and p=0.407>0.05, respectively).

Table 21: Comparison of Birth Characteristic with Gender distribution among children with febrile seizure by Pearson's Chi-Square test

		Gender distribution among children with febrile seizure				Total		p-values
		Male		Female				
		n	%	n	%	n	%	
Gestational age at birth	Preterm	17	26.2%	9	29.0%	26	27.1%	0.676 #
	Term	41	63.1%	17	54.8%	58	60.4%	
	Post-Term	7	10.8%	5	16.1%	12	12.5%	
Birth weight	LBW	37	56.9%	22	71.0%	59	61.5%	0.186 #
	Normal	28	43.1%	9	29.0%	37	38.5%	
# No Statistical significance at p > 0.05 level								

Table 21 displays the results of a statistical analysis of the gender distribution of gestational age at birth and birth weight among 96 children diagnosed with febrile seizures; the results are inconclusive (p=0.676>0.05 and p=0.186>0.05).

Table 22: Comparison of Anemia with Gender distribution among children with febrile seizure by Fisher exact test

		Gender distribution among children with febrile seizure				Total		p-values
		Male		Female				
		n	%	n	%	n	%	
Anemia	Yes	50	76.9%	27	87.1%	77	80.2%	0.286 #
	No	15	23.1%	4	12.9%	19	19.8%	
# No Statistical significance at p > 0.05 level								

The table 22 results reveal that there is no statistically significant difference between the genders in the prevalence of anaemia among the 96 children with febrile seizures. The p value is 0.286>0.05.

Table 23: Comparison of Clinical Variable with Socio-Economic Status distribution among children with febrile seizure by Pearson's Chi-Square test

		Socio-Economic Status distribution among children with febrile seizure										Total		p-values
		LC		ULC		LMC		UMC		UC				
		n	%	n	%	n	%	n	%	n	%	n	%	
Time of onset of febrile seizure with respect to the onset of fever	<24 hrs	15	65.2%	21	63.6%	13	61.9%	11	78.6%	5	100.0%	65	67.7%	0.748 #
	24 to 48 hrs	5	21.7%	8	24.2%	6	28.6%	3	21.4%	0	0.0%	22	22.9%	
	>48 hrs	3	13.0%	4	12.1%	2	9.5%	0	0.0%	0	0.0%	9	9.4%	
Types of febrile seizure	Simple	16	69.6%	20	60.6%	11	52.4%	7	50.0%	4	80.0%	58	60.4%	0.590 #
	Complex	7	30.4%	13	39.4%	10	47.6%	7	50.0%	1	20.0%	38	39.6%	
Past history of febrile seizure	Yes	4	17.4%	8	24.2%	5	23.8%	3	21.4%	2	40.0%	22	22.9%	0.864 #
	No	19	82.6%	25	75.8%	16	76.2%	11	78.6%	3	60.0%	74	77.1%	
Family history of febrile seizure	Yes	3	13.0%	7	21.2%	0	0.0%	4	28.6%	1	20.0%	15	15.6%	0.156 #
	No	20	87.0%	26	78.8%	21	100.0%	10	71.4%	4	80.0%	81	84.4%	
History of consanguineous marriage in parents	Yes	8	34.8%	8	24.2%	5	23.8%	5	35.7%	1	20.0%	27	28.1%	0.826 #
	No	15	65.2%	25	75.8%	16	76.2%	9	64.3%	4	80.0%	69	71.9%	
# No Statistical significance at p > 0.05 level														

The relationship between Time of onset of febrile seizure with respect to the onset of fever, Types of febrile seizure, Past history of febrile seizure, Family history of febrile seizure, History of consanguineous marriage in parents and the distribution of socioeconomic status among 96 children with febrile seizures in Table 23 did not indicate statistical significance ($p=0.748>0.05$, $p=0.590>0.05$, $p=0.864>0.05$, $p=0.156>0.05$, $p=0.826>0.05$ respectively).

Table 24: Comparison of Postnatal Variable with Socio-Economic Status distribution among children with febrile seizure by Pearson's Chi-Square test

		Socio-Economic Status distribution among children with febrile seizure										Total		p-values
		LC		ULC		LMC		UMC		UC				
		n	%	n	%	n	%	n	%	N	%	n	%	
History of exclusive breast feeding	Yes	8	34.8%	9	27.3%	15	71.4%	5	35.7%	0	0.0%	37	38.5%	0.005 **
	No	15	65.2%	24	72.7%	6	28.6%	9	64.3%	5	100%	59	61.5%	
History of NICU admission	Yes	3	13.0%	7	21.2%	5	23.8%	5	35.7%	0	0.0%	20	20.8%	0.385 #
	No	20	87.0%	26	78.8%	16	76.2%	9	64.3%	5	100%	76	79.2%	
** Highly Statistical significant at p < 0.01 and # No Statistical significance at p > 0.05 level														

Table 24 depict the comparison between History of exclusive breast feeding with Socio-Economic Status distribution among 96 children with febrile seizure shows highly statistical significance with p=0.005<0.01, which shows that history of exclusive breastfeeding is higher in LMC (71.4%) and lower in UC (0%) when compared to other classes of socioeconomic status. P=0.385>0.05 indicates that there is no statistical significance when comparing the distribution of NICU admission history to socioeconomic status among the 96 children with febrile seizure.

Table 25: Comparison of Birth Characteristic with Socio-Economic Status distribution among children with febrile seizure by Pearson's Chi-Square test

		Socio-Economic Status distribution among children with febrile seizure										Total		p-values
		LC		ULC		LMC		UMC		UC				
		n	%	n	%	n	%	n	%	N	%	n	%	
Gestational age at birth	Preterm	5	21.7%	7	21.2%	7	33.3%	4	28.6%	3	60.0%	26	27.1%	0.277 #
	Term	18	78.3%	20	60.6%	11	52.4%	8	57.1%	1	20.0%	58	60.4%	
	Post-Term	0	0.0%	6	18.2%	3	14.3%	2	14.3%	1	20.0%	12	12.5%	
Birth weight	LBW	14	60.9%	19	57.6%	14	66.7%	9	64.3%	3	60.0%	59	61.5%	0.973 #
	Normal	9	39.1%	14	42.4%	7	33.3%	5	35.7%	2	40.0%	37	38.5%	
# No Statistical significance at p > 0.05 level														

Table 25 depict comparison of Gestational age at birth and Birth weight with Socio-Economic Status distribution among 96 children with febrile seizure shows no statistical significance with p=0.277>0.05, p=0.973>0.05 respectively.

Table 26: Comparison of Anemia with Socio-Economic Status distribution among children with febrile seizure by Pearson's Chi-Square test

		Socio-Economic Status distribution among children with febrile seizure										Total		p-values
		LC		ULC		LMC		UMC		UC				
		n	%	n	%	n	%	n	%	n	%	n	%	
Anemia	Yes	23	100%	33	100%	21	100%	0	0.0%	0	0.0%	77	80.2%	0.0005 **
	No	0	0.0%	0	0.0%	0	0.0%	14	100%	5	100%	19	19.8%	
** Highly Statistical significant at p < 0.01														

Table 26 shows the distribution of anaemia by socioeconomic status among 96 children with febrile seizures. There is a statistically significant correlation between anaemia and socioeconomic status (p=0.00050.01), with the highest prevalence of anaemia being found in the lowest socioeconomic status groups (LC, ULC, LMC, all 100%).

Table 27: Comparison of Clinical Variable with Residence distribution among children with febrile seizure by Pearson's Chi-Square test

		Residence distribution among children with febrile seizure				Total		p-values
		Rural		Urban				
		n	%	n	%	N	%	
Time of onset of febrile seizure with respect to the onset of fever	<24 hrs	46	71.9%	19	59.4%	65	67.7%	0.275 #
	24 to 48 hrs	14	21.9%	8	25.0%	22	22.9%	
	>48 hrs	4	6.3%	5	15.6%	9	9.4%	
Types of febrile seizure	Simple	36	56.3%	22	68.8%	58	60.4%	0.238 #
	Complex	28	43.8%	10	31.3%	38	39.6%	
Past history of febrile seizure	Yes	16	25.0%	6	18.8%	22	22.9%	0.492 #
	No	48	75.0%	26	81.3%	74	77.1%	
Family history of febrile seizure	Yes	8	12.5%	7	21.9%	15	15.6%	0.233 #
	No	56	87.5%	25	78.1%	81	84.4%	
History of consanguineous marriage in parents	Yes	16	25.0%	11	34.4%	27	28.1%	0.336 #
	No	48	75.0%	21	65.6%	69	71.9%	
# No Statistical significance at p > 0.05 level								

Table 27 compares Time of onset of febrile seizure with respect to the onset of fever, Types of febrile seizure, Past history of febrile seizure, Family history of febrile seizure, History of consanguineous marriage in parents with residence distribution among 96 children with febrile seizure do not show statistical significance (p=0.275>0.05, p=0.238>0.05, p=0.492>0.05, p=0.233>0.05, p=0.336>0.05 respectively).

Table 28: Comparison of Postnatal Variable with Residence distribution among children with febrile seizure by Pearson's Chi-Square test

		Residence distribution among children with febrile seizure				Total		p-values
		Rural		Urban				
		n	%	n	%	N	%	
History of exclusive breast feeding	Yes	28	43.8%	9	28.1%	37	38.5%	0.138 #
	No	36	56.3%	23	71.9%	59	61.5%	
History of NICU admission	Yes	7	10.9%	13	40.6%	20	20.8%	0.001 **
	No	57	89.1%	19	59.4%	76	79.2%	
** Highly Statistical significant at p < 0.01 and # No Statistical significance at p > 0.05 level								

Table 28 depict the comparison between History of exclusive breast feeding with Residence distribution among 96 children with febrile seizure shows no statistical p=0.138>0.05, Whereas comparison between History of NICU admission with Residence distribution among 96 children with febrile seizure shows highly statistical significance with p=0.001<0.01, which shows that history of NICU admission is higher in urban residence (40.6%) when compared to rural residence (10.9%).

Table 29: Comparison of Birth Characteristic with Residence distribution among children with febrile seizure by Pearson's Chi-Square test

		Residence distribution among children with febrile seizure				Total		p-values
		Rural		Urban				
		n	%	n	%	N	%	
Gestational age at birth	Preterm	18	28.1%	8	25.0%	26	27.1%	0.946 #
	Term	38	59.4%	20	62.5%	58	60.4%	
	Post-Term	8	12.5%	4	12.5%	12	12.5%	
Birth weight	LBW	38	59.4%	21	65.6%	59	61.5%	0.553 #
	Normal	26	40.6%	11	34.4%	37	38.5%	
# No Statistical significance at p > 0.05 level								

Table 29 reveals that there is no statistical significance between the distribution of Gestational Age at Birth and Birth Weight with Residence among the 96 children with febrile seizures($p=0.946>0.05$ and $p=0.553>0.05$ respectively).

Table 30: Comparison of Anemia with Residence distribution among children with febrile seizure by Pearson's Chi-Square test

		Residence distribution among children with febrile seizure				Total		p-values
		Rural		Urban				
		N	%	n	%	N	%	
Anemia	Yes	52	81.3%	25	78.1%	77	80.2%	0.717 #
	No	12	18.8%	7	21.9%	19	19.8%	
# No Statistical significance at p > 0.05 level								

Table 30 displays the results of a statistical comparison between the prevalence of anaemia and the distribution of children's residences among 96with febrile seizures; the results are inconsistent ($p=0.717>0.05$).

Table 31: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	SD
Age/months	96	8.0	59.0	28.20	14.41
Birth Weight (In Kgs)	96	1.64	4.10	2.53	0.54
Hb (in grams %)	96	5.30	14.10	9.40	2.07

The above table shows Descriptive Statistics of Age/months, Birth Weight (In Kgs), Haemoglobin (in grams %).

DISCUSSION

In the current research, we looked at a number of risk factors related to children who present with febrile seizures (FS). All children who are diagnosed with febrile seizures were admitted to the paediatric unit at Sri Devaraj Urs Medical College in Kolar were included in this cross-sectional observational research. The research spanned an entire calendar year, from January 2021 to December 2021. From 6 months to 60 months of age, 96 infants and children of both sexes were hospitalised with simple or complicated febrile seizure and assessed for potential risk factors.

The ages of the 96 children in our research ranged from 6 months to 60 months, with 38.5 percent falling in the 6–18 month range, 20.8 percent between 19 and 30 months, 20.8 percent between 31 and 42 months, and 19.8 percent between 43 and 60 months. The average age of presentation was 26 months in a prospective case-control study by Soheila Zareifar et al. including 300 toddlers who had febrile seizures. [57] Alfredo Piscane et al. found that the median age of onset for febrile seizures was 15 months. [58] According to research conducted by PL Kumara et al. in India, the average age of onset for febrile seizures was 17.5±8.81 months.[59] The research by Hesdorffer DC et al. detected children aged 6 months to 5 years old who were experiencing their first febrile seizure via daily screening of the Morgan Stanley Children's Hospital at New York-Presbyterian Paediatric Emergency Department (ED). Christensen KJ et al. [60] examined all 2,103,232 Danish infants born between 1977 and 2011 and still alive at 3 months of age. Children with febrile seizures in Denmark were identified in the National Patient Register up to the age of 5.In a study, Hauser WA et. al[61] discovered that age has a significant impact on how people approach convulsive illnesses.

Whether one takes into account mortality, relapse after a protracted remission, medication withdrawal in individuals entering remission, or all of the above, age is a factor in prognosis.

In our study, there were 96 febrile seizure cases, of which 67.7% were male and 32.3% were female. A similar finding was made by Srinivasa S et al.[62] in their prospective cohort study conducted in the Department of Paediatrics at the Kempegowda Institute of Medical Sciences in Bangalore, when 64 (60%) of the 108 patients were male and 44 (40%) were female. The male to female case ratio was 1.69:1, according to prospective research by Shreya Gupta et al.[63] at the People's College of Medical Sciences & Research Centre in Bhopal. According to the findings of Gattoo I et al.[64], boys made up 62% of the FS population, while girls made up 38%. There was a preponderance of men in each of these settings. Hesdorffer DC et al.[65] conducted research at the Morgan Stanley Children's Hospital of New York-Presbyterian Paediatric Emergency Department (ED) and found no gender difference ($p = 0.17$) while screening children aged 6 months to 5 years for their first FS.

The socioeconomic level of the 96 children with febrile seizures in our present research was distributed as follows: 24.0% belong to LC, 34.4% belong to ULC, 21.9% belong to LMC, 14.6% belong to UMC, and 5.2% belong to UC. In their prospective study, AK Saha et al.[66] discovered that 7(7%) of all 100 children, 41(40%) of all 100 children, and 53(53%) of all 100 children, respectively, belonged to the lowest, middle, and upper socioeconomic levels. In the 50 febrile seizure instances, the lower, middle, and upper socioeconomic levels were represented by 26 (52%), 21 (42%) and 3 (6%) of the cases respectively.

In our current study, 96 febrile seizure-affected children were distributed according to their place of residence, with 66.7% hailing from rural and 33.3% from urban areas. In their prospective study in Faridhpur, AK Saha et al.[66] discovered that 47 (47%) and 53 (53%) of the total 100 children, respectively, belonged to the rural and urban areas.

Results from our research showed that, among 96 children who had febrile seizures, 67.7% had them within 24 hours of when the fever started, 22.9% had them between 24 and 48 hours, and 9.4% had them more than 48 hours after the fever started. Time of onset of febrile seizure with respect to the onset of fever with Age range showed no statistical significance at P > 0.05 level with p=0.643>0.05, Time of onset of febrile seizure with respect to the onset of fever with Gender showed no statistical significance at P > 0.05 level with p=0.887>0.05, Time of onset of febrile seizure with respect to the onset of fever with Socio-Economic Status showed no statistical significance at P > 0.05 level with p=0.748>0.05, Time of onset of febrile seizure with respect to the onset of fever with Residence showed no statistical significance at P > 0.05 level with p=0.275>0.05. The following studies all found similar results: 13% of children had FS after 24 hours of fever, and 67% of children got FS within 24 hours of fever, according to a study by Christensen KJ et al.[60] (p> 0.001). About 15% of children developed FS after 24 hours, and 60% did so within 24 hours after a fever, according to research by Hesdorffer DC et al.[65]. (p>0.001). Based on their findings, AusiIndriani et al.[67] concluded that 46% of children developed seizures within 24 hours of a fever, and 31% between 24 to 48 hours of a fever.

We found that, out of 96 kids with febrile seizures, 60.4% had simple febrile seizures and 39.6% had complex febrile seizures. Types of febrile seizures and age range

showed no statistical significance at the P > 0.05 level with p=0.466>0.05; types of febrile seizures and gender showed no statistical significance at the P > 0.05 level with p=0.144>0.05, Types of febrile seizure with Socio-Economic Status showed no statistical significance at P > 0.05 level with p=0.590>0.05 and Types of febrile seizure with Residence showed no statistical significance at P > 0.05 level with p=0.238>0.05.In a study conducted by Daoud et al[68]. in 2002, it was shown that 9 (12%) of the 75 cases had complex febrile seizures, while 66 (88%) of the cases had simple febrile seizures.[69]In a prospective research conducted by Talebian et al. in 2008, 60 individuals were examined; 56 (93%) of them had simple febrile seizures, while 4 (7%) had complex febrile seizures. Bidabadi et al.[70] found that out of 150 patients, 132 (88%) had simple febrile seizures and 68 (12%) had complex febrile seizures. Like previous research, we found that simple febrile seizures were more prevalent than complex febrile seizures.

In the current study, we found that 22.9% of the 96 children who had a febrile seizure also had a past history of febrile seizures, whereas 77.1% of the children with febrile seizures did not had a past history of febrile seizures. The Following the comparison between past history of febrile seizures with age distribution among 96 children with febrile seizure shows statistical significance with P=0.018<0.05, which shows that past history of febrile seizure is higher in age group of 6 – 18 months (35.1%) when compared to other age groups. There was statistical significance at the P <0.05 level (p=0.011<0.05), indicating that the prevalence of a past history of febrile seizure is greater in females (38.7%) than in men (15.4%); however, there was no statistical significance at the P > 0.05(p=0.864>0.05, p=0.492>0.05) was found between past history of febrile seizure with either socioeconomic status or residence .[65]Children

with rectal temperatures of at least 101 degrees Fahrenheit (38.3 degrees Celsius) with no past history of spontaneous seizures or simultaneous central nervous system infection are said to be experiencing FS, as described by Hesdorffer DC et al. The National Institutes of Health held a consensus conference to define FS and found that a person's past medical history increased their chances of developing FS.

In the current research, family history of febrile seizures was distributed among 96 febrile seizure-affected children as follows: 15.6% of febrile seizure-affected children had family histories of febrile seizures, whereas 84.4% of febrile seizure-affected children had no family histories of febrile seizures. Using the Pearson's Chi-Square/Exact Fisher's test, the following comparisons were made: Family history of febrile seizure with Age range exhibited statistical significance at P >0.05 level with p=0.035<0.05, indicating that family history of febrile seizure is more common in the age group of 31 - 42 months (35%) when compared to other age groups; Family history of febrile seizure with Gender showed no statistical significance at P > 0.05 level with p=0.925>0.05,Family history of febrile seizure with Socio-Economic Status showed no statistical significance at P > 0.05 level with p=0.156>0.05 and in Family history of febrile seizure with Residence showed no statistical significance at P > 0.05 level with p=0.233>0.05. Ravi Bhatia and colleagues at Pacific Medical College in Udaipur, Rajasthan, found that out of a sample size of 27, 4 (14%). had a positive family history of epilepsy and 8 (29%). had a positive family history of febrile seizures. [71] A family history of febrile seizures was found in 35 (20.9%) out of 180 cases with febrile seizures, according to Shah H et al. [72] Christensen KJ et al.[60] found that 36% of children with a positive family history and 20% of those without a positive family history had FS. It was shown in research by Hesdorffer DC et al. [65]

that patients with a positive family history of FS were six times more likely to develop a recurrence. In their research, Berg et al.[73] observed that out of 340 children for whom data on their family history was available, 81 (24%) had a first-degree relative (parent or sibling) who had febrile seizures. Those with a family history of febrile seizures had a 36% (95% confidence range, 25-46%) increased risk of recurrence at one year, whereas those without a family history of febrile seizures had a 20% (95% confidence interval, 15-26%) risk of recurrence.

In our present study distribution of history of consanguineous marriage in parents among 96 children with febrile seizure were 71.9% children had history of non-consanguineous marriage in parent's, 19.8% of children had history of 2nd degree consanguineous marriage in parent's and 18.3% of children had history of 3rd degree consanguineous marriage in parent's. The Following comparison by Pearson's Chi-Square/Fisher's Exact test were History of consanguineous marriage in parents with Age range showed no statistical significance at P > 0.05 level with p=0.265>0.05, History of consanguineous marriage in parents with Gender showed no statistical significance at P >0.05 level with p=0.727>0.05, History of consanguineous marriage in parents with Socio-Economic Status showed no statistical significance at P > 0.05 level with p=0.826>0.05 and History of consanguineous marriage in parents with Residence showed no statistical significance at P > 0.05 level with p=0.336>0.05. Scheffer IE et al.[74] noted two familial febrile seizure clinical patterns that were in line with segregation studies that suggested genetic heterogeneity. There were several consanguineous marriages in the family tree, but it was unclear exactly what kind of marriages they were. Patients with incidental seizures, patients with febrile seizures, and patients with epilepsy were all compared by Choueiri et al.[75] for the rate of

inbreeding. The inbreeding rates were 0%, 4%, and 19.5%, respectively. In a different study by Atesoglu M et al., consanguineous marriage was found to be substantially linked with the prevalence of FS (OR: 1.54, 95% CI: 1.004-2.371, p = 0.046).[76] Contrary to Daoud et al[77].'s findings, which did not discover a significant correlation, these findings support the hypothesis. The various outcomes found in that research could be explained by variations in sampling techniques, inclusion criteria, and statistical analysis approaches.

In our present study distribution of history of exclusive breast-feeding among 96 children with febrile seizure were 38.5% of children with febrile seizure are exclusively breastfed and 61.5% of children with febrile seizure are not exclusively breastfed. The Following comparison by Pearson's Chi-Square/Fisher's Exact test were History of exclusive breast feeding with Age range showed no statistical significance at P > 0.05 level with p=0.351>0.05, History of exclusive breast feeding with Gender showed no statistical significance at P > 0.05 level with p=0.186>0.05, History of exclusive breast feeding with Residence showed no statistical significance at P > 0.05 level with p=0.138>0.05 and History of exclusive breast feeding with Socio-Economic Status showed highly statistical significance at P < 0.01 level with p=0.005<0.01, which shows that history of exclusive breastfeeding is higher in LMC (71.4%) and lower in UC (0%) when compared to other classes of socioeconomic status. In a similar vein, a study by Peng X et al[78] found no statistically significant differences between the two groups for age, gender, birth weight, temperature, pregnancy complications, or family histories of FS (p > 0.05); however, feeding patterns, prior histories of FS, and family histories of FS were strongly associated with the development of FS, and there were statistically significant differences

between the two groups for these factors ($p<0.05$). Breastfeeding may be protective against FS in the first year of infancy, according to Mitsuda N et al[79] Out of the 84,082 mothers, 1,940 (2.3%) breastfed their kids for less than a month, 10,007 (11.9%) for between one and three months, 7,623 (9.1%) for between four and six months, and 64,512 (76.7%) for between seven and twelve months. 57.1% of women who were still breastfeeding at one year (n = 47,998). Additional research by Moss BG et al[80] and Kelishadi R[81] also supports the findings of our investigation.

In the present study, it showed that anemia distribution among 96 children with febrile seizure were 80.2% of children with febrile seizure had anemia and 19.8% of children with febrile seizure had no anemia. The Following comparison by Pearson's Chi-Square/Fisher's Exact test were Anemia with Age distribution showed no statistical significance with $p=0.501>0.05$, Anemia with Gender distribution showed no statistical significance with $p=0.286>0.05$, Anemia with Socio-Economic Status distribution showed highly statistical significance with $p=0.0005<0.01$, which shows that anemia is higher in LC (100%), ULC (100%), LMC (100%) when compared to other classes of Socio-Economic status, Anemia with Residence distribution showed highly no statistical significance with $p=0.717>0.05$. In a similar vein, a study by Hartfield DS et al.[82] discovered that, in comparison to 5% and 4% of controls, respectively, 9% of FS cases had iron deficiency (ID) and 6% had iron deficiency anaemia (IDA). A study by Kumari et al.[59] found a highly significant correlation between simple febrile seizures and iron deficiency anaemia. The crude odds ratio (CI: 3.27–8.73, P=0.001) was 5.34. According to a study by Vaswani et al.[83], children experiencing their first febrile seizures had significantly lower mean serum ferritin levels (31.9 g/l) than control children (53.9 g/l) (P=0.003). The mean haemoglobin

values of the patients (9.4 1.2 g/dL) and controls (9.5 1.0 g/dL) were not significantly different, nor were the mean values of MCV (P=0.89) and MCH (P=0.71).

In our present study distribution of History of NICU admission among 96 children with febrile seizure were 20.8% of children with febrile seizure had history of NICU admission, 79.2% of children with febrile seizure had no history of NICU admission in the past. The Following comparison by Pearson's Chi-Square/Fisher's Exact test were History of NICU admission with Age range showed no statistical significance at P > 0.05 level with p=0.609>0.05, History of NICU admission with Gender showed no statistical significance at P > 0.05 level with p=0.407>0.0, History of NICU admission with Socio-Economic Status showed no statistical significance at P > 0.05 level with p=0.385>0.05, but History of NICU admission with Residence showed highly statistical significance at P < 0.01 level with p=0.001<0.01, which shows that history of NICU admission is higher in urban residence (40.6%) when compared to rural residence (10.9%).Similar findings were reached by Kantamalee W[84] who found that prematurity, prior NICU admissions, and a family history of febrile seizures were risk factors for febrile seizures(FS). Wallace SJ et al[85] and Kumari et al[59] also agree with the findings of our investigation.

In our present study distribution of gestational age at birth among 96 children with febrile seizures were 27.1% children with febrile seizure are Preterm at birth, 60.4% of children with febrile seizure are Term at birth, 12.5% of children with febrile seizure are Post-Term at birth. The following comparison by Pearson's Chi-Square/Fisher's Exact test were Gestational age at birth with Age range showed no statistical significance at P > 0.05 level with p=0.848>0.05, Gestational age at birth with Gender showed no statistical significance at P > 0.05 level with p=0.676>0.05,

There was no statistical significance when comparing gestational age at birth with socioeconomic status and place of residence. According to a research by Forsgren et al.[86], premature birth was more common in cases of febrile seizures. For cases, the mean gestational age at birth was 38.6 weeks (SD=2.2), while for referents, it was 39.2 weeks (SD=1.8) (Student's t-test, p=O.OI). (Student's t-test: p=O.O6) The difference was not statistically significant.

In our present study distribution of Birth Weight among 96 children with febrile seizure were 61.5% of children with febrile seizure had Low birth weight and 38.5% of children with febrile seizure had normal birth weight. The Following comparison by Pearson's Chi-Square/Fisher's Exact test were Birth weight with Age range showed statistical significance at $P < 0.05$ level with $p=0.030<0.05$, which shows that low birth weight is higher in age group of 43 – 60 months (89.5%) when compared to other age groups. Birth weight with Gender showed no statistical significance at $P > 0.05$ level with $p=0.186>0.05$, Birth weight with Socio-Economic Status showed no statistical significance at $P > 0.05$ level with $p=0.973>0.05$ and Birth weight with Residence showed no statistical significance at $P > 0.05$ level with $p=0.553>0.05$**.** According to Forsgren L et al.[86], controls had a mean birthweight of 3.562 kg (SD =0.60) while patients with febrile seizures had a mean birthweight of 3.438 kg (SD =0.55). (Student's t-test: p=O.O6) The difference was not statistically significant. The nonfebrile group, particularly those whose gestational age was 37 weeks or longer, had an excess of infants with birth weights between 1500 and 2500 g, according to research by van den Berg BJ et al[73] and Wallace SJ.[85]

CONCLUSION

- Febrile seizure is benign in nature, despite that still a nightmare for parents. It is a major reason for paediatrician visits and hospitalisations.
- The majority of patients who experienced febrile seizures were male, between the ages of 6 and 18 months old, belonging to ULC, living in rural areas, and having their first episode within the first 24 hours of developing a fever, as observed in this study were the various risk factors associated with children presenting with febrile seizures (FS).
- Furthermore, we discovered that Simple febrile seizure was the most common type of febrile seizure and itis not associated with past history or family history of febrile seizure.
- Risk factors for febrile seizures include anaemia, not breastfeeding exclusively, having a low birth weight, and having a history of a hospitalisation in the neonatal intensive care unit.
- A reduction in the frequency of febrile seizure might result from raising awareness among parents and medical professionals about the above risk factors.

LIMITATIONS AND RECOMMENDATIONS

- Data collection was limited to a single children hospital therefore; the results may not be generalised to settings.
- Sample size is small and further studies with lager sample size and higher level of evidence are required for the validation of various risk factors associated with febrile seizure.
- Despite all efforts, predominantly history was collected in a retrospective manner, hence recall bias may interfere the outcome of this study.

SUMMARY

- From January 1, 2021, to December 31, 2021, the Department of Paediatrics at R L Jalappa Hospital & Research Centre (RLJH&RC), Kolar, Karnataka, collected data from all children admitted to the Paediatric ward with the diagnosis of febrile seizures.
- IBM SPSS Statistics for Windows, Version 23.0 was used to analyse the gathered data (Armonk, NY: IBM Corp).
- Frequency analysis and percentage analysis were used to explain the data's categorical variables, while the mean and standard deviation were used to describe the data's continuous variables. In order to determine whether or not a set of categorical data is statistically significant, the Chi-Square test was used. All of the aforementioned statistical methods use a 0.05 probability value as the threshold for significance.
- 96 participants met the study's inclusion and exclusion criteria. Among 96 children with febrile seizure were 38.5% of children are between 6 - 18 months, 20.8% of children are between 19 - 30 months, 20.8% of children are between 31 - 42 months, and 19.8% of children are between 43 - 60 months.
- Among 96 children with febrile seizure were 67.7% are males and 32.3% are females.
- Febrile seizure were 24.0% belongs to LC, 34.4% belongs to ULC, 21.9% belongs to LMC, 14.6% belongs to UMC and 5.2% belongs to UC. 66.7% are from Rural and 33.3% are from Urban residence.
- Among 96 children with febrile seizure, 67.7% had febrile seizure within 24 hours of start of fever, 22.9% had febrile seizure between 24 and 48 hours of onset of fever, and 9.4% of the children had febrile seizure beyond 48 hours of onset of fever.

- The percentage of children who had a simple febrile seizure was 60.4%, whereas the percentage of children who experienced a complex febrile seizure was 39.6%
- Among 96 children hospitalised for febrile seizures, 22.9% had a history of febrile seizure in the past, whereas 77.1% had no such history.
- Only 15.6% of children who had a febrile seizure also had a history of febrile seizures in their family, whereas 84.4% of children who experienced a febrile seizure did not.
- 71.9% of children were born to unrelated parents, 19.8% to parents who were married within the second degree of consanguinity, and 18.3% to parents who were married within the third degree of consanguineous marriages.
- Febrile seizure were 38.5% of children with febrile seizure are exclusively breastfed, 80.2% of children with febrile seizure had anemia, 20.8% of children with febrile seizure had history of NICU admission, 27.1% children with febrile are Premature at birth, 60.4% of children with febrile seizure are Term at birth, 12.5% of children with febrile seizure are Post-Term at birth.
- Low birth weight was present in 61.5% of febrile seizure children, whereas normal birth weight was present in 38.5%.
- The correlation between birth weight and age range with the presence of a family history of febrile seizures is statistically meaningful.
- There is a statistically significant association between a past history of febrile seizures and gender.
- Breast feeding with Socio-Economic Status shows highly statistical significance.
- The Anemia with Socio-Economic Status by Pearson's Chi-Square/Fisher's Exact test were it shows highly statistical significance at $P < 0.01$ level with $p=0.0005<0.01$.
- History of NICU admission with Residence shows highly statistical significance at $P < 0.01$ level with $p=0.001<0.01$ respectively.

BIBLIOGRAPHY

1. Chungath M, Shorvon S. The mortality and morbidity of febrile seizures. Nat Clin Pract Neurol. 2008;4(11):610–21.
2. Steering Committee on Quality Improvement and Management, Subcommittee on Febrile Seizures. Febrile Seizures: Clinical Practice Guideline for the Long-term Management of the Child With Simple Febrile Seizures. Pediatrics. 2008;121(6):1281–6.
3. Leung AK, Hon KL, Leung TN. Febrile seizures: an overview. Drugs Context. 2018.16;7:1–12.
4. Pavone P, Corsello G, Ruggieri M, Marino S, Marino S, Falsaperla R. Benign and severe early-life seizures: a round in the first year of life. Ital J Pediatr. 2018;44(1):54.
5. Paul SP, Seymour M, Flower D, Rogers E. Febrile convulsions in children: Siba Paul and colleagues comment on the pathophysiology and risk factors, in response to an article published this year. Nurs Child Young People. 2015 ;27(5):14–5.
6. Mikkonen K, Uhari M, Pokka T, Rantala H. Diurnal and Seasonal Occurrence of Febrile Seizures. Pediatr Neurol. 2015;52(4):424–7.
7. Sharafi R, Hassanzadeh Rad A, Aminzadeh V. Circadian Rhythm and the Seasonal Variation in Childhood Febrile Seizure. Iran J Child Neurol. 2017;11(3):27–30.
8. Offringa M, Bossuyt PMM, Lubsen J, Ellenberg JH, Nelson KB, Knudsen FU, et al. Risk factors for seizure recurrence in children with febrile seizures: A pooled analysis of individual patient data from five studies. J Pediatr. 1994;124(4):574–84.
9. Audenaert D, Van Broeckhoven C, De Jonghe P. Genes and loci involved in febrile seizures and related epilepsy syndromes. Hum Mutat. 2006;27(5):391–401.

10. Saitoh M, Ishii A, Ihara Y, Hoshino A, Terashima H, Kubota M, et al. Missense mutations in sodium channel SCN1A and SCN2A predispose children to encephalopathy with severe febrile seizures. Epilepsy Res. 2015;117:1–6.
11. Pujar SS, Seunarine KK, Martinos MM, Neville BGR, Scott RC, Chin RFM, et al. Long-term white matter tract reorganization following prolonged febrile seizures. Epilepsia. 2017 May;58(5):772–80.
12. Annegers JF, Hauser WA, Shirts SB, Kurland LT. Factors prognostic of unprovoked seizures after febrile convulsions. N Engl J Med.1987; 316:493–498.
13. Hauser WA. The prevalence and incidence of convulsive disorders in children. Epilepsia. 1994 Apr;35:S1-6.
14. Offringa M, Hazebroek-Kampschreur AA, Derksen-Lubsen G. Prevalence of febrile seizures in Dutch schoolchildren. Paediatric and perinatal epidemiology. 1991;5(2):181-8.
15. Waruiru C, Appleton R. Febrile seizures: an update. Arch Dis Child. 2004;89(8):751-756.
16. Internationnal LA. Guidelines for epidemiologic studies on epilepsy. Epilepsia. 1993;34:592-6.
17. Consensus Development Panel. Febrile Seizures: long-term management of children with fever-associated seizures. Pediatrics in Review. 1981;2(7):209-11.
18. Patterson JL, Carapetian SA, Hageman JR, Kelley KR. Febrile seizures. Pediatric annals. 2013 1;42(12):e258-63.
19. Miller IO, Sotero de Menezes MA. SCN1A Seizure Disorders. University of Washington, Seattle; 2022.
20. Winawer MR, Shinnar S. Genetic epidemiology of epilepsy or what do we tell families?. Epilepsia. 2005;46:24-30.

21. Dubé CM, Brewster AL, Baram TZ. Febrile seizures: mechanisms and relationship to epilepsy. Brain and Development. 2009;31(5):366-71.

22. Leung AK, Robson WL. Febrile seizures. Journal of pediatric health care. 2007;21(4):250-5.

23. Millichap JG, Millichap JJ. Role of viral infections in the etiology of febrile seizures. Pediatr Neurol. 2006;35(3):165-172.

24. Kwong KL, Lam SY, Que TL, Wong SN. Influenza A and febrile seizures in childhood. Pediatric neurology. 2006;35(6):395-9.

25. Barlow WE, Davis RL, Glasser JW, Rhodes PH, Thompson RS, Mullooly JP, Black SB, Shinefield HR, Ward JI, Marcy SM, DeStefano F. The risk of seizures after receipt of whole-cell pertussis or measles, mumps, and rubella vaccine. New England Journal of Medicine. 2001;30,345(9):656-61.

26. Frantzen E, Lennox-Buchthal M, Nygaard A, Stene J. A genetic study of febrile convulsions. Neurology. 1970; 20:909–917.

27. Annegers JF, Hauser WA, Elveback LR, Kurland LT. The risk of epilepsy following febrile convulsions. Neurology. 1979; 29:297–303.

28. Hauser WA, Annegers JF, Anderson VE, Kurland LT. The risk of seizure disorders among relatives of children with febrile convulsions. Neurology. 1985; 35:1268–1273.

29. Klein NP, Fireman B, Yih WK, Lewis E, Kulldorff M, et al. Measles-mumps-rubella-varicella combination vaccine and the risk of febrile seizures. Pediatrics. 2010; 126:1-8.

30. Cendes F, Sankar R. Vaccinations and febrile seizures. Epilepsia. 2011; 52:23–25.

31. Derakhshanfar H, Abaskhanian A, Alimohammadi H, ModanlooKordi M. Association between iron deficiency anemia and febrile seizure in children. Med Glas (Zenica). 2012; 9:239–242.
32. Leela Kumari P, Nair MK, Nair SM, Kailas L, Geetha S. Iron deficiency as a risk factor for simple febrile seizures-a case control study. Indian pediatrics. 2012;49(1):17-9.
33. Ganesh R, Janakiraman L. Serum zinc levels in children with simple febrile seizure. Clinical pediatrics. 2008;47(2):164-6.
34. Schuchmann S, Hauck S, Henning S, Grüters-Kieslich A, Vanhatalo S, et al. Respiratory alkalosis in children with febrile seizures. Epilepsia. 2011; 52:1949–1955.
35. Subcommittee on Febrile Seizures; American Academy of Pediatrics . Neurodiagnostic evaluation of the child with a simple febrile seizure. Pediatrics. 2011; 127:389–394.
36. Fetveit A. Assessment of febrile seizures in children. European journal of pediatrics. 2008;167(1):17-27.
37. Maytal J, Shinnar S, Moshé SL, Alvarez LA. Low morbidity and mortality of status epilepticus in children. Pediatrics. 1989; 83:323–331.
38. Maytal J, Steele R, Eviatar L, Novak G. The value of early postictal EEG in children with complex febrile seizures. Epilepsia. 2000; 41:219–221.
39. American Academy of Neurology Quality Standards Subcommittee. Practice parameter: a guideline for discontinuing antiepileptic drugs in seizure-free patients (summary statement). Neurology. 1996;47:600-2.

40. Hesdorffer DC, Shinnar S, Lewis DV, Moshé SL, Nordli Jr DR, Pellock JM, MacFall J, Shinnar RC, Masur D, Frank LM, Epstein LG. Design and phenomenology of the FEBSTAT study. Epilepsia. 2012;53(9):1471-80.
41. Miller IO, Sotero de Menezes MA. SCN1A Seizure Disorders. University of Washington, Seattle; 1993.
42. Hussain S, Tarar SH, Sabir MU. Febrile seizrues: demographic, clinical and etiological profile of children admitted with febrile seizures in a tertiary care hospital. J. Pakistan Med. Assoc. 2015;65(9).
43. Sharawat IK, Singh J, Dawman L, Singh A. Evaluation of risk factors associated with first episode febrile seizure. Journal of clinical and diagnostic research: JCDR. 2016;10(5):SC10.
44. Francis JR, Richmond P, Robins C, Lindsay K, Levy A, Effler PV, Borland M, Blyth CC. An observational study of febrile seizures: the importance of viral infection and immunization. BMC pediatrics. 2016;16(1):1-6.
45. Kantamalee W, Katanyuwong K, Louthrenoo O. Clinical characteristics of febrile seizures and risk factors of its recurrence in Chiang Mai University Hospital. Neurology Asia. 2017 ;22(3):203-8.
46. Gontko-Romanowska k, Zaba Z,Panienski P,Steinborn B, Szemien M and Lukasik M.The assessment of risk factors for febrile seizures in children.Neurol Neurochir pol 2017;51:454-58.
47. Atesoglu M, Ince T, Luleci D, Ergor A, Aydın A. Sociodemographic risk factors for febrile seizures: A school-based study from Izmir, Turkey. Seizure 2018;61:45-49.
48. Paranjape VP, Manju AS, Goyal J, Kumar A. Evaluation of febrile seizures among children treated at day care facility of tertiary care hospital: a retrospective study. 2021.;1(19):0-5.

49. Yahyaoui S,Lammouchi M,Yahyaoui O,Olfa B,Soniya M,Samir B.Risk facors for febrile seizures in Tunisian children.J Med Surg Pathol 2019;4:171-76.
50. Ishaq S, Mazari E, Rehman F.Major clinical Risk factors for febrile seizures in children aged six to sixty months.Professional Med J 2020;27(5):891-94.
51. Peng X, Yao BZ, Wang S, Yu SQ, Fang CC, Xu YM. The Protective Effect of Breastfeeding on Febrile Seizures: A Case-Control Study. Breastfeed Med. 2020;15:709-714.
52. Brajesh R C, Karmacharya M K, Gaire B. Association of Iron Deficiency Anemia with Febrile Seizure in Children in a Tertiary Care Hospital. J Nepal Health Res Counc. 2021;19(1):66-70.
53. Kannikeswaran N, Sivaswamy L, Farooqi A, Sethuraman U. Children With complex febrile seizures: is hospital admission necessary?. Clinical Pediatrics. 2021;60(8):363-9.
54. Balajichinnasami D, Pratibha RK, NandimallaVinay Kumar DB. Clinical profile of children admitted with febrile seizure in a tertiary hospiatal of Tamil Nadu. Annals of the Romanian Society for Cell Biology. 2021;25(6):19965-8.
55. Christensen KJ, Dreier JW, Skotte L, Feenstra B, Grove J, Borglum A, Mitrovic M, Cotsapas C, Christensen J. Birth characteristics and risk of febrile seizures. Acta Neurol Scand. 2021;144(1):51-57.
56. Mitsuda N, J-P NA, Hosokawa T, Eitoku M, Fujieda M, Suganuma N; Japan Environment and Children's Study (JECS) Group. Breastfeeding and risk of febrile seizures in the first 3 years of life: The Japan Environment and Children's Study. Brain Dev. 2022;44(3):203-09.
57. Zareifar S, Hosseinzadeh HR, Cohan N. Association between iron status and febrile seizures in children. Seizure. 2012;21(8):603–5.

58. Pisacane A, Sansone R, Impagliazzo N, Coppola A, Rolando P, D'Apuzzo A, et al. Iron deficiency anaemia and febrile convulsions: case-control study in children under 2 years. BMJ. 1996 10;313(7053):343–343.
59. Leela Kumari P, Nair MKC, Nair SM, Kailas L, Geetha S. Iron deficiency as a risk factor for simple febrile seizures-Case control study. Indian Pediatr. 2012;49(1):17–9.
60. Christensen KJ, Dreier JW, Skotte L, Feenstra B, Grove J, Børglum A, et al. Birth characteristics and risk of febrile seizures. Acta Neurol Scand. 2021;144(1):51–7.
61. Hauser WA. Seizure Disorders: The Changes With Age. Epilepsia. 1992 Jul;33:6–14.
62. Srinivasa S, Reddy SP. Iron deficiency anemia in children with simple febrile seizures-A cohort study. Curr Pediatr. 2014; 18(2):95-8.
63. Gupta S, Agarwal N , Maheshwari M. Iron Deficiency as a Risk Factor for Febrile Seizures. Research article. 2015.
64. Gattoo I, Harish R, Quyoom Hussain S. Correlation of Serum Zinc Level with Simple Febrile Seizures: A Hospital based Prospective Case Control Study. Int J Pediatr. 2015;3(2).
65. Hesdorffer DC, Benn EKT, Bagiella E, Nordli D, Pellock J, Hinton V, et al. Distribution of febrile seizure duration and associations with development. Ann Neurol. 2011;70(1):93–100.
66. Saha AK, Hassan MK, Kundu LC, Saha SK, Begum P, Lucky A. Low Serum Ferritin is a Risk for Febrile Convulsion in Children. Faridpur Med Coll J. 2017;11(2):44–6.
67. Indriani A, Risan NA, Nurhayati T. Five Years Study of Recurrent Febrile Seizure Risk Factors. Althea Med J. 2017;4(2).
68. Daoud AS, Batieha A, Bashtawi M, El-Shanti H. Risk factors for childhood epilepsy: a case-control study from Irbid, Jordan. Seizure. 2003;12(3):171–4.

69. Talebian A, Momtazmanesh N. Febrile Seizure and Anemia. Iran J Child Neurol. 2008;2(1).

70. Bidabadi E, Mashouf M. Association between iron deficiency anemia and first febrile convulsion: A case–control study. Seizure. 2009;18(5):347–51.

71. Bhatia R, Bhatia G Iron status and its relation to simple febrile seizures in children; Indian Journal of Basic and Applied Medical Research; December 2015:5(1);342-345.

72. Shah H, Shah B, Banker D, Pandya D, Shah V, Shah A; Study of association of Iron deficiency anaemia and simple febrile seizures in 6-60 months children: A Case control study.Int J Pediatr Res 2016; 3(2):86-89.

73. van den Berg BJ, Yerushalmy J. Studies on Convulsive Disorders in Young Children: I. Incidence of Febrile and Nonfebrile Convulsions by Age and Other Factors. Pediatr Res. 1969 ;3(4):298–304.

74. Scheffer I. Generalized epilepsy with febrile seizures plus. A genetic disorder with heterogeneous clinical phenotypes. Brain. 1997;120(3):479–90.

75. Choueiri RN, Fayad MN, Farah A, Mikati MA. Classification of epilepsy syndromes and role of genetic factors. Pediatr Neurol. 2001;24(1):37–43.

76. Ateşoğlu M, İnce T, Lüleci D, Ergör A, Aydın A. Sociodemographic risk factors for febrile seizures: A school-based study from Izmir, Turkey. Seizure. 2018;61:45–9.

77. Daoud AS, Batieha A, Bashtawi M, El-Shanti H. Risk factors for childhood epilepsy: a case-control study from Irbid, Jordan. Seizure. 2003;12(3):171–4.

78. Peng X, Yao B zhen, Wang S, Yu S qian, Fang C cong, Xu Y ming. The Protective Effect of Breastfeeding on Febrile Seizures: A Case–Control Study. Breastfeed Med. 2020;15(11):709–14.

79. Mitsuda N, Hosokawa T, Eitoku M, Fujieda M, Suganuma N. Breastfeeding and risk of febrile seizures in infants: The Japan Environment and Children's Study. Brain Dev. 2019;41(10):839–47.

80. Moss BG, Yeaton WH. Early Childhood Healthy and Obese Weight Status: Potentially Protective Benefits of Breastfeeding and Delaying Solid Foods. Matern Child Health J. 2014;18(5):1224–32.

81. Kelishadi R, Farajian S. The protective effects of breastfeeding on chronic non-communicable diseases in adulthood: A review of evidence. Adv Biomed Res. 2014;3(1):3.

82. Hartfield DS, Tan J, Yager JY, Rosychuk RJ, Spady D, Haines C, et al. The Association Between Iron Deficiency and Febrile Seizures in Childhood. Clin Pediatr (Phila). 2009;48(4):420–6.

83. Vaswani RK, Dharaskar PG, Kulkarni S, Ghosh K. Iron deficiency as a risk factor for first febrile seizure. Indian Pediatr. 2010;47(5):437–9.

84. Kantamalee W, Katanyuwong K, Louthrenoo O. Clinical characteristics of febrile seizures and risk factors of its recurrence in Chiang Mai University Hospital. Neurology Asia. 2017;22(3):203-8.

85. Wallace SJ. Aetiological Aspects of Febrile Convulsions: Pregnancy and Perinatal Factors. Arch Dis Child. 1972 ;47(252):171–8.

86. Forsgren L, Sidenvall R, Blomquist HK, Heijbel J, Nyström L. Pre- and Perinatal Factors in Febrile Convulsions. Acta Paediatr. 1991;80(2):218–25.

ANNEXURE-I

PROFORMA

Name:

Age:

Sex:

Informant:

Address: …….. Telephone No……

Socio-economic status:

Presenting complaints:

1. Fever 2. Seizures 3. Fever+Seizures 4.Any Other

Fever:
Duration: - 1. <24 hrs 2. >24hrs

Seizures:
Duration(minutes): -
1. < 1 2. 1-5 3. 6-10 4. 11-15 5. >15

Type:
1.Generalised 2. Focal

Number of episodes:

Past history:

Previous febrile seizure: Yes No

If yes total number:

Family history:

Febrile Convulsion: Yes No

Consanguinity:

Family h/o seizures:

Birth history:

Gestational age:

Birth weight:

Prenatal issues like asphyxia:

Neonatal ICU stay:

Developmental history:

Vaccination Status:

Clinical examination:

Pallor-

Icterus-

Cyanosis-

Pedal oedema-

Neurocutaneous markers:

Intensity of Temperature:

Level of consciousness:

Presence or absence of meningeal signs:

Tense or bulging fontanelle:

Features of increased ICP:

Vitals:

PR- BP- RR- TEMP-

Anthropometry:

Height: Weight: HC:

Systemic examination:

CVS - RS -

ABD - CNS -

Investigations:

Complete blood count -

RBS -

RFT -

Serum electrolytes -

serum calcium -

EEG -

Neuroimaging -

CSF analysis-

ANNEXURE-II

INFORMED CONSENT FORM

Date:

I, Mr/Mrs _____, have been explained in my own vernacular language that my child will be included in the **"RISK FACTORS IN CHILDREN ADMITTED WITH FEBRILE SEIZURES IN A TERTIARY CARE HOSPITAL"** hereby I give my valid written informed consent without any force or prejudice for recording the observations of haematological and clinical parameters. The nature and risks involved have been explained to me, to my satisfaction. I have been explained in detail about the study being conducted. I have read the patient information sheet and I have had the opportunity to ask any question. Any question that I have asked, have been answered to my satisfaction. I provide consent voluntarily to allow my child as a participant in this research. I hereby give consent to provide history, undergo physical examination, undergo the procedure, undergo investigations and provide its results and documents etc to the doctor / institute etc. For academic and scientific purpose, the operation / procedure, etc may be video graphed or photographed. All the data may be published or used for any academic purpose. I will not hold the doctors / institute etc responsible for any untoward consequences during the procedure / study.

_____ _____

(Signature & Name of Pt. Attendant) (Signature/Thumb impression & Name of Patient/Guardian) (Relation with patient)

Witness:

_____

(Signature & Name Research person/doctor)

ANNEXURE-III

PATIENT INFORMATION SHEET

Principal investigator: **Dr. JEFRIN ANTO B C/Dr. BEERE GOWDA.Y.C**

I **Dr. JEFRIN ANTO B C**, Postgraduate student in Department at Sri Devraj Urs Medical College, will be conducting a study titled **''RISK FACTORS IN CHILDREN ADMITTED WITH FEBRILE SEIZURES IN A TERTIARY CARE HOSPITAL"** for my dissertation under the guidance of **Dr. BEERE GOWDA.Y.C,** Professor of Department of Paediatrics. The participants of this study include 96 infants and children presenting with febrile seizures who are admitted under paediatric ward.

You will not be paid any financial compensation for the participation of your child in this research project.

All the data will be kept confidential and will be used only for research purpose by this institution. You are free to provide consent for the participation of your child in this study. You can also withdraw your child from the study at any point of time without giving any reasons whatsoever. Your refusal to participate will not prejudice you to any present or future care at this institution.

Name and Signature of the Principal Investigator

Date-

ಮಾಹಿತಿ ನೀಡಿದ ಒಪ್ಪಿಗೆ ನಮೂನೆ

ದಿನಾಂಕ :

ನಾನು, ಶ್ರೀ/ಶ್ರೀಮತಿ _____, ನನ್ನ ಸ್ವಂತ ಸ್ಥಳೀಯ ಭಾಷೆಯಲ್ಲಿ ವಿವರಿಸಲಾಗಿದೆ, ನನ್ನ ಮಗುವನ್ನು ತೃತೀಯ ಆರೈಕೆ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ″**ಜ್ವರದ ರೋಗ ಗ್ರಸ್ತವಾಗುವಿಕೆಗಳೊಂದಿಗೆ ಜ್ವರದ ರೋಗ ಗ್ರಸ್ತವಾಗುವಿಕೆಗಳೊಂದಿಗೆ ದಾಖಲಾಗಿರುವ ಮಕ್ಕಳಲ್ಲಿ ಅಪಾಯಕಾರಿ ಅಂಶಗಳು**″ ಈ ಮೂಲಕ ನಾನು ಯಾವುದೇ ಬಲವಿಲ್ಲದೆ ನನ್ನ ಮಾನ್ಯ ಲಿಖಿತ ತಿಳುವಳಿಕೆಯ ಒಪ್ಪಿಗೆಯನ್ನು ನೀಡುತ್ತೇನೆ ಅಥವಾ ಹೆಮಟೊಲಾಜಿಕಲ್ ಮತ್ತು ಕ್ಲಿನಿಕಲ್ ನಿಯತಾಂಕಗಳ ಅವಲೋಕನಗಳನ್ನು ದಾಖಲಿಸಲು ಪೂರ್ವಾಗ್ರಹ. ಒಳಗೊಂಡಿರುವ ಸ್ವಭಾವ ಮತ್ತು ಅಪಾಯಗಳನ್ನು ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ, ನನ್ನ ತೃಪ್ತಿ. ನಡೆಸುತ್ತಿರುವ ಅಧ್ಯಯನದ ಬಗ್ಗೆ ನನಗೆ ವಿವರವಾಗಿ ವಿವರಿಸಲಾಗಿದೆ. ನಾನು ರೋಗಿಯ ಮಾಹಿತಿ ಹಾಳೆಯನ್ನು ಓದಿದ್ದೇನೆ ಮತ್ತು ಯಾವುದೇ ಪ್ರಶ್ನೆಯನ್ನು ಕೇಳಲು ನನಗೆ ಅವಕಾಶವಿದೆ. ನಾನು ಕೇಳಿದ ಯಾವುದೇ ಪ್ರಶ್ನೆಗೆ ನನ್ನ ತೃಪ್ತಿಗೆ ಉತ್ತರಿಸಲಾಗಿದೆ. ನನ್ನ ಮಗುವನ್ನು ಈ ಸಂಶೋಧನೆಯಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುವಂತೆ ಅನುಮತಿಸಲು ನಾನು ಸ್ವಯಂಪ್ರೇರಣೆಯಿಂದ ಒಪ್ಪಿಗೆಯನ್ನು ನೀಡುತ್ತೇನೆ. ಇತಿಹಾಸವನ್ನು ಒದಗಿಸಲು, ದೈಹಿಕ ಪರೀಕ್ಷೆಗೆ ಒಳಗಾಗಲು, ಕಾರ್ಯವಿಧಾನಕ್ಕೆ ಒಳಗಾಗಲು, ತನಿಖೆಗೆ ಒಳಗಾಗಲು ಮತ್ತು ಅದರ ಫಲಿತಾಂಶಗಳು ಮತ್ತು ದಾಖಲೆಗಳನ್ನು ಇತ್ಯಾದಿಗಳನ್ನು ವೈದ್ಯರು / ಸಂಸ್ಥೆ ಇತ್ಯಾದಿಗಳಿಗೆ ಒದಗಿಸಲು ನಾನು ಈ ಮೂಲಕ ಒಪ್ಪಿಗೆ ನೀಡುತ್ತೇನೆ. ಶೈಕ್ಷಣಿಕ ಮತ್ತು ವೈಜ್ಞಾನಿಕ ಉದ್ದೇಶಕ್ಕಾಗಿ, ಕಾರ್ಯಾಚರಣೆ / ಕಾರ್ಯವಿಧಾನ, ಇತ್ಯಾದಿಗಳನ್ನು ವೀಡಿಯೊ ಗ್ರಾಫ್ ಅಥವಾ ಛಾಯಾಚಿತ್ರ ಮಾಡಬಹುದು . ಎಲ್ಲಾ ಡೇಟಾವನ್ನು ಪ್ರಕಟಿಸಬಹುದು ಅಥವಾ ಯಾವುದೇ ಶೈಕ್ಷಣಿಕ ಉದ್ದೇಶಕ್ಕಾಗಿ ಬಳಸಬಹುದು. ಕಾರ್ಯವಿಧಾನ / ಅಧ್ಯಯನದ ಸಮಯದಲ್ಲಿ ಯಾವುದೇ ಅಹಿತಕರ ಪರಿಣಾಮಗಳಿಗೆ ನಾನು ವೈದ್ಯರು / ಸಂಸ್ಥೆ ಇತ್ಯಾದಿಗಳನ್ನು ಜವಾಬ್ದಾರರನ್ನಾಗಿ ಮಾಡುವುದಿಲ್ಲ.

(ಪಂ. ಅಟೆಂಡೆಂಟ್‌ನ ಸಹಿ ಮತ್ತು ಹೆಸರು)
ರೋಗಿ/ಗಾರ್ಡಿಯನ್)

(ಸಹಿ/ಹೆಬ್ಬೆರಳಿನ ಗುರುತು &
(ರೋಗಿಯೊಂದಿಗೆ ಸಂಬಂಧ)

ಸಾಕ್ಷಿ:

(ಸಹಿ ಮತ್ತು ಹೆಸರು ಸಂಶೋಧನಾ ವ್ಯಕ್ತಿ/ವೈದ್ಯರು)

ರೋಗಿಯ ಮಾಹಿತಿ ಹಾಳೆ

ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿ: ಡಾ. ಜೆಫ್ರಿನ್ ಆಂಟೊ ಬಿ ಸಿ/ಡಾ. ಬೀರೇಗೌಡ. ವೈ. ಸಿ

ನಾನು **ಡಾ. ಜೆಫ್ರಿನ್ ಆಂಟೊ ಬಿ ಸಿ,** ಶ್ರೀ ದೇವರಾಜ್ ಅರ್ಸ್ ಮೆಡಿಕಲ್ ಕಾಲೇಜಿನಲ್ಲಿ ವಿಭಾಗದ ಸ್ನಾತಕೋತ್ತರ ವಿದ್ಯಾರ್ಥಿ, **ಡಾ. ಬೀರೇಗೌಡ.ವೈ.ಸಿ**. ಪ್ರಬಂಧದ ಅಡಿಯಲ್ಲಿ ನನ್ನ ಪ್ರಬಂಧಕ್ಕಾಗಿ **"ಜ್ವರದ ರೋಗ ಗ್ರಸ್ತವಾಗುವಿಕೆಗಳೊಂದಿಗೆ ಜ್ವರದ ರೋಗ ಗ್ರಸ್ತವಾಗುವಿಕೆಗಳೊಂದಿಗೆ ದಾಖಲಾಗಿರುವ ಮಕ್ಕಳಲ್ಲಿ ಅಪಾಯಕಾರಿ ಅಂಶಗಳು"** ಎಂಬ ಶೀರ್ಷಿಕೆಯ ಅಧ್ಯಯನವನ್ನು ನಡೆಸುತ್ತಿದ್ದೇನೆ. ಗೌಡ.ವೈ.ಸಿ, ಮಕ್ಕಳ ವಿಭಾಗದ ಪ್ರಾಧ್ಯಾಪಕರು. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಿದವರಲ್ಲಿ 96 ಶಿಶುಗಳು ಮತ್ತು ಜ್ವರ ರೋಗಗ್ರಸ್ತವಾಗುವಿಕೆಗಳನ್ನು ಹೊಂದಿರುವ ಮಕ್ಕಳು ಮಕ್ಕಳ ವಾರ್ಡ್‌ನಲ್ಲಿ ದಾಖಲಾಗಿದ್ದಾರೆ.

ಈ ಸಂಶೋಧನಾ ಯೋಜನೆಯಲ್ಲಿ ನಿಮ್ಮ ಮಗುವಿನ ಭಾಗವಹಿಸುವಿಕೆಗಾಗಿ ನಿಮಗೆ ಯಾವುದೇ ಹಣಕಾಸಿನ ಪರಿಹಾರವನ್ನು ಪಾವತಿಸಲಾಗುವುದಿಲ್ಲ.

ಎಲ್ಲಾ ಡೇಟಾವನ್ನು ಗೌಪ್ಯವಾಗಿ ಇರಿಸಲಾಗುತ್ತದೆ ಮತ್ತು ಈ ಸಂಸ್ಥೆಯಿಂದ ಸಂಶೋಧನಾ ಉದ್ದೇಶಕ್ಕಾಗಿ ಮಾತ್ರ ಬಳಸಲಾಗುತ್ತದೆ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನಿಮ್ಮ ಮಗುವಿನ ಭಾಗವಹಿಸುವಿಕೆಗೆ ಒಪ್ಪಿಗೆ ನೀಡಲು ನೀವು ಸ್ವತಂತ್ರರಾಗಿದ್ದೀರಿ. ಯಾವುದೇ ಕಾರಣಗಳನ್ನು ನೀಡದೆ ನೀವು ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ನಿಮ್ಮ ಮಗುವನ್ನು ಅಧ್ಯಯನದಿಂದ ಹಿಂಪಡೆಯಬಹುದು. ಭಾಗವಹಿಸಲು ನಿಮ್ಮ ನಿರಾಕರಣೆಯು ಈ ಸಂಸ್ಥೆಯಲ್ಲಿ ಯಾವುದೇ ಪ್ರಸ್ತುತ ಅಥವಾ ಭವಿಷ್ಯದ ಕಾಳಜಿಗೆ ನಿಮ್ಮನ್ನು ಪೂರ್ವಾಗ್ರಹ ಮಾಡುವುದಿಲ್ಲ.

ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿಯ ಹೆಸರು ಮತ್ತು ಸಹಿ

ದಿನಾಂಕ :

KEY TO MASTER CHART

A- SERIAL NUMBER

B- NAME OF THE BABY

C- AGE

D- UHID NUMBER

E- GENDER

F- ADDRESS

G- SOCIO-ECONOMIC STATUS

H- RESIDENCE

I- TIME OF ONSET OF FEBRILE SEIZURES WITH RESPECT TO THE ONSET OF FEVER

J- DURATION OF SEIZURES

K- TYPE OF SEIZURE

L- NUMBER OF EPISODES OF SEIZURE WITHIN 24 HOURS

M- TYPES OF FEBRILE SEIZURE

N- PAST HISTORY OF FEBRILE SEIZURES

O- FAMILY HISTORY OF FEBRILE SEIZURES

P- HISTORY OF CONSANGUINOUS MARRIAGE IN PARENTS

Q- HISTORY OF EXCLUSIVE BREAST FEEDING

R- ANEMIA (HEMOGLOBIN IN GRAMS %)

S- HISTORY NICU ADMISSION

T- GESTATIONAL AGE AT BIRTH

U-BIRTH WEIGHT (IN KGS)

MASTER CHART

SERIAL NUMBER	NAME	AGE	UHID NUMBER	GENDER	ADDRESS	SOCIO-ECONOMIC STATUS	RESIDENCE	TIME OF ONSET OF FEBRILE SEIZURES WITH RESPECT TO THE ONSET OF FEVER	DURATION OF SEIZURES	TYPE OF SEIZURE	NUMBER OF EPISODES OF SEIZURE WITHIN 24	TYPES OF FEBRILE SEIZURE	PAST HISTORY OF FEBRILE SEIZURES	FAMILY HISTORY OF FEBRILE SEIZURES	HISTORY OF CONSANGUINOUS MARRIAGE IN PARENTS	HISTORY OF EXCLUSIVE BREAST FEEDING	ANEMIA(HEMOGLOBIN IN GRAMS %)	HISTORY NICU ADMISSION	GESTATIONAL AGE AT BIRTH	BIRTH WEIGHT (IN KGS)
1	HARIKA	4 years 8 months	936284	F	hoskote	LC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-8.2	NO	TERM	2.24
2	GOKUL	3 years 4months	965243	M	BANGARAPET	UMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	YES	NO-12	YES	TERM	2.75
3	SWETHA	1 years 9 months	965123	F	MALUR	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	YES(SIBBLINGS)	NO	NO	YES-7.4	NO	POSTTERM	3.2
4	RUPA	2years 9 months	965234	F	HOSKOTE	LMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES-8.2	NO	PRETERM	2.1
5	BASKAR	2years 7 months	985462	M	BANGLORE	ULC	URBAN	<24 hours	>15MIN	FOCAL	1	COMPLEX	NO	NO	NO	NO	YES-9.3	NO	TERM	2.4
6	DIVYA	8MONTHS	956233	F	MULBAGAL	LMC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	NO	YES	YES-9.6	YES	TERM	2.8
7	ARUN	4years 5 months	965321	M	MALUR	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	YES-7.8	NO	TERM	2.2
8	VARUN	2years 8 months	965128	M	MALUR	LC	RURAL	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	YES(OTHER RELATIVES)	NO	NO	YES-8.4	NO	TERM	3.9
9	NIHAL	3years 6 months	965846	M	KOLAR	ULC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-9.1	NO	POSTTERM	2.8
10	KAMAL	2years 9 months	965389	M	MALUR	LC	RURAL	<24 hours	>15MIN	GENARALISED	1	COMPLEX	YES	YES(OTHER RELATIVES)	NO	YES	YES-8.1	NO	TERM	3.4
11	RAM	4years 4 months	966214	M	KOLAR	LMC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (3rd degree)	NO	YES-9.2	NO	PRETERM	2.1
12	ANJALI	3years 8 months	966275	F	MULBAGAL	ULC	URBAN	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-7.3	YES	TERM	2.3
13	KIRAN	4years 5 months	986632	M	MALUR	LMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES-7.9	NO	TERM	2.4
14	LAVANYA	3years 11 months	945541	F	MALUR	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	YES(OTHER RELATIVES)	YES (2nd degree)	NO	YES-9.1	YES	POSTTERM	2.45
15	KARTHIK	1 year 3 months	954265	M	MALUR	LC	RURAL	<24 hours	>15MIN	GENARALISED	1	COMPLEX	NO	NO	NO	YES	YES-8.2	NO	PRETERM	1.9
16	SURYA	1 year 5 months	954213	M	MALUR	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (3rd degree)	YES	YES-7.4	NO	TERM	2.9
17	DEEPA	1years 9 month	954786	F	MALUR	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	NO	NO	YES-9.3	NO	TERM	2.6
18	KAVITHA	9MONTHS	965425	F	MALUR	ULC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-7	YES	PRETERM	1.8
19	KRISHNA	2years 7 months	965418	M	MALUR	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	YES-9.1	NO	TERM	2.6
20	SWATHI	1years 1 month	956328	F	MALUR	UMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	NO-12.6	NO	POSTTERM	3.4
21	KRITHIK	3years 6 months	952741	M	BANGALORE	ULC	URBAN	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-8.4	YES	TERM	2.2
22	AKHIL	10MONTHS	985741	M	TAMAKA	LMC	RURAL	<24 hours	>15MIN	GENARALISED	1	COMPLEX	YES	NO	YES (2nd degree)	YES	YES-7.9	NO	PRETERM	2
23	ASHWIN	2years 9 months	985632	M	MULBAGAL	ULC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	YES(SIBBLINGS)	NO	YES	YES-7.2	NO	PRETERM	1.8
24	GEETHA	4years 11 months	925471	F	MALUR	LMC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (3rd degree)	NO	YES-9.6	NO	TERM	2.28
25	NITHIN	1year 5 month	985498	M	hoskote	ULC	RURAL	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-8.2	NO	POSTTERM	4.1
26	BALU	11MONTHS	965842	M	MALUR	ULC	RURAL	<24 hours	>15MIN	FOCAL	2	COMPLEX	NO	NO	NO	NO	YES-9.6	NO	TERM	3.2
27	RAMESH	3years 7 months	963258	M	KOLAR	LC	URBAN	<24 hours	<15MIN	GENARALISED	2	COMPLEX	NO	YES(FATHER)	YES (2nd degree)	YES	YES- 6.4	YES	TERM	2.1
28	SNEHA	1 year 6 months	941582	F	hoskote	UC	RURAL	<24 hours	>15MIN	FOCAL	1	COMPLEX	YES	NO	NO	NO	NO-12.5	NO	PRETERM	2.12
29	BALA	2years 6 months	987124	M	BANGARPET	UMC	RURAL	<24 hours	>15MIN	FOCAL	3	COMPLEX	NO	NO	NO	NO	NO-13	NO	PRETERM	1.9
30	HEMANTHA	1years 11 months	965378	M	MALUR	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-6.4	NO	TERM	2.2
31	BALAKRISHN	3years 11 months	954186	M	hoskote	UMC	RURAL	24 to 48 hours	>15MIN	FOCAL	1	COMPLEX	NO	NO	NO	YES	NO-12.7	NO	PRETERM	2.1
32	PALLAVI	3years 7 months	957124	F	MULBAGAL	ULC	URBAN	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-11.2	YES	TERM	2.34
33	RAMYA	2years 6 months	985314	F	MALUR	LMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	YES (2nd degree)	YES	YES-5.9	NO	POSTTERM	3.6
34	BHAVYA	4years 8 months	985271	F	TAMAKA	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES- 10.1	NO	PRETERM	1.98
35	TEJA	2years 4 months	962748	M	TAMAKA	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES- 6.4	NO	TERM	2.56
36	SHANKAR	3years 4 months	957184	M	MULBAGAL	UMC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	YES	YES(OTHER RELATIVES)	NO	YES	NO- 12.8	NO	POSTTERM	2.73
37	NAVEEN	8MONTHS	932841	M	TAMAKA	UMC	RURAL	<24 hours	>15MIN	GENARALISED	2	COMPLEX	YES	NO	YES (2nd degree)	NO	NO- 12	NO	PRETERM	1.96
38	SATHISHKUI	1 year 2 months	957416	M	BANGARPET	LMC	RURAL	<24 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	YES	YES-7.1	YES	TERM	2.48
39	NITHIN GOW	3years 5 months	962487	M	MULBAGAL	LC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES 8.1	NO	TERM	2.6
40	SURYADEV	1 year 5 months	954178	M	BANGARPET	LMC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (3rd degree)	NO	YES-8.4	YES	TERM	2.43
41	ASHWANI	1year 4 month	932178	F	PALAMANERU	ULC	RURAL	<24 hours	>15MIN	FOCAL	2	COMPLEX	YES	NO	YES (3rd degree)	YES	YES- 9.2	NO	TERM	2.34
42	AJAY	11MONTHS	932685	M	MALUR	LMC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES 8.5	NO	TERM	2.4
43	VIJAY	4years 8 months	932874	M	MULBAGAL	ULC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	YES(MOTHER)	NO	YES	YES- 6.6	NO	TERM	3.4
44	KAVITHARAI	1 year 6 months	932941	F	BANGARPET	ULC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	YES (2nd degree)	NO	YES-9.9	NO	TERM	2.39
45	RONAK	1 year 1 month	961358	M	PALAMANERU	LMC	RURAL	<24 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	NO	YES	YES-11.2	NO	TERM	2.58
46	RAMCHANDI	11 MONTHS	965387	M	MULBAGAL	UC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	NO- 12.5	NO	PRETERM	2.1
47	YESHWANTH	4years 4 months	963358	M	KOLAR	ULC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-10.9	YES	POSTTERM	2.9
48	HEMA	2years 5 months	963987	F	MALUR	UMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	YES(SIBBLINGS)	NO	NO	NO- 12.5	NO	TERM	2.1
49	SWAROOP	8MONTHS	962357	M	hoskote	LMC	RURAL	24 to 48 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	YES	YES-6.5	NO	PRETERM	1.7

MASTER CHART

50	HASVI	2years 6 months	962368	F	MULBAGAL	ULC	URBAN	<24 hours	<15MIN	FOCAL	1	COMPLEX	NO	NO	NO	NO	YES - 10.2	YES	PRETERM	1.98
51	RAVIVARMA	3years 8 months	951234	M	MULBAGAL	LC	URBAN	<24 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	YES (2nd degree)	NO	YES- 9.9	NO	TERM	2.2
52	PRAKASH	2years 1 month	951647	M	hoskote	LMC	RURAL	>48 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	NO	YES	YES- 8.7	NO	POSTTERM	3.94
53	KAVYA	2years 4 month	986728	F	MULBAGAL	ULC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-10.6	NO	TERM	2.4
54	ANIL	1 year 5 months	938129	M	MULBAGAL	LMC	URBAN	24 to 48 hours	>15MIN	GENARALISED	4	COMPLEX	NO	NO	NO	YES	YES- 8.1	NO	TERM	3.1
55	VISHAL	1 year 6 months	987164	M	MALUR	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	YES (2nd degree)	NO	YES- 8.6	NO	TERM	3.2
56	CHARITHA	4years 5 months	966851	F	BANGARPET	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES- 9.4	NO	TERM	2.34
57	GOWTHAM	3 years 6 months	955321	M	BANGALORE	UMC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	YES(OTHER RELATIVES)	NO	NO	NO- 12.2	YES	TERM	2.48
58	BHUVAN	3years 4 months	965245	M	hoskote	ULC	RURAL	24 to 48 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	NO	NO	YES- 8.1	NO	TERM	2.5
59	MITHUN	2years 3 months	964123	M	TAMAKA	LMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	NO	YES	YES- 7.4	NO	TERM	2.58
60	SUJAN	9MONTHS	968689	M	KOLAR	ULC	URBAN	<24 hours	>15MIN	GENARALISED	1	COMPLEX	NO	NO	YES (2nd degree)	YES	YES- 5.3	NO	POSTTERM	3.6
61	KIRANTEJ	1 years 7 months	987487	M	MULBAGAL	UC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	NO- 12.2	NO	PRETERM	1.98
62	MANU	1 year 3 months	985478	M	TAMAKA	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	NO	NO	YES- 10.1	NO	TERM	3.2
63	SATHISHKUI	3years 8 months	962584	M	BANGARPET	LMC	RURAL	<24 hours	<15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	YES	YES- 8.6	YES	TERM	2.4
64	MANISHGOV	1years 8 months	961345	M	KOLAR	LC	URBAN	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	YES-10.1	NO	PRETERM	2.1
65	MANIRATNA	9MONTHS	931254	M	BANGARPET	ULC	RURAL	24 to 48 hours	>15MIN	FOCAL	2	COMPLEX	NO	NO	NO	YES	YES- 5.8	NO	TERM	2.3
66	VAMSI	1 year 6 months	951247	M	KOLAR	UC	URBAN	<24 hours	<15MIN	GENARALISED	1	SIMPLE	YES	YES(OTHER RELATIVES)	YES (2nd degree)	NO	NO- 12.9	NO	TERM	3.1
67	YESHWANTH	2years 9 months	953246	M	MALUR	LMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES- 9.1	NO	POSTTERM	2.9
68	MOHAN	1 year 5 months	962843	M	TAMAKA	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES- 10.1	NO	TERM	3.6
69	SAKESH	2years 4 month	984621	M	hoskote	LMC	RURAL	<24 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	NO	YES-10.2	NO	PRETERM	2.1
70	KOUSHAL	2years 1 month	963458	M	MULBAGAL	LC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES- 9.2	NO	PRETERM	2.06
71	NALEENA	1 year 2 months	942687	F	PALAMANERU	ULC	RURAL	<24 hours	>15MIN	GENARALISED	1	COMPLEX	YES	NO	NO	YES	YES-6	NO	PRETERM	1.9
72	MUNIRAJU	3years 4 months	935286	M	BANGARPET	UMC	RURAL	24 to 48 hours	<15MIN	GENARALISED	2	COMPLEX	NO	NO	YES (3rd degree)	NO	NO-14.1	YES	TERM	2.3
73	MAHIMA	1 years 11 months	912485	F	TAMAKA	LC	RURAL	>48 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	NO	YES-9.3	NO	TERM	2.98
74	KRISHNA	1 year 1 month	935671	M	BANGARPET	ULC	RURAL	<24 hours	<15MIN	GENARALISED	2	COMPLEX	NO	YES(SIBBLINGS)	NO	NO	YES-9.4	NO	TERM	3.1
75	SUKESH	2years 5 months	962018	M	MULBAGAL	LMC	URBAN	<24 hours	>15MIN	GENARALISED	2	COMPLEX	YES	NO	NO	YES	YES- 10.1	YES	PRETERM	2.1
76	SWETHA	2years 3 months	960235	F	MULBAGAL	LC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	YES-7.8	YES	TERM	2.4
77	ANNA	8MONTHS	964128	F	TAMAKA	ULC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES- 10.1	NO	PRETERM	2.34
78	NIHAL	3 years 4months	993580	M	MALUR	UMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	NO-12.3	NO	TERM	2.66
79	ASHWINIKUI	11MONTHS	963025	F	MULBAGAL	LC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	YES (2nd degree)	NO	YES-9	NO	TERM	2.18
80	SANDESH	4 years 8 months	956821	M	hoskote	UMC	RURAL	<24 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	NO	NO-13.1	NO	PRETERM	2.14
81	ARCHANA	1 year 6 months	930125	F	MALUR	UC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	NO-12.2	NO	POSTTERM	3.2
82	NIROOP	1 year 2 months	963012	M	KOLAR	LC	URBAN	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	YES	NO	YES (3rd degree)	YES	YES-5.9	NO	TERM	2.4
83	MANJUNATH	2 years 4 months	963412	M	MULBAGAL	UMC	URBAN	<24 hours	>15MIN	GENARALISED	2	COMPLEX	NO	YES(OTHER RELATIVES)	NO	NO	NO-12	YES	TERM	3.3
84	KUSHAL	3years 7 months	985023	M	hoskote	ULC	RURAL	24 to 48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	YES-10	NO	PRETERM	2.1
85	SATHISHCH	1 year 4 months	986270	M	hoskote	LMC	RURAL	<24 hours	<15MIN	GENARALISED	2	COMPLEX	NO	NO	NO	YES	YES-9	NO	PRETERM	1.64
86	NEERAJA	1 year 3 months	932015	F	MALUR	ULC	RURAL	<24 hours	>15MIN	GENARALISED	3	COMPLEX	YES	NO	NO	YES	YES-7.5	NO	TERM	1.98
87	NAVEENRAJ	2years 8 months	934023	M	MULBAGAL	LMC	URBAN	>48 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	NO	YES-8.8	NO	TERM	2.3
88	SURESH	1 year 6 months	996580	M	MULBAGAL	UMC	URBAN	<24 hours	>15MIN	FOCAL	4	COMPLEX	NO	NO	YES (3rd degree)	NO	NO-14.1	YES	TERM	2.46
89	MAHNI	3years 4 months	963250	F	BANGARPET	ULC	RURAL	<24 hours	>15MIN	GENARALISED	2	COMPLEX	NO	YES(FATHER)	NO	NO	YES-7.9	NO	TERM	2.86
90	SWATHI	1 year 5 months	974120	F	TAMAKA	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	NO	YES	YES-9.9	NO	PRETERM	2.1
91	KIRAN	9MONTHS	963201	M	MALUR	LC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE		NO	NO	NO	YES-9	NO	TERM	3.5
92	SREENADH	2years 11 months	965412	M	TAMAKA	UMC	RURAL	<24 hours	<15MIN	GENARALISED	1	SIMPLE	NO	NO	YES (2nd degree)	NO	NO-12.9	NO	TERM	2.4
93	BABUJI	2years 6 months	985203	M	hoskote	ULC	RURAL	24 to 48 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	NO	YES	YES-8.1	NO	TERM	2.34
94	PAVITHRA	1 year 6 months	962140	F	MULBAGAL	LC	URBAN	<24 hours	>15MIN	GENARALISED	2	COMPLEX	NO	NO	YES (2nd degree)	NO	YES-10.4	YES	TERM	2.86
95	SUJATHA	2years 9 months	974120	F	MALUR	ULC	RURAL	24 to 48 hours	<15MIN	FOCAL	1	COMPLEX	YES	YES(OTHER RELATIVES)	NO	NO	YES-11.2	NO	PRETERM	2.26
96	MAHESH	3year 8 months	968032	M	MALUR	LC	RURAL	<24 hours	>15MIN	GENARALISED	3	COMPLEX	NO	NO	NO	YES	YES-8.4	NO	TERM	2.34