A STUDY ON ASSOCIATION OF NUTRITIONAL STATUS AND LIFE STYLE HABITS IN CHILDREN AGED 5-12 YEARS HAVING EMOTIONAL AND BEHAVIORAL DISORDER ATTENDING RURAL TERTIARY HEALTH CARE CENTRE

BY

DR. BHARGAVI S

DISSERTATION SUBMITTED TO

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

TAMAKA, KOLAR, KARNATAKA

In partial fulfilment of the requirement or the degree of

DOCTOR OF MEDICINE
IN
PAEDIATRICS

Under The Guidance Of

DR.K.N.V. PRASAD

Professor and Head of unit

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PRIOR PERMISSION TO START OF STUDY

The Institutional Ethics Committee of Sri Devaraj Urs Medical College, Tamaka, Kolar has examined and unanimously approved the synopsis entitled **" A Cross Sectional Study On Association Of Nutritional Status And Life Style Habits In Children Aged 5-10 Years Having Emotional And Behavioral Disorder Coming To Rural Tertiary Health Care Centre"** being investigated by **Dr.Bhargavi S & Dr. K.N.V.Prasad** in the Department of Paediatrics at Sri Devaraj Urs Medical College, Tamaka, Kolar. **Permission is granted by the Ethics Committee to start the study.**

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Sub: Change of sample size from 230 to 103

Title- A study on association of nutritional status and life style habits in children aged 5-12 years having emotional and behavioral disorder attendance rural tertiary health care centre.

The Central Ethics Committee of Sri Devaraj Urs Academy of Higher Education and Research, Kolar has examined the research project proposal/ PG dissertation synopsis and the detailed work plan on 13th July 2024.

The Central Ethics Committee has unanimously approved the project/PG dissertation synopsis and granted permission to investigator/investigators to carry out the research work with change in sample size. The project has to be conducted as per ICMR guidelines on biomedical research and Health research (2017) in human beings and adhere to the principals of Good Clinical Practice updated guidelines.

The final report of the research project (UG/PG)/ PG dissertation synopsis to be submitted to Student Research Committee/ Office of the PG Director respectively.

The Co- Investigators for the project are Dr. K.N.V. Prasad, Dr. Sudha Reddy. V.R.

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A STUDY ON ASSOCIATION OF NUTRITIONAL STATUS AND LIFE STYLE HABITS IN CHILDREN AGED 5-12 YEARS HAVING EMOTIONAL AND BEHAVIORAL DISORDER ATTENDING RURAL TERTIARY HEALTH CARE CENTRE ABSTRACT: Background: Emotional and behavioural disorders (EBD) in children are emerging public health challenges that can adversely affect mental, emotional, and social development. Nutritional status and lifestyle behaviours such as diet, physical activity, and sleep may influence mental health, especially in underserved populations. Objective: To assess the association between nutritional status and lifestyle habits among children aged 5–12 years diagnosed with EBD at a rural tertiary healthcare centre. Methods: A cross-sectional study was conducted among 451 children attending the paediatric OPD at RL Jalappa Hospital from May 2023 to December 2024. Children were screened using the Child Symptom Inventory-4 (CSI-4), with 103 children identified with EBD undergoing further evaluation for nutritional and lifestyle parameters. Nutritional status was assessed using WHO growth standards, and lifestyle habits were recorded through structured interviews. Data were analysed using SPSS v22 with chi-square and Fisher's exact tests. Results: Social anxiety (32%), generalized anxiety disorder (30.1%), and specific phobia (28.2%) were the most prevalent EBDs. Most children had normal nutritional status (70.9%) and adequate physical activity (93.2%). A significant association was found only between enuresis and undernutrition ($p = 0.008$). No significant associations were observed between other EBDs and breakfast skipping, activity levels, or sleep patterns. Conclusion: While most EBDs were not significantly associated with nutritional or lifestyle factors, undernutrition was linked to enuresis. The findings underscore the need for targeted

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Date: **DR BHARGAVI S**

Place: Kolar

LIST OF ABBREVIATIONS

Glossary	Abbreviations
EBD	Emotional and behavioural disorder
ADHD	Attention deficit hyperactivity disorder
ACE	Adverse childhood experiences
DSM-5	The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
ICD-11	The International Classification of Diseases, 11th Revision
SDQ	Strengths and Difficulties Questionnaire
CBCL	Child Behaviour Checklist
PA	Physical activity
CSI-4	Child Symptom Inventory-4
PSC	Paediatric Symptom Checklist
LHBQ	Lifestyle and Health Behaviour Questionnaire
WHO	World health organisation
BMI	Body mass index
FFQ	Food Frequency Questionnaires
STAMP	Screening Tool for the Assessment of Malnutrition in Paediatrics
PYMS	Paediatric Yorkhill Malnutrition Score
ODD	Oppositional defiant disorder
OCD	Obsessive-Compulsive Disorder
CD	Conduct disorder
GAD	Generalised anxiety disorder
BAZ	Body mass index-for-age z-score

MVPA	Moderate- to vigorous-intensity physical activity
SPSS	Statistical Package for the Social Sciences
OPD	Out patient Department

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ABSTRACT

A STUDY ON ASSOCIATION OF NUTRITIONAL STATUS AND LIFE STYLE HABITS IN CHILDREN AGED 5-12 YEARS HAVING EMOTIONAL AND BEHAVIORAL DISORDER ATTENDING RURAL TERTIARY HEALTH CARE CENTRE

Background: Emotional and behavioural disorders (EBD) in children are emerging public health challenges that can adversely affect mental, emotional, and social development. Nutritional status and lifestyle behaviours such as diet, physical activity, and sleep may influence mental health, especially in underserved populations.

Objective: To assess the association between nutritional status and lifestyle habits among children aged 5–12 years diagnosed with EBD at a rural tertiary healthcare centre.

Methodology: A cross-sectional study was conducted among 451 children attending the paediatric Out patient department (OPD) at RL Jalappa Hospital from May 2023 to December 2024. Children were screened using the Child Symptom Inventory-4 (CSI-4), with 103 children identified with EBD undergoing further evaluation for nutritional and lifestyle parameters. Nutritional status was assessed using WHO growth standards, and lifestyle habits were recorded through structured interviews. Data were analysed using SPSS v22 with chi-square and Fisher's exact tests.

Results: Social anxiety (32%), generalized anxiety disorder (30.1%), and specific phobia (28.2%) were the most prevalent EBDs. Most children had normal nutritional status (70.9%) and adequate physical activity (93.2%). A significant association was found only between enuresis and undernutrition ($p = 0.008$). No significant associations were observed between other EBDs and breakfast skipping, activity levels, or sleep patterns.

Conclusion: While most EBDs were not significantly associated with nutritional or lifestyle factors, undernutrition was linked to enuresis. The findings underscore the need for targeted screening and integrated approaches to paediatric mental health, especially in rural settings.

Keywords: Emotional and Behavioural disorders, Nutritional status, lifestyle habits, Children, Rural healthcare, Enuresis, Mental health.

INTRODUCTION

INTRODUCTION

Mental health is important for overall well-being, influencing cognitive, emotional, and social functioning. The World Health Organization defines mental health as a state where an individual can cope with life stress, work productively, and contribute to their community.[1] Childhood mental well-being is essential for healthy development and future mental stability. Emotional and behavioural disorders (EBD) in children are significant public health concerns, including anxiety, depression, conduct disorder, and Attention deficit hyperactivity disorder (ADHD). These disorders often lead to functional impairment, academic underachievement, and poor social relationships. Untreated EBD can lead to long-term outcomes like substance abuse, criminal behaviour, and mental illness in adulthood. [2]

Nutrition and lifestyle factors are essential determinants of child health and development. Adequate nutrition supports physical and cognitive growth, while a healthy lifestyle promotes emotional stability and behavioural control. Poor dietary habits, sedentary behaviour, and inadequate sleep patterns are risk factors for EBD. EBD are prevalent among children worldwide, with 10-20% of children's suffering from mental health conditions Psychiatric disorders affect approximately 12–20% of the population in India, with higher rates observed in marginalized and underserved communities. Emotional and behavioural disorders present differently across age groups and socioeconomic backgrounds.[3]

An increasing number of studies have investigated the link between nutritional status, lifestyle behaviours, and mental health outcomes. Studies have consistently highlighted the role of dietary quality, and sleep patterns in influencing emotional and behavioural health. Although certain research findings highlight a direct connection between malnutrition and EBD, others indicate that lifestyle elements might play a mediating role.[4]

In a review conducted by Krijger et al.[5] (2022), researchers examined various lifestyle screening tools designed to identify at-risk children. “The review concluded that comprehensive tools assessing dietary intake, physical activity, and sedentary behaviour are essential for early identification of children susceptible to mental health issues”. However, the study emphasized the need for improved follow-up strategies to ensure effective interventions.

Beyond dietary and lifestyle habits, family dynamics are key contributors to the emotional and behavioural development of children. Factors such as parental mental health, parenting style, family cohesion, and household stability significantly influence children's psychological well-being and nutritional status. Research shows that children raised in dysfunctional or fragmented family environment marked by conflict, inconsistent discipline, neglect, or poor communication are at a higher risk for both emotional disturbances and poor eating behaviours. Parental involvement, emotional support, and consistent routines are protective factors, while household stress and negative childhood events have been linked to both undernutrition and behavioural disorders.[6]

The role of family structure, parental education, and socioeconomic factors has also been extensively studied. Children from families with unstable home environments, limited parental involvement, or inconsistent routines are at higher risk of developing EBD. These findings underscore the multifactorial nature of EBD and the importance of holistic assessment strategies.[7]

This study aims to evaluate how dietary habits and lifestyle behaviours influence the mental health of children, with a special attention to rural regions of India. These communities face unique challenges such as limited access to healthcare, lower socioeconomic status, and limited educational resources, making them at higher risk of

developing undiagnosed and untreated emotional and behavioural disorders. The research aims to provide valuable insights for healthcare providers, educators, and policymakers by identifying key nutritional and lifestyle factors contributing to these disorders. The findings may inform targeted interventions to improve dietary habits, promote PA, and enhance overall mental well-being in vulnerable child populations. The study is timely and necessary, as identifying modifiable risk factors can inform effective preventive strategies and enhance children's long-term well-being affected by emotional and behavioural disturbances.

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

1) To screen all stable children between 5-12years for emotional and behavioural disorders who are coming to paediatric OPD
2) All children who fail the emotional and behavioural screening will be evaluated for nutritional status and lifestyle habits
3) To establish the association of nutritional status and lifestyle habits on children with emotional and behavioural disorders

REVIEW OF

LITERATURE

REVIEW OF LITERATURE:

1. Introduction to Emotional and Behavioural Disorders in Children

- Definition and Classification

"Emotional and behavioural disorders (EBD) refer to a class of psychiatric disorders that intensively impact the emotional well-being of a child, interpersonal interactions, and education." "The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) explains EBD as disorders such as anxiety disorders, depression, conduct disorder, and attention deficit hyperactivity disorder (ADHD) (American Psychiatric Association, 2013)." "The International Classification of Diseases, 11th Revision [1](ICD-11)" also places EBD under a classification of "Mental, Behavioural or Neurodevelopmental Disorders" which indicates the impact of such disorders on the ability of children in various domains.[2]

Children with EBD typically exhibit the signs of ineffective emotion regulation, aggressiveness, restlessness, and withdrawal. Observation, report scales like the Strengths and Difficulties Questionnaire (SDQ) and the Child Behaviour Checklist (CBCL),[3] and clinical ratings are typically employed in the diagnosis of the disorders[3].

- **Global Burden and Prevalence**

Emotional and behavioural disorders are prevalent throughout the world with high regional variations. Epidemiological studies estimate that 10-20% of children's throughout the world suffer from a mental health disorder of some description [4](Kieling et al., 2011). Anxiety and depressive disorders are the most commonly diagnosed mental health conditions, with higher rates of prevalence in urban compared to rural environments [5]

In India, psychiatric disorders in children have been estimated to be 12-13%, and conduct and anxiety disorders are the most common [6]. Socioeconomic issues, family maladjustment, and history of traumatic childhood experiences are significant risk for the increasing rate of these disorders [7]. Rural children also face other problems such as fewer opportunities for mental health services, higher stigma, and lack of awareness, which also help in the severity of EBD in these children [8].

- **Impact on Child Development and Well-being**

Emotional and behavioural disorders have long-term effects on the psychological, social, and educational growth of a child. EBD children are generally impaired in sustaining and developing relationships, thus suffering social rejection and peer rejection [9]. Academic achievement is generally impaired by inattention, disruptive behaviour, and problems with learning, eventually restricting future education and career options [10]

In addition to academic problems, children with EBD have higher chances of chronic physical health issues, drug addiction, and criminality as adults [11]. Emotional well-being during childhood is strongly correlated with adult mental health, and thus early detection and intervention strategies are necessary [12]

2. **Nutritional Status and Its Influence on Mental Health**

The interaction between nutritional well-being and mental well-being has been under greater scrutiny in recent research, and the evidence has gone to indicate the pivotal role that nutritional considerations play in emotional and behavioural well-being in childhood. Nutrition is the backbone of brain development, thinking, and mental well-being. Macronutrients, micronutrients, and overall nutritional health have been identified as key factors influencing mental health outcomes.

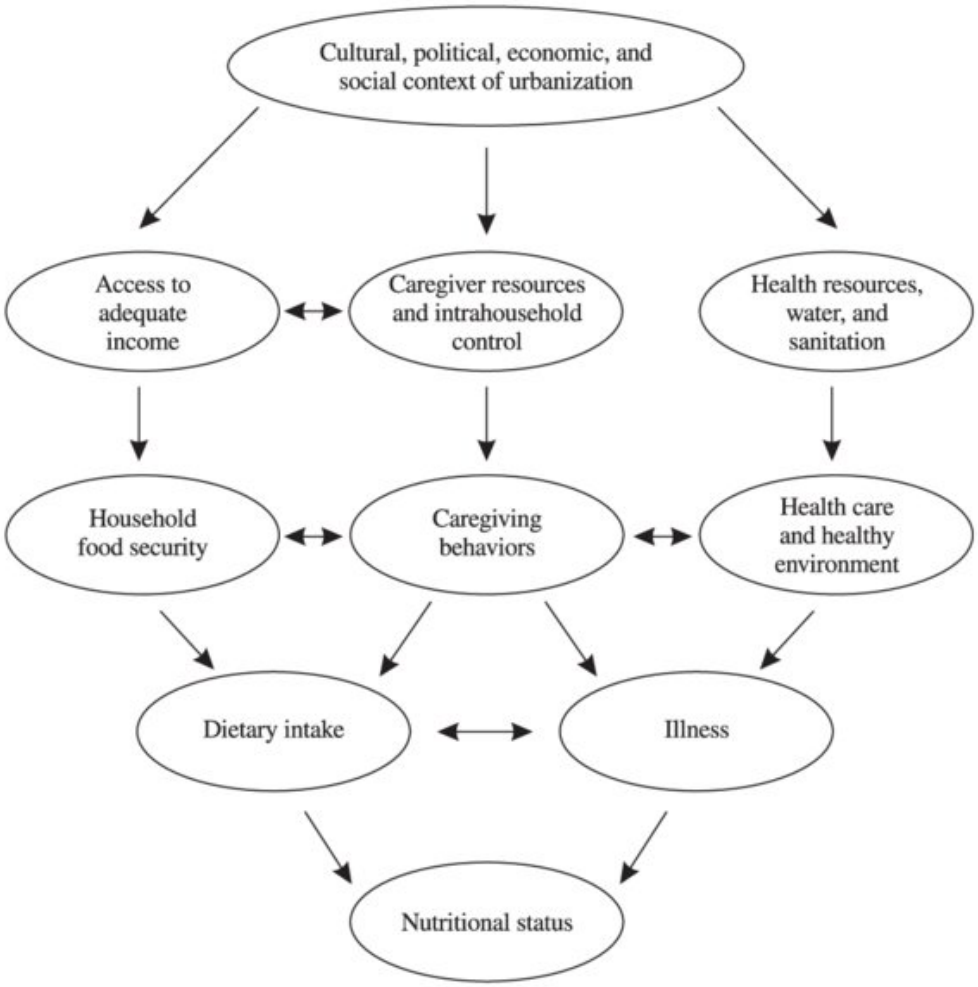


Figure 1: Conceptual framework for analysing nutritional status[13]

- **The Role of Macronutrients and Micronutrients**

Macronutrients, including carbohydrates, proteins, and fats, supply the energy and building materials required for optimum brain function. Protein intake is essential for synthesizing neurotransmitters like serotonin, dopamine, and norepinephrine, which are directly responsible for mood and behaviour regulation.[19] "Omega-3 fatty acids, which are present in foods like fish oil and flaxseed, have been found to have beneficial influences on cognitive processes and emotional regulation."[20]

Micronutrients like vitamins and minerals also have just as important a role to fulfil in mental illness. "Vitamin D deficiency has been linked with depression, while B-complex vitamins, particularly folate, B6, and B12, are important for the synthesis of neurotransmitters." [21] Zinc, magnesium, and iron deficiencies have been linked with anxiety, depressive illnesses, and disorders of conduct in children .[22]

- Nutritional Deficiencies and Psychiatric Disorders

Inadequate consumption of essential nutrients has been found to raise the risk of emotional and behavioural disturbances. Low levels of iron, iodine, and omega-3 have been linked to mental dysfunction, reduced attentional capacity, and increased irritability. **[14]** Studies have found that children with deficiencies of essential vitamins and minerals in their diets have increased rates of anxiety, depression, and conduct disorders. **[15]**

A study conducted by Oddy et al.**[16]** found that unhealthy eating lifestyle, characterized by excessive intake of processed food and sugars, was associated with heightened risk of problems in adolescents. The study highlighted the significance of early nutrition interventions to prevent or mitigate long-term effects on mental health.[7]

- **Association between Malnutrition and Behavioural Problems**

Overnutrition and undernutrition have been found to be linked with behavioural issues in children. Severe malnutrition children are found to have cognitive development delays, are socially withdrawn, and have mood swings **[17]**. Severe undernutrition interferes with neural development, and neurotransmitter function, thus impairing emotional control and reducing school performance. Conversely, "obesity caused by excessive calorie intake and poor diet has also been found to be associated with affective disorders, low self-esteem, and social isolation **[18]**." The co-relationship between poor psychological health and poor eating habits

underscores the need to address the eating habits of children with such emotional and behavioural disorders.

3. **Lifestyle Factors and Their Impact on Emotional and Behavioural Disorders**

- **Influence of Physical Activity**

Physical activity (PA) has been recognized as a broad determinant of children's mental health.[19] Regular participation in PA is said to lower the incidence of anxiety, depression, and behaviour problems. A study by Lubans DR et al.[19] proved that children who were regularly involved in physical exercise reported enhanced mood management and fewer episodes of emotional outbursts. The research also noted that organized exercise routines, for instance, team games or fitness exercises with supervision, had healthy social contacts that assisted in enhancing emotional well-being. Smith JJ et al.[20] further noted that PA interventions centred on aerobic activity enhanced self-esteem and lowered signs of hyperactivity and conduct disorders in children aged between 5 and 12 years.[27]

- **Role of Sleep Patterns**

Sleep disturbances have consistently linked with emotional and behavioural difficulties in children. Poor or disrupted sleep is linked with irritability, attentional difficulties, and mood swings. Gregory AM et al.[21](2012) conducted a longitudinal study and discovered that children with lesser sleep duration showed increased risk of internalizing problems like anxiety and depression. The research highlighted the need for a regular sleep routine to enhance emotional regulation and cognitive performance. In another research, Lopez-Wagner MC et al.[22](2013) investigated sleep quality and behavioural functioning in children between 6-12 years, and it was found that children with poor sleep habits exhibited increased levels of oppositional behaviour and social withdrawal.

- **Effects of Sedentary Behaviour**

Sedentary living, such as excessive screen time and continuous bouts of inactivity, has been revealed to have adversely impact children's mental well-being. Carson V et al.[23](2016) conducted a study that established that children who spent more than 2 hours a day performing sedentary activities had increased levels of depressive symptoms and emotional instability. The study identified screen-based sedentary behaviours, like watching TV and computer gaming, as strongly linked with negative mental health effects. Conversely, the children who participated in creative sedentary behaviour's like reading or drawing showed improved emotional regulation and reduced anxiety levels.[24]

- **Effects of Missing Breakfast and Irregular Meal Timings**

Dietary practices, especially breakfast eating and regular meal timing, play a crucial role in children's mental wellbeing. Shinsugi C et al.[25](2021) examined the relationship between skipping breakfast and emotional issues among children between the ages of 5-10 years. According to the study, children who skipped breakfast more often had increased levels of conduct problems and social difficulties. The researchers highlighted the necessity of harmonious breakfasts to regulate blood glucose levels and improve cognitive functions. In addition, Jacka FN et al. [26](2011) proved that children with irregular meal patterns and irregular nutrient intake had higher rates of emotional distress and school failure.

4. **Combined Effect of Nutritional Status and Lifestyle on Emotional and Behavioural Disorders**

- Interaction Between Diet and Lifestyle Habits

Lifestyle and diet are intertwined, together affecting mental well-being. An example is the gut-brain axis, which shows the interrelationship between gastrointestinal well-being and cognitive processes, where diet has a direct effect on gut microbiota, influencing mood and

behaviour. An adequate diet that is nutritionally balanced maintains a healthy gut microbiome, thereby positively affecting mental well-being. Poor eating habits, on the other hand, disturb gut health, presenting higher risk for mental illness.

Sleep and physical activity are lifestyle elements that combine with diet to influence mental health. A balanced diet coupled with regular exercise and proper sleep leads to enhanced mood and mental functioning. However, a lack of PA and sleep disrupts the good effects of a healthy diet, making an individual more vulnerable to emotional and behavioural disorders.

- Studies Highlighting Their Combined Influence on Mental Health

The interaction between nutrition and lifestyle and its impact on mental health has been the focus of some studies:

- "A scoping review highlighted the role of nutrition in mental health, with nutrient status and body weight having significant role on mental health. The review also identified that the use of psychotropic medication can lead to weight gain, indicating a reciprocal relationship between mental health and nutritional status."
- Adolescent research has revealed that obesity is associated with emotional and behavioural disorders and food security. Treatment involving comprehensive plans targeting mood disturbances, stress, and lifestyle is indicated for effective control.
- A Journal of the American Psychiatric Nurses Association published study explained "nutritional psychiatry as a new field studying the interaction of diet and mental health". The study examined dietary patterns, gut microbiota health, and the effects of specific nutrients on mental health, and proposed the use of nutritional and lifestyle interventions alongside conventional treatments for mental health.

- An American Psychological Association article brought attention to research with promising evidence for the application of nutritional strategies in enhancing emotional regulation following traumatic brain injury and in the treatment of EBD in children.

These researches emphasize the need to consider both lifestyle habits and nutritional status in the realm of mental health. An integrative approach combining diet, physical activity, sleep, and other lifestyle variables is necessary for prevention and management of EBD.

5. **Screening Tools for Identifying Emotional and Behavioural Disorders**

The detection of EBD in children is essential for early intervention and effective control. A number of standardized psychological assessment instruments and lifestyle/nutritional screening techniques have been devised to aid the process.

- **Standardized Psychological Assessment Instruments**

1. Child Behaviour Checklist (CBCL)[34]: "The CBCL is a parent-reported questionnaire developed by Achenbach and Rescorla that evaluates a wide variety of behavioural and emotional difficulties in children between 6 and 18 years of age. It measures internalizing (e.g., depression, anxiety) and externalizing (e.g., hyperactivity, aggression) behaviours." Its reliability and validity have been proven in multiple populations using various studies, such as those who live in rural areas[27].
2. Strengths and Difficulties Questionnaire (SDQ) [9]: "SDQ is a short behavioural screening questionnaire for 4-17-year-old children. It is a 25-item scale that consists of five domains": "emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour." SDQ has been well validated and is suggested to be used

in primary healthcare settings and schools for early identification of children with behavioural problems.[9]

3. Child Symptom Inventory-4 (CSI-4) [35]: "This parent- and teacher-rated screening instrument evaluates DSM-IV emotional and behavioural disorders in children 5-12 years of age". It is helpful in detecting conditions like mood disorders, anxiety, and conduct problems.[35]
4. Paediatric Symptom Checklist (PSC):[36] The PSC is a short screening instrument that helps in the identification of children's psychosocial problems between 4 and 16 years old. It is commonly used in paediatric outpatient clinics and has good correlation with more extensive mental health interviews. [36]

- **Lifestyle and Nutritional Screening Tools in Children**

1. Lifestyle Screening Tools: Various tools have been designed to assess children's lifestyle factors, such as dietary habits, physical activity, and sleep patterns. For instance, the Lifestyle and Health Behaviour Questionnaire (LHBQ) evaluates multiple domains, including nutrition, exercise, screen time, and sleep quality.[5]
2. Nutritional Assessment Tools: "The WHO Anthro Plus software is a standard nutritional assessment tool for children and adolescents between 5 and 19 years. It determines z-scores of body mass index (BMI), weight-for-age, and height-for-age to detect undernutrition, overweight, and obesity"[28].
3. Food Frequency Questionnaires (FFQ): FFQs help determine patterns of dietary intake and gain an understanding of children's eating habits, which can be associated with emotional and behavioural issues.[29]
4. Nutritional Risk Screening Tools: Screening tools like the Screening Tool for the Assessment of Malnutrition in Paediatrics (STAMP) and Paediatric Yorkhill Malnutrition Score (PYMS) are widely used to screen children for malnutrition risk.[30]

The inclusion of these standardized psychological evaluation instruments and lifestyle/nutritional screening tools in paediatric practice is necessary to identify and treat EBD in children. Identification early in life can dramatically enhance long-term prognosis and improve overall quality of life.

6. Key Studies Highlighting Associations

- International Nutrition and Mental Health Studies

Nutritional status is recognized as a key factor influencing children's mental wellbeing. "In a study conducted by Jacka et al.[22] (2011), Association between diet quality and adolescent mental health was analysed and found that low-quality dietary patterns were linked to higher prevalence of depression and anxiety. The study highlighted the importance of nutrient-dense foods, including vegetables, and whole grains, in ensuring positive emotional health outcomes." Likewise, in a longitudinal study conducted by Oddy et al.[7] (2009), poor dietary patterns, including high-frequency consumption of processed foods, accounted for increased depressive symptoms in children from 7 to 14 years of age. These findings indicate that nutritional interventions targeting improved dietary patterns could have a important role in influencing mental health outcomes among children.

"In a cross-sectional study by Shinsugi et al.[33] (2021) conducted in Sri Lanka, the authors assessed the relationship between nutritional status, lifestyle, and emotional behaviour in school children. The investigation revealed that poor lifestyle habits, such as skipping breakfast and going to bed late, were significantly associated with conduct and emotional disorders, but nutritional status was not linked with emotional disturbances. These results indicate the intricate interplay of diet, lifestyle, and mental illness in children."

- Lifestyle Habits and Emotional Well-being Research

Lifestyle determinants like sleeping, exercise, and watching screens have a significant impact on mental health. Liang et al.[31] (2024) conducted research on the impact of exercise and screen use on psychological variables of children. In the research, excessive use of screens was highly linked with increased depression and anxiety, but children with regular exercise had better emotional well-being and reduced levels of stress.

Besides, an O'Neil et al.[32] (2014) "systematic review provided evidence of the relationship between lifestyle habits and mental health." The review confirmed that children with irregular sleep, minimal physical activity, and unbalanced diets were prone to developing mood disorder and anxiety. The authors advocated for interventions that would provide well-organized habits and well-balanced diets in an attempt to improve the mental wellbeing in children.

- Indian Context: Rural and Urban Comparisons

"In India, there are limited studies that have explored the relation between nutritional status, lifestyle, and emotional status, particularly in rural India." A cross-sectional study conducted by Biswas et al.[42] (2022) in children who visited outpatient paediatric and adolescent clinics in Kolkata evaluated behavioural disorders. Anxiety disorders were more in girls, while disruptive behaviour and conduct disorders were more in boys, particularly in single-parent children, as per the study. Poor eating habits, poor sleep, and reduced physical activity were the risk factors as per the study.

In rural India, Shally et al.[43] (2022) in a research study reported that children of lower socio-economic status had greater nutritional deficiencies, which were significantly correlated with greater stress and anxiety. The research emphasized the need for school-based nutrition interventions and lifestyle counselling for promoting the mental well-being of children in underprivileged regions. Comparative research by Patil et al[.4] (2018) compared rural and

urban children's emotional and behavioural disorders. The report indicates that urban children had better mental health facilities than rural children who had limited awareness and social stigma, hence leading to under diagnosis and left untreated. Multifaceted intervention strategies were concluded to take into account local barriers to ensuring effective mental health services for children

7. Gaps in Existing Literature

- Inadequacy of Region-specific Data

Although multiple studies have been conducted to look into the interplay between lifestyle behaviours, nutritional status, and emotional and behavioural disorders in children, regional data for rural India children are unavailable. Cultural heterogeneity, access to healthcare, and dietary behaviour are the attributes that make regional studies warranted. In a research study by Shinsugi et al.[25](2021), the impact of lifestyle behaviours such as breakfast consumption patterns and sleeping patterns on children's emotional status was documented; the findings cannot be generalized comprehensively to India's rural population with a singular socio-cultural and economic environment. Biswas et al.[33] (2022) also researched in Eastern India but on behavioural disorders without thoroughly discussing the nutrition and lifestyle behaviours in rural communities. The above facts are the reasons that necessitate localized studies to study the interconnection of lifestyle, nutrition, and mental health among children in rural India.

- All-Inclusive Lifestyle and Dietary Screening Instruments Requirement

There are no well-developed existing screening instruments for lifestyle habits and dietary status, thus limiting their use in the identification of risky children for EBD. Krijger et al.[34] (2022) reviewed systematically community-based lifestyle screening instruments and

documented extensive variation in the topics covered and the absence of clearly defined follow-up action plans. Furthermore, the instruments predominantly address diet and physical activity but ignore critical lifestyle habits such as sleep, screen use, and family functioning that play critical roles in childhood mental health. Development of a comprehensive screening instrument specific to the Indian paediatric population is necessary for early identification and intervention.

- **Significance of Early Intervention Strategies**

Early intervention strategies to dietary and lifestyle modification have shown to be promising in improving children's mental health. O'Neil et al.[32] (2014) offered a systematic review with emphasis on improving dietary consumption and lifestyle habits as preventive measures against anxiety, depression, and mood disorders in children. While this evidence lends itself to the use of early intervention, "Few studies have assessed the effectiveness of targeted interventions in rural areas of India. Targeted interventions specifically aimed at challenging socio-cultural beliefs, food habits, and resource limitations in rural communities could play an important role in improving the mental health of children."

- **Scope for Future Research.**

Longitudinal research should be the focus in the future so that the causality of lifestyle behaviours and emotional well-being can be better understood. Intervention studies among rural populations would be helpful in establishing the effective strategies that would help promote healthy lifestyle practices. "Culturally specific lifestyle screening instruments and early intervention programs may prove to be extremely helpful in enhancing the mental health of children."

Literature review:

1. **Shinsugi C, Gunasekara D, Takimoto H (2021)[33]et al "**conducted a cross-sectional study and investigated the association between emotional behaviour, nutritional status, and lifestyle habits among schoolchildren aged 5-10 years in Sri Lanka. The authors assessed various lifestyle factors, including breakfast intake, physical activity, wake-up time, and bedtime, and examined their influence on children's emotional and behavioural outcomes. The study concluded that unfavourable lifestyle behaviours, particularly breakfast skipping and late bedtime, were significantly associated with emotional and behavioural problems such as conduct issues and prosocial behaviour difficulties. Interestingly, the study found no significant relationship between nutritional status and emotional behaviour, suggesting that lifestyle habits may have a more immediate impact on children's mental well-being than nutritional deficiencies alone. This study emphasized the importance of lifestyle interventions in improving psychological outcomes among children."[33]

2. Krijger A et al. (2022)[5] "explored the variety and effectiveness of lifestyle screening tools available for children in community settings." The review analysed tools that assessed dietary habits, physical activity (PA), and sedentary behaviour. The authors noted that most tools focused on identifying overweight and obesity risks rather than mental health concerns. While these screening tools offered insights into children's lifestyle patterns, there was limited validation data available, and most lacked clear follow-up actions after assessment. The study recommended the development of simplified and effective screening tools for early identification of children at risk of unhealthy lifestyle patterns that may contribute to emotional and behavioural issues.

3. Kohlboeck G et al. (2012)[44] "In their observational study conducted as part of the GINI-plus and LISA-plus studies, the authors examined the relationship between food intake, diet

quality, and behavioural problems in children. The study involved detailed dietary assessments and behavioural evaluations. Results indicated that poor diet quality, characterized by low fruit and vegetable intake and high consumption of processed foods, was associated with an increased risk of behavioural problems such as hyperactivity and conduct disorders. The study highlighted the importance of promoting balanced diets in early childhood to support both physical and mental well-being."

4. Gadow KD et al. (2004)[45] provided additional validation for the Teacher Version of the "Child Symptom Inventory-4 (CSI-4), a tool used to assess behavioural and emotional disorders in children. The authors evaluated its reliability and effectiveness in diagnosing various mental health problems such as anxiety, mood disorders, and conduct problems." The study confirmed that the CSI-4 is a reliable tool that can be effectively used in educational and clinical settings to identify children with emotional and behavioural concerns. This tool can serve as a valuable resource for screening children in paediatric OPDs to assess their mental well-being.

5. El-Radhi AS et al. (2015) [46] reviewed the management strategies for common behavioural and mental health problems in children. The author discussed the interplay between emotional well-being and chronic medical problems such as asthma, obesity, and diabetes. "The study highlighted that children with chronic illnesses are increased risk of developing emotional and behavioural disorders." Effective management approaches, including parent counselling, cognitive-behavioural therapy, and lifestyle interventions, were recommended for improving mental health outcomes in such children.

6. Biswas R et al. (2022) [42] conducted a cross-sectional study in a paediatric OPD and adolescent clinic in Kolkata examined the prevalence of behavioural disorders in children and early adolescents. The findings showed that anxiety disorders were most prevalent,

particularly among females. Disruptive, impulse control, and conduct disorders were observed more frequently in boys, especially those living with single parents. The study underscored the role of social and family dynamics in influencing children's mental health.

7. Gardner F, Shaw DS (2009)[47] "discussed behavioural issues in infancy and early childhood in a chapter from Rutter's Child and Adolescent Psychiatry. They highlighted the significant impact of early-life environmental factors, including family stress, parental mental health, and socio-economic conditions, on the development of children's behavioural patterns. The authors emphasized the importance of early interventions aimed at addressing these risk factors to enhance developmental outcomes."

8. O'Neil A et al. (2014) [41] done systematic review and investigated the link between dietary patterns and mental health outcomes in children and adolescents. The findings highlighted that poor dietary intake, characterized by low consumption of nutrient-rich foods and increased intake of processed foods, was associated with higher risks of anxiety and mood disorders. Given that anxiety and mood disorders often emerge in early life, the study emphasized the need for dietary interventions at a young age to mitigate these risks. The authors advocated for further research to enhance evidence-based dietary guidelines for improving children's mental well-being.

MATERIAL AND METHODS

MATERIAL AND METHODS

STUDY DESIGN:

A cross sectional study

STUDY SETTING:

Paediatric Out Patient Department (OPD) at R L JALAPPA hospital

STUDY PERIOD:

From May 2023 to December 2024

SAMPLE SIZE CALCULATION

"The sample size was estimated by using the proportion of prosocial behaviour in school children was 18.3% from the study by Shinsugi C et al. Using the formula

$$\text{Sample Size} = \frac{Z1\text{-}_{\alpha/2}{}^{2}\, P\,(1-P)}{d2}$$

Z1-α /2 = is standard normal variate (at 5% type 1 error (P<0.05) it is 1.96 and at 1% type1 error(P<0.01) it is 2.58).As in the majority of studies, P values are considered significant below 0.05 hence 1.96 is used in formula.

P= Expected proportion in population based on previous studies or pilot studies

d= Absolute error or precision

P = 18.3% or 0.183

q = 81.7% or 0.817

d = 7.5% or 0.075

Using the above values at 95% confidence level, a sample size of 103 children was included in the study."

STUDY PARTICIPANTS:

Around 451 stable children aged between 5-12 years came to paediatric OPD at RL Jalappa hospital during the mentioned study period was included in the study. Around 103 children's who fail the emotional and behavioural screening was evaluated for nutritional status and lifestyle habits.

INCLUSION CRITERIA:

All children between the age group of 5 to12 years visiting the paediatrics OPD at RL Jalappa hospital within the study period and who had consented to be a part of the study.

EXCLUSION CRITERIA:

1. Child with any chronic organic illness
2. Child who is a known case of neuro psychological disorder
3. child who is sick needs admission

METHODOLOGY:

This study was started after obtaining consent from the parents. All children fulfilling the inclusion criteria was included in the study.

All the parents or guardians of each children of age 5-12 years were given the Child Symptom Inventory (CSI)-44 or the investigator himself/herself ask the parents in their own local language: "CSI-4 is a behaviour rating scale that is referenced by DSM-IV-R for

emotional and behavioural disorders between 5 and 12 years old. There is a parent version (97 items). The "CSI-4 Parent-Checklist" contains screens for 15 emotional and behavioural disorders. CSI-4 can be scored to derive symptom count scores or symptom severity scores. In this study, the parents of the children were interviewed by CSI-4 Parent-Checklist and each parent rates each item on a 4-point response scale, indicating how frequently the symptoms are observed. CSI-4 contains symptom-categories for DSM-IV disorders: such as ADHD of Inattentive type, ADHD of Hyperactive- Impulsive type, ADHD of Combined type; Oppositional defiant disorder (ODD), Conduct disorder(CD), Generalised anxiety disorder(GAD), social phobia, Separation anxiety disorder(SAD), dysthymic disorder; schizophrenia and autistic disorder."

"The CSI-4 also contains single items to screen for simple phobias, obsessions, compulsions, motor tics, vocal tics, enuresis, and encopresis. Administration time is between 10 and 15 min." There are two scoring procedures: "Symptom Count (categorical) scores, which use scores of 0 (never/sometimes) or 1 (often/ very often), and Symptom Severity (dimensional) scores, which use scores of 0 (never), 1 (sometimes), 2 (often), or 3 (very often)." "Symptom Severity scores are simply the sum of the item scores for a particular symptom category. For symptom count scores, a specific symptom is generally considered to be a clinically relevant problem if it is rated as occurring "often" or "very often." When the symptom count score is equal to or greater than the number of symptoms specified by DSM-IV as being necessary for a diagnosis, the child receives a Screening Cutoff score of "yes" for the disorder. Although CSI- 4 contains the behavioural symptoms of disorders, it does not include additional diagnostic criteria (e.g., age of onset of symptoms, impairment of functioning." (33)

Anthropometry measurements

The World Health Organization (WHO) uses weight, height, and BMI for classifying a patient's nutritional status. These measurements are then plotted on WHO growth charts

according to age and gender to determine the appropriate percentile or Z-score for height for age (H/A), weight for age (W/A), weight for height (W/H), BMI for age (BMI/A), The Z-score determines if the child is stunted, underweight, overweight or wasted.

"Children's height was measured by using height measuring tape with the child standing barefoot. Weight was measured by using a digital scale with the child wearing light clothing. Body mass index was calculated as weight divided by the square of height. The body mass index-for-age z-score (BAZ) was determined using the WHO growth standards. Thinness was defined as BAZ < −2. Overweight and obesity was classified as BAZ > 1"[33].

Lifestyle Habits

"Breakfast skipping, physical activity, wake-up time, and bedtime was considered as lifestyle habits [35]. Breakfast skipping was assessed according to whether the child usually consumes breakfast in accordance with the Food-Based Dietary Guidelines for Indian children aged 5–10 years. The frequency and duration of participants' physical activity during a typical week was reported by their guardians. Three types of physical activity (vigorous-, moderate-, and light-intensity activities), with reference to the Global Physical Activity Questionnaire and the Global School-based Student Health Survey was considered. The WHO recommends that children and youth aged 5–17 years engage in at least 60 min of moderate- to vigorous-intensity physical activity (MVPA) daily; therefore, total amount of MVPA was calculated. The children's parents/guardians were asked about their children' wake-up time and bedtime on a normal day. Three categories of wake-up times, <6:00 am, 6:00 am to 6:29 am, and 6:30am to 8:29am was established. The bed time was categorised as 7:00 pm to 8;59PM, 9:00 PM to 9:59pm and 10pm to 11:59pm. Early wake up time was defined as waking up before 6am and late bedtime as going to bed after 10pm."

In this study the included children who are recognised to have the above mentioned behavioural disorders was discovered. Nutritional status and lifestyle habits of these discovered children was evaluated and their association with the behavioural and emotional disorders was studied.

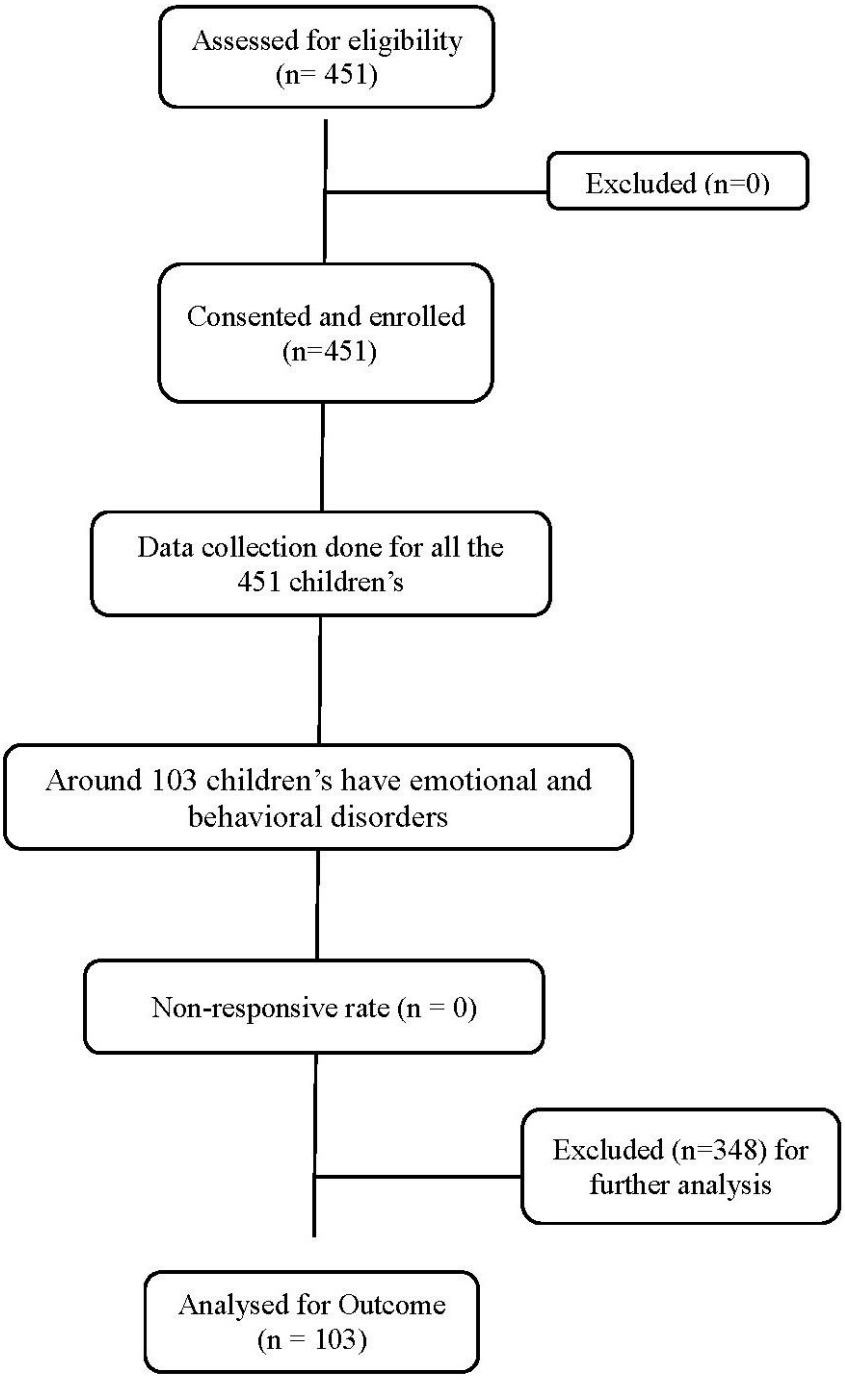
Statistical analysis:

"Data was entered into Microsoft excel data sheet and analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square and fishers exact test was used as a test of significance. Continuous data was represented as mean and standard deviation. All tests were conducted with a two-tailed approach, and statistical significance was determined at a 95% confidence level, considering results significant if the p-value was <0.05."

ETHICAL CONSIDERATION:

Ethical principles including patient respect, beneficence, and justice were strictly followed. Approval from the ethical committee was obtained prior to commencing the study. The approval to conduct the present study was obtained from the Institutional Ethical Committee no: SDUAHER/KLR/R&D/CEC/S/PG/10/2024-25.Confidentiality of the study participants was maintained throughout the study

Figure 2: Flow chart regarding patient involved in the study



RESULTS

RESULTS

Table 1: Distribution of emotional and behavioral disorders among study participants

Emotional and behavioral disorders	Number	Percentage
Yes	103	22.8 %
No	348	77.2 %
Total	**451**	**100.0 %**

The above table shows emotion and behavioral disorders among children with 5 to 12 years of age. Among 451 children's, 103 had Emotional and behavioral disorders**.**

Figure 3: Pie diagram shows distribution of emotional and behavioral disorders

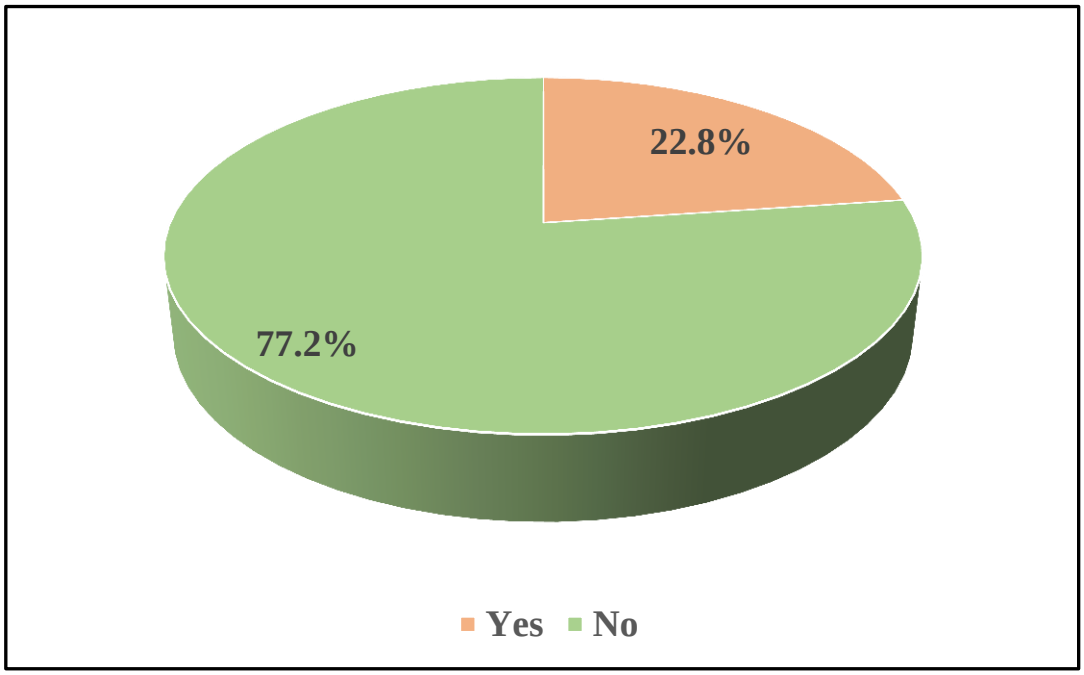


Table 2: Age distribution among study participants

Age Category	Number	Percentage
5 to 7 years	36	35.0 %
> 7 to 10 years	32	31.1%
> 10 to 12 years	35	34.0%
Minimum age in years	5	
Maximum age in years	12	
Median (Inter Quartile Range)	9 (7.0 – 11.0)	
Total	103	**100.0 %**

"The median age of the study participant was 9 (IQR = 7.0– 11.0) years. The minimum age reported was 5 years and the maximum age observed was 12 years. Majority of the participants belongs to the age category 5 to 7 years which is 36 (35.0 %) cases."

Figure 4: Box whisker diagram shows age distribution among study participants

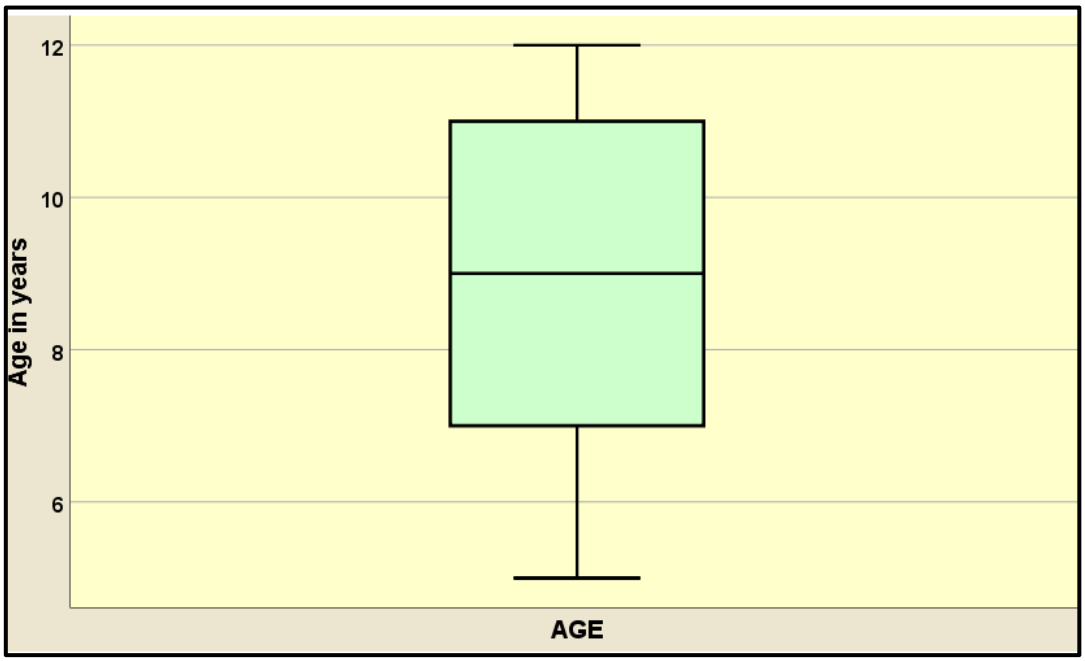


Table 3: Gender distribution among study population

Gender	Number	Percentage
Male	57	55.3 %
Female	46	44.7 %
Total	**103**	**100.0 %**

"Out of 103 patients, 57 (55.3%) were males and 46 (44.7%) were females."

Figure 5: Pie diagram shows gender distribution among study population

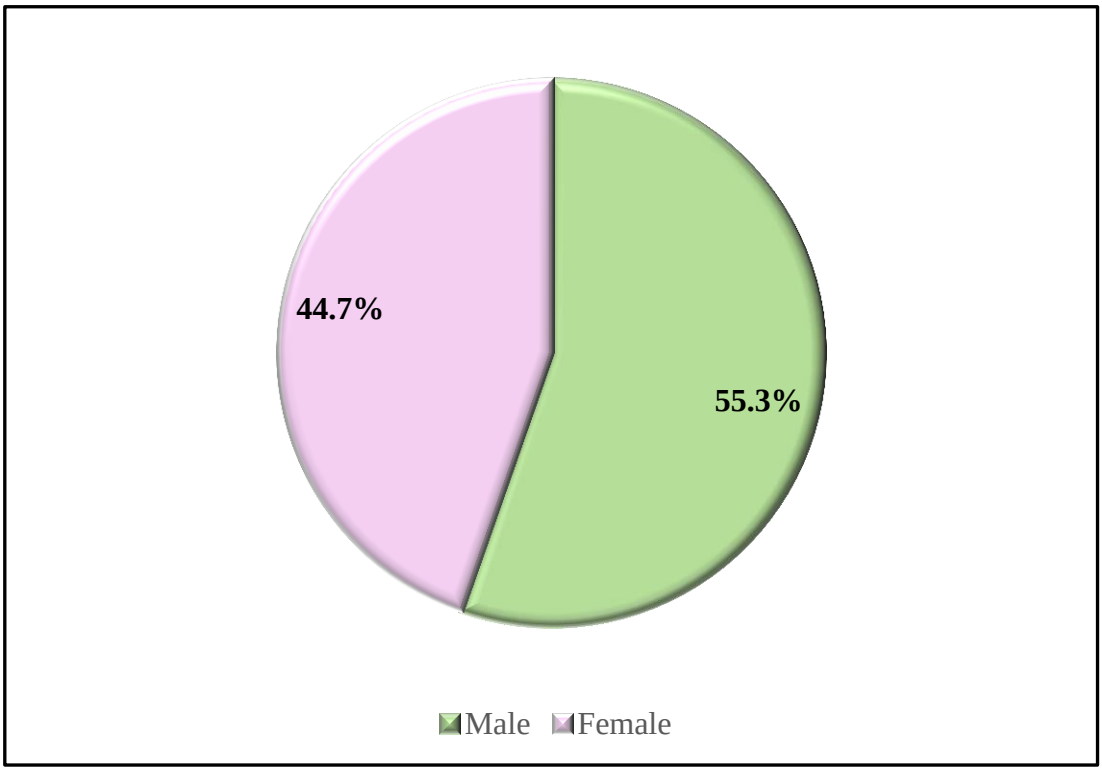


Table 4: Height distribution among study participants

Height (cms)	Values
Mean	131.54
± Std. Deviation	± 16.73
Minimum	98.5
Maximum	170.0
Total	**103**

The mean height distribution among study participant was 131.54 ± 16.73 cms. The minimum height observed was 98.5 cms and the maximum height observed was 170.0 cms.

Figure 6: Error bar diagram shows mean height distribution among study participants

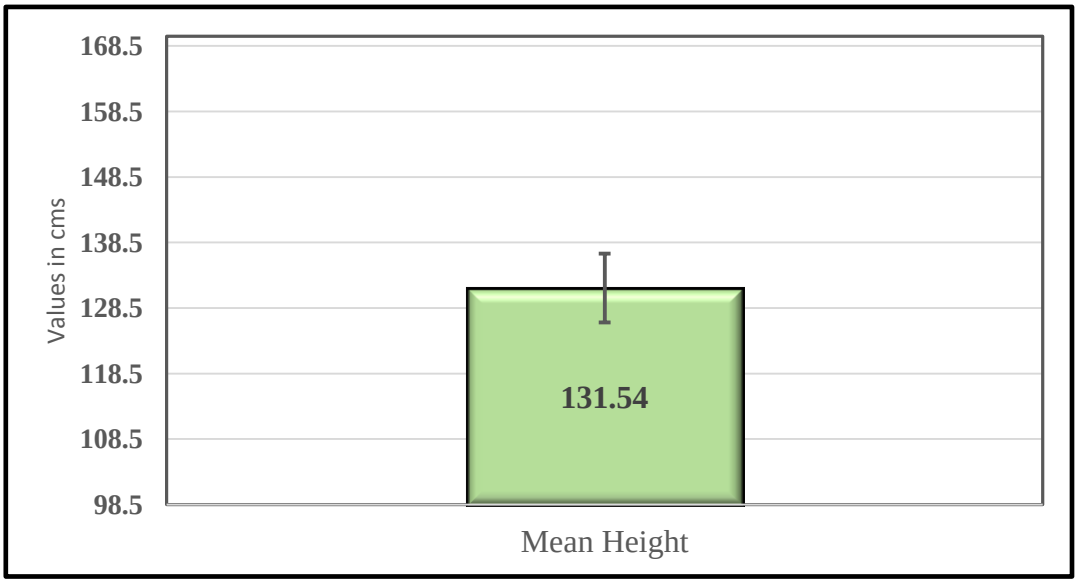


Table 5: weight distribution among study participants

Weight (kgs)	Values
Mean	28.69
± Std. Deviation	± 12.07
Minimum	11.2
Maximum	65.6
Total	**103**

The mean height distribution among study participant was 28.69 ± 12.07 kgs. The minimum weight observed was 11.2 kgs and the maximum weight observed was 65.6 kgs.

Figure 7: Error bar diagram shows mean weight distribution among study participants

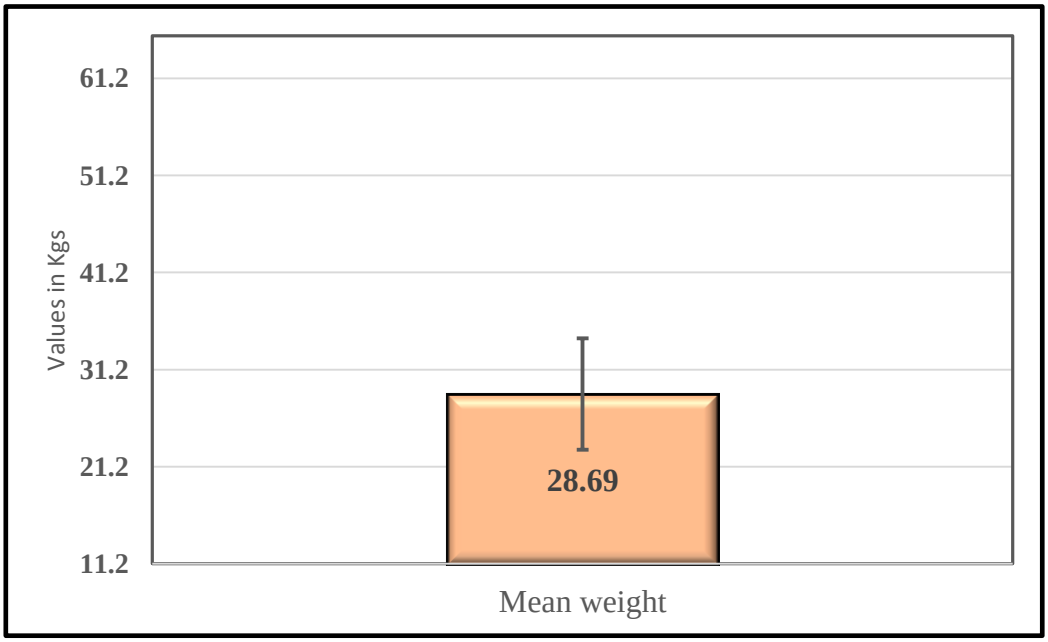


Table 6: Nutritional status distribution among study participants

BMI (Kg/m^2)		Number	Percentage
Under weight		7	6.8 %
Normal		73	70.9 %
Overweigh		13	12.6 %
Obese		10	9.7%
Mean		16.15	
± Std. Deviation		± 3.29	
Minimum		11.50	
Maximum		28.00	
Percentiles	25	13.80	
	50 (median)	15.50	
	75	17.90	
Total		**103**	

"Among 103 cases, 7 (6.8 %) children's were underweight, 73 (70.9%) children's were normal, 13 (12.6%) children's were overweight and 10 (9.7%) children's were obese. The mean BMI distribution among the children's was 16.15 ± 3.29 kg/m^2. The minimum BMI observed was 11.50 kg/m^2 and the maximum BMI observed was 28.00 kg/m^2."

Figure 8: Error bar diagram shows mean BMI distribution among study participants

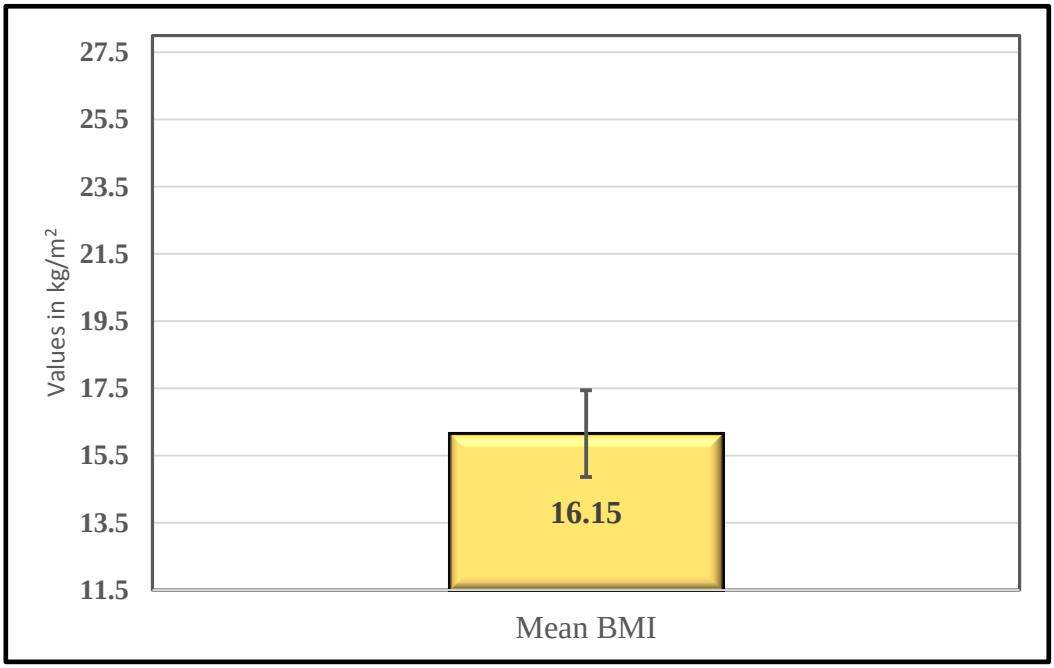


Table 7: Distribution of Emotional/Behavioural Disorders among study participants

Emotional/Behavioural Disorders	Number	Percentage
Attention-Deficit/Hyperactivity Disorder (ADHD)	8	7.8%
Autism	5	4.9%
Conduct Disorder	8	7.8%
Oppositional Defiant Disorder (ODD)	7	6.8%
Generalized Anxiety Disorder (GAD)	31	30.1%
Separation anxiety disorder (SAD)	4	3.9%
Social anxiety	33	32.0%
Specific Phobia	29	28.2%
Obsessive-Compulsive Disorder (OCD)	6	5.8%
Post-Traumatic Stress Disorder	0	0%
Somatoform Disorder	0	0%
TIC	3	2.9%
Enuresis	6	5.8%
Total	**103**	**100.0 %**

Among 103 children's, majority 33 (32.0%) of them had Social anxiety followed by 31 (30.1%) had generalized anxiety disorder, 29 (28.2%) children's had specific phobia, 8 (7.8%) children's had ADHD, 8 (7.8%) children's had conduct disorder, 7 (6.8%) children's had ODD, 6 (5.8%) children's had OCD, 6 (5.8%) children's had Enuresis, 5 (4.9%) had Autism and 4 (3.9%) had SAD, 3 (2.9%)

Table 8: Distribution of Lifestyle Habits and Disorders among study participants

Lifestyle Habits	Number	Percentage
Breakfast Skipping		
Yes	11	10.7%
No	92	89.3%
Moderate- to Vigorous-intensity Physical Activity (MVPA)		
<60 Minutes	7	6.8 %
>60 Minutes	96	93.2 %
Total	**103**	**100.0 %**

Among 103 children's, 11(10.7%) children's had a habit of skipping breakfast. Out of 103 children's, around 7 (6.8%) children's do less than 60 minutes MVPA and 96 (93.2%) children's do more than 60 minutes MVPA

Table 9: "Association between emotional and behavioral disorders children with nutritional status"

	Underweight	Normal	Overweight	Obese	p value
Attention-Deficit/Hyperactivity Disorder (ADHD)	0	6 (8.2%)	1 (7.7%)	1 (10.0%)	0.878
Autism	1 (14.3%)	2 (2.7%)	2 (15.4%)	0	0.128
Conduct Disorder	0	6 (8.2%)	2 (15.4%)	0	0.474
Oppositional Defiant Disorder (ODD)	0	6 (8.2%)	1 (7.7%)	0	0.685
Generalized Anxiety Disorder (GAD)	2 (28.6%)	21 (28.8%)	4 (30.8%)	4 (40.0%)	0.910
Separation anxiety disorder (SAD)	0	3 (4.1%)	1 (7.7%)	0	0.752
Social anxiety	2 (28.6%)	25 (34.2%)	4 (30.8%)	2 (20.0%)	0.831
Specific Phobia	2 (28.6%)	21 (28.8%)	1 (7.7%)	5 (50.0%)	0.167
Obsessive-Compulsive Disorder (OCD)	0	4 (5.5%)	2 (15.4%)	0	0.357
Post-Traumatic Stress Disorder	0	0	0	0	
Somatoform Disorder	0	0	0	0	
TIC	0	3 (4.1%)	0	0	0.736
Enuresis	2 (28.6%)	1 (1.4%)	2 (15.4%)	1 (10.0%)	0.008
Total	**7 (100%)**	**73 (100%)**	**13 (100%)**	**10 (100%)**	

For Attention-Deficit/Hyperactivity Disorder, 6 (8.2%) were of normal weight, with one child each being overweight (7.7%) and obese (10.0%), and with no instances being underweight. The p-value (0.878) indicates there is no strong association with nutritional status. Of children with Autism, one (14.3%) was underweight, 2 (2.7%) were normal weight, another 2 (15.4%) were overweight, with none being obese, resulting in a p-value of 0.128, which indicates no strong correlation. For Conduct Disorder, six children (8.2%) were in the normal weight group, two (15.4%) were overweight, and there were no cases in the underweight or obese groups ($p = 0.474$). For Oppositional Defiant Disorder (ODD), six children (8.2%) were of normal weight, one (7.7%) was overweight, and none were underweight or obese ($p = 0.685$), which shows no statistically significant correlation. In Generalized Anxiety Disorder (GAD), 2 (28.6%) children were underweight, 21 (28.8%) were of normal weight, four (30.8%) were overweight, and four (40.0%) were obese. The p-value (0.910) indicates no significant difference between nutritional groups. Separation Anxiety Disorder (SAD) was found in three normal-weight children (4.1%) and one overweight child (7.7%), but none among underweight or obese children ($p = 0.752$). Social Anxiety Disorder was found in two underweight children (28.6%), 25 normal-weight children (34.2%), four overweight children (30.8%), and two obese children (20.0%), with p-value of 0.831, indicating no significant relation. For Specific Phobia, two underweight children (28.6%), 21 normal-weight children (28.8%), one overweight child (7.7%), and five obese children (50.0%) were impacted, although the p-value (0.167) indicates a non-significant trend. Obsessive-Compulsive Disorder (OCD) was present in four normal-weight children (5.5%) and two overweight children (15.4%), but not in the underweight or obese children ($p = 0.357$).

"There were no cases of Somatoform Disorder or Post-Traumatic Stress Disorder in any of the nutritional groups." Tic Disorder occurred in three normal-weight children (4.1%)

but not in the other groups (p = 0.736). Enuresis (bedwetting) occurred in two underweight children (28.6%), one normal-weight child (1.4%), two overweight children (15.4%), and one obese child (10.0%). The p-value (0.008) is statistically significant and shows that enuresis is associated with nutritional status. Overall, seven children (100%) were underweight, 73 (100%) were normal weight, 13 (100%) were overweight, and 10 (100%) were obese. Most of the emotional and behavioral disorders were not statistically significantly associated with nutritional status, but one disorder, enuresis, had a significant association (p = 0.008), indicating that weight status can affect the prevalence of bedwetting in children.

Table 10: Association between Lifestyle Habits and Disorders children with nutritional status

Lifestyle Habits	Underweight	Normal	Overweight	Obese	p value
Breakfast skipping					
Yes	1 (14.3%)	8 (11.0%)	0	2 (20.0%)	0.463
No	6 (85.7%)	65 (89.0%)	13 (100%)	8 (80.0)	
MVPA					
<60 minutes	1 (14.3%)	4 (5.5%)	1 (7.7%)	1 (10.0%)	0.802
>60 minutes	6 (85.7%)	69 (94.5%)	12 (92.3%)	9 (90.0%)	
Total	**7 (100%)**	**73 (100%)**	**13 (100%)**	**10 (100%)**	

Among children's those skipping breakfast, one underweight child (14.3%), eight normal-weight children (11.0%), and two obese children (20.0%) skipped breakfast, whereas none of the overweight children skipped meals. Most children from all groups never skipped breakfast and included six underweight children (85.7%), 65 normal-weight children (89.0%), 13 overweight children (100%), and eight obese children (80.0%). "The p-value (0.463) implies no statistically significant relationship between nutritional status and breakfast skipping. In the case of moderate-to-vigorous physical activity (MVPA), there was one underweight child (14.3%), four normal-weight children (5.5%), one overweight child (7.7%), and one obese child (10.0%) who had less than 60 minutes of daily physical activity." In contrast, the majority of children had greater than 60 minutes of daily MVPA, which included six underweight children (85.7%), 69 normal-weight children (94.5%), 12 overweight children (92.3%), and nine obese children (90.0%). p-value (0.802) confirms no significant relationship between nutritional status and MVPA levels.

Table 11: "Association between emotional and behavioral disorders children with Breakfast Skipping Habits"

Emotional and behavioral disorders	Breakfast Skipping		
	Yes	No	p value
ADHD	2 (18.2%)	6 (6.5%)	0.172
Autism	1 (9.1%)	4 (4.3%)	0.489
Conduct Disorder	0	8 (8.7%)	0.309
Oppositional Defiant Disorder (ODD)	1 (9.1%)	6 (6.5%)	0.749
Generalized Anxiety Disorder (GAD)	3 (27.3%)	28 (30.4%)	0.829
Separation anxiety disorder (SAD)	0	4 (4.3%)	0.481
Social anxiety	1 (1.9%)	32 (34.8%)	0.084
Specific Phobia	4 (36.4%)	25 (27.2%)	0.522
Obsessive-Compulsive Disorder (OCD)	1 (1.9%)	5 (5.4%)	0.625
TIC	0	3 (3.3%)	0.543
Enuresis	0	6 (6.5%)	0.383
Total	**11 (100%)**	**92 (100%)**	

Among children with ADHD, two (18.2%) skipped breakfast, whereas six (6.5%) did not, with a p-value of 0.172, showing no relationship. Likewise, for Autism, one child (9.1%) who skipped breakfast had the condition, whereas four (4.3%) of the non-skipping children did ($p = 0.489$). Conduct Disorder was diagnosed in eight children (8.7%) not skipping breakfast but none in the skipping group ($p = 0.309$). For Oppositional Defiant Disorder (ODD), a single child (9.1%) in the skipping group and six children (6.5%) in the non-

skipping group were afflicted, with no difference (p = 0.749). Generalized Anxiety Disorder (GAD) was seen in three children (27.3%) who missed breakfast and 28 (30.4%) who did not, with a p-value of 0.829, indicating no significant difference. Separation Anxiety Disorder (SAD) was present in four children (4.3%) who didn't skip breakfast only, while no instances were found in the skipping group (p = 0.481). Social Anxiety Disorder was diagnosed in one child (1.9%) skipping breakfast and in 32 children (34.8%) not skipping breakfast, with a p-value of 0.084, indicating a trend but not significance. For Specific Phobia, four (36.4%) children who skipped breakfast were diagnosed with the disorder, while 25 (27.2%) were not (p = 0.522). One child (1.9%) with OCD was in the breakfast-skipping group, and five children (5.4%) were in the non-skipping group (p = 0.625). For Tic Disorder (TIC), there were 3 children (3.3%) in the non-skipping group but none in the group that skipped breakfast (p = 0.543). Finally, Enuresis (bedwetting) was noted in six children (6.5%) who did not skip breakfast, but none among the skipping group (p = 0.383). Analysis indicates that no emotional or behavioral disorder demonstrated a statistically significant relationship with skipping breakfast.

Table 12: "Association between emotional and behavioral disorders children with moderate- to vigorous-intensity physical activity (MVPA)"

Emotional and behavioral disorders	MVPA		
	< 60 minutes	> 60 minutes	p value
ADHD	2 (28.6%)	6 (6.3%)	0.033
Autism	0	5 (5.2%)	1.000
Conduct Disorder	2 (28.6%)	6 (6.3%)	0.033
Oppositional Defiant Disorder (ODD)	0	7 (7.3%)	1.000
Generalized Anxiety Disorder (GAD)	1 (14.3%)	30 (31.3%)	0.345
Separation anxiety disorder (SAD)	0	4 (4.2%)	1.000
Social anxiety	4 (57.1%)	29 (30.2%)	0.207
Specific Phobia	2 (28.6%)	27 (28.1%)	0.980
Obsessive-Compulsive Disorder (OCD)	0	6 (6.3%)	1.000
TIC	0	3 (3.1%)	-
Enuresis	1 (14.3%)	5 (5.2%)	0.322
Total	**7 (100%)**	**96 (100%)**	

Among the children with ADHD, 2 out of 7 (28.6%) were in the <60 minutes MVPA group and 6 out of 96 (6.3%) were in the >60 minutes' group, indicating a statistically significant association (p = 0.033). Likewise, for Conduct Disorder, 2 children (28.6%) belonged to the <60 minutes' group, while 6 children (6.3%) belonged to the >60 minutes'

group, with a large p-value of 0.033. Autism was seen in only those who had >60 minutes of MVPA (5 children, 5.2%), with no instances in the <60 minutes' group, but this was not statistically significant (p = 1.000).

Oppositional Defiant Disorder (ODD) was diagnosed in 7 children (7.3%) in the >60 minutes' group but none in the <60 minutes' group, p-value = 1.000. Generalized Anxiety Disorder (GAD) was higher among the >60 minutes MVPA group with 30 cases (31.3%) than with 1 case (14.3%) for the <60 minutes' group (p = 0.345). "Separation Anxiety Disorder (SAD) and Obsessive-Compulsive Disorder (OCD) occurred only in the >60 minutes' group in 4 (4.2%) and 6 (6.3%) children respectively, and not in the <60 minutes' group, both having p-values of 1.000. Social anxiety was noted in 4 children (57.1%) with <60 minutes of MVPA, and in 29 children (30.2%) with >60 minutes of MVPA (p = 0.207)."

The proportion of Specific Phobia was almost equal between the two groups, with 2 children (28.6%) in the <60 minutes' group and 27 children (28.1%) in the >60 minutes' group (p = 0.980). The sole presence of both Tic disorder and Enuresis was in the >60 minutes MVPA category, with 3 cases (3.1%) and 5 cases (5.2%) respectively, with the only exception being in the <60 minutes' category one case (14.3%) of Enuresis, but these were non-significant (Tic disorder had no given p-value; Enuresis p = 0.322). In total, 7 children (100%) were in the <60 minutes MVPA group and 96 children (100%) in the >60 minutes MVPA group.

DISCUSSION

DISCUSSION

"This study aimed to evaluate the association between nutritional status, lifestyle habits, and emotional and behavioural disorders (EBDs) among children aged 5–12 years attending a rural tertiary care centre." The results offer significant insights into paediatric health patterns, especially in under-resourced settings.

The present study showing that 103 out of 451 children (22.8%) had emotional and behavioural disorders (EBDs), further strengthens the assertion that mental health conditions in children are a significant concern even in rural populations. This prevalence aligns closely with global estimates of childhood mental health disorders, which range between 10–20%, and is comparable to Indian studies like that of Malhotra and Patra [35](2014), who reported prevalence rates around 12–13%. However, our observed prevalence is slightly higher, possibly due to active screening using a standardized instrument (CSI-4) in a clinical setting, which may have allowed for the identification of subclinical or undiagnosed cases.

Moreover, this 22.8% prevalence exceeds the rates found in some community-based studies and aligns more with findings from tertiary care or urban mental health surveys, reflecting how access to care and use of validated screening tools can significantly influence diagnostic yield. "For instance, the National Mental Health Survey of India (2015–16)[36] reported increased rates of anxiety and conduct disorders when structured diagnostic tools were employed. This finding reiterates the importance of routine mental health screening in paediatric OPDs, especially in rural areas where behavioural disorders often go unrecognized."

Findings suggest a high prevalence of emotional and behavioural conditions such as social anxiety (32.0%), generalized anxiety disorder (30.1%), and specific phobia (28.2%),

Only limited statistically significant links were found between these disorders and nutritional status or lifestyle habits, with the exception of enuresis, which showed a significant relationship with nutritional status ($p = 0.008$).

"The mean age of the participants was 8.84 years, with a balanced representation across age categories. A slight male predominance was observed (55.3%), which aligns with epidemiological data suggesting a higher prevalence of behavioural disorders in boys than girls." Studies such as Merikangas et al.[37] (2010) and Ghandour et al.[38] (2019) have consistently reported higher rates of externalizing disorders like ADHD and conduct disorders among boys, possibly due to gender-based neurodevelopmental and sociocultural influences.

Social anxiety (32.0%), generalized anxiety disorder (30.1%), and specific phobia (28.2%) were the most commonly reported emotional disorders. These results parallel findings from "Costello et al.[39] (2003) and Polanczyk et al.[40] **(2015)**, who identified anxiety disorders as the most prevalent group of mental health problems in children."

The relatively high incidence of social anxiety and specific phobias may be influenced by environmental stressors, including academic pressure, family dynamics, and rural socio-cultural factors. The National Mental Health Survey of India (2015-16)[41] highlighted a significant burden of anxiety and phobic disorders among children in both urban and rural areas, emphasizing the need for early detection and community-based mental health services.

Less common were ADHD (7.8%), conduct disorder (7.8%), and oppositional defiant disorder (6.8%), consistent with studies such as Srinath et al. (2005)[42] in South India, which found disruptive behaviour disorders to occur in under 10% of school-going children.

In terms of nutritional assessment, the mean height and weight were 131.5 cm and 28.7 kg, respectively. The BMI distribution showed that 70.9% of children were within the normal range, with 6.8% underweight, 12.6% overweight, and 9.7% obese. These proportions are in line with findings from Kaur et al.[43] (2017) in Punjab, which showed a similar pattern of normal weight predominance among rural children, albeit with growing concerns of childhood overweight and obesity in some pockets due to changing dietary habits.

However, our observed undernutrition rate of 6.8% contrasts with higher rates reported in other low-income rural settings such as Patel et al.[44] (2015) in central India, who found undernutrition in nearly 18% of children in rural schools. The relatively lower underweight rate in our study may reflect better access to nutrition programs or sampling from a tertiary healthcare centre where ongoing interventions may play a role.

The majority of participants had normal BMI (70.9%), while 6.8% were underweight, and 22.3% were either overweight or obese. These patterns align with findings from a study by Sevnaz et al.[45] (2018) in Turkey, which reported that most children with EBDs had normal nutritional status, but behavioural symptoms were more severe among malnourished or obese children. Similarly, Yilmaz et al.[46] (2017) found that obesity was linked with increased anxiety and social withdrawal, although not all associations reached statistical significance.

In our study, enuresis showed a significant correlation with underweight and overweight status. This aligns with a retrospective analysis by Tsai et al.[47] (2020), which found that both undernutrition and obesity could influence bladder control due to delayed physical development and disrupted sleep cycles. The strong association between enuresis and malnutrition in our study may reflect underlying psychosocial stressors or physiological immaturity, often seen in undernourished children.

Conversely, no significant associations were found between nutritional status and disorders such as ADHD, conduct disorder, and anxiety, supporting findings by Hitomi et al.[48] (2010) and Sciberras et al.[49](2013), who reported that while dietary patterns may influence mood and cognition, direct causality with ADHD or ODD is inconsistent.

"The most common disorders in our cohort were social anxiety (32.0%), generalized anxiety disorder (30.1%), and specific phobia (28.2%). This trend is consistent with studies by Costello et al.[39] (2003) and Merikangas et al.[37] (2010), who documented anxiety-related disorders as the most prevalent category of mental health conditions in school-aged children. The slightly higher prevalence observed in our population might be explained by the rural socio-environmental stressors, parental neglect, and poor access to mental health education."

ADHD was seen in 7.8% of children, comparable to global estimates (5–7%) reported by the CDC[50](2019) and Polanczyk et al.[40] (2007). Conduct disorder and oppositional defiant disorder also showed similar prevalence patterns, reinforcing the universality of these behavioural issues across diverse populations.

Most emotional and behavioural disorders did not show statistically significant associations with nutritional status, except for enuresis, which was significantly linked to underweight status ($p = 0.008$). This is consistent with findings from von Gontard et al.[51] (2006) and Joinson et al. [52](2007), who emphasized the multifactorial origin of enuresis, including physiological immaturity, stress, and undernutrition.

The relationship between low BMI and enuresis could be related to delayed maturation of the central nervous system or bladder control mechanisms, as supported by Shreeram et al.[53] (2009). Undernourished children may also have altered sleep architecture, contributing to nocturnal enuresis.

No significant associations were found between nutritional status and disorders such as ADHD, conduct disorder, autism, or anxiety-related disorders. This is consistent with Caylak[54] (2012), who found inconsistent links between ADHD and nutritional deficits in children, suggesting that nutrition alone does not account for neurodevelopmental disorders. Similarly, Adrienne et al.[55](2014) emphasized the role of diet quality over BMI in determining behavioural outcomes, especially in anxiety and depressive disorders.

Interestingly, "while some studies such as Wiles et al.[56] (2007) and Khalid et al.[57] (2016) proposed links between obesity and emotional distress, particularly depression and anxiety, our study did not observe statistically significant correlations. This may be due to the relatively small number of obese children in our sample (n=10), possibly limiting the power of subgroup analysis."

The majority (93.2%) of children reported engaging in more than 60 minutes of MVPA daily, consistent with the WHO recommendation. No significant association was found between MVPA and emotional/behavioral disorders or BMI. Similar null findings were reported in Niederer et al. [58](2011), who observed that although physical activity improves well-being, its direct effect on psychiatric symptomatology is modest.

However, a small subset of children with low physical activity (<60 min/day) did exhibit disorders such as anxiety and specific phobia, suggesting the need for further exploration. Literature from Biddle and Asare[59] (2011) and Lubans et al.[60] (2016) suggests that regular physical activity can reduce anxiety and depressive symptoms through neurochemical modulation (e.g., endorphins, serotonin), indicating that sustained interventions might be more effective than observational cross-sectional assessments.

Only 10.7% of children reported skipping breakfast, and there was no significant association between breakfast habits and either nutritional status or emotional/behavioural disorders. Several studies, such as "Rampersaud et al.[61] (2005) and Adolphus et al.[62] (2013), have highlighted the benefits of breakfast on cognitive and behavioural outcomes." However, the lack of significant association in our study may be due to the small number of breakfast skippers or compensatory dietary intake later in the day. No significant associations were found between these lifestyle habits and EBDs. "This contrasts with the findings of Satomi et al.[63] (2019), who reported a higher prevalence of mood and behavioural symptoms in breakfast-skipping children". Similarly, Nina et al.[64] (2016) observed that inadequate physical activity was linked to increased irritability and inattention.

Interestingly, a non-significant trend was observed in the association between breakfast skipping and specific phobia and ADHD, echoing findings from Smith et al.[65] (2010) and Mahoney et al.[66] (2005), who suggested that irregular meal patterns may affect attention and emotional regulation through glycemic fluctuations.

Among all comparisons, the most significant finding was the association between enuresis and undernutrition. This relationship was found to be statistically significant ($p = 0.008$), affirming results from Neveus et al.[67] (2010) and Cuneyt et al. [68](2013), who also observed a link between lower BMI and higher prevalence of nocturnal enuresis in children. The underlying mechanisms proposed include poor muscular development, altered hormonal rhythms (e.g., ADH secretion), and psychosocial stress—factors potentially more pronounced in malnourished children. This finding underlines the importance of integrating nutritional assessments into behavioural health evaluations, especially in rural paediatric populations.

"The present study provides key insights into the association between physical activity levels and specific emotional and behavioural disorders. A statistically significant

association was observed between low MVPA (<60 minutes/day) and both ADHD and Conduct Disorder (p = 0.033 for both). This supports existing literature, which has highlighted the protective effects of regular physical activity on externalizing disorders, particularly ADHD."

For example, "Smith et al.[69] (2013) and Lubans et al.[70] (2016) have reported that structured physical activity programs result in significant improvements in executive function, self-regulation, and behavioural control among children with ADHD and disruptive behaviour disorders. The neurobiological mechanisms behind these effects are attributed to improved dopamine regulation, increased endorphin release, and better sleep quality, all of which influence emotional regulation and attentional processes."

In contrast, "internalizing disorders like generalized anxiety disorder, social anxiety, and specific phobia did not show statistically significant associations with MVPA in this study, though some trends (e.g., social anxiety more frequent in the low activity group) were observed." This finding is consistent with studies such as Biddle and Asare[59] (2011), who noted that while physical activity tends to benefit mood and anxiety symptoms, the impact may be modest unless combined with other lifestyle or therapeutic interventions.

Importantly, these results suggest that physical inactivity may play a more prominent role in the development or exacerbation of externalizing symptoms (like aggression and hyperactivity) rather than internalizing symptoms. This distinction is crucial in tailoring interventions: children with ADHD or conduct disorders might benefit significantly from structured physical activity programs, while those with anxiety disorders may require more comprehensive psychosocial interventions alongside lifestyle modifications.

Furthermore, while most children (93.2%) in the study engaged in adequate MVPA (>60 minutes/day), the subgroup of inactive children exhibited disproportionately higher rates of ADHD and conduct disorder, emphasizing the need to monitor and promote daily physical activity, particularly in high-risk groups.

STRENGTHS AND LIMITATIONS

The study provides a comprehensive assessment of child health, focusing on nutritional status and emotional and behavioural disorders. “It includes a representative age group, validated tools, and lifestyle factors such as physical activity and breakfast habits.” The study also uses standardized tools to classify behavioural disorders and nutritional status, enhancing the reliability of findings. The findings are applicable to community health and school-based programs, as they reflect conditions in a typical paediatric population.

However, “the study has limitations, including a cross-sectional design, a small sample size, potential reporting bias, lack of control for confounding factors, geographical limitations, and a limited dietary assessment. The cross-sectional design limits the generalizability of the findings, while the small sample size may introduce recall or social desirability bias. Additionally, the study may not be generalizable to populations with different cultural or dietary backgrounds.” The study may also not account for regional health patterns and may not be generalizable to populations with different cultural or dietary backgrounds.

CONCLUSION

CONCLUSION

"This study aimed to explore the distribution of emotional and behavioural disorders among children aged 5 to 12 years and their association with nutritional status and lifestyle habits. The findings indicate that social anxiety (32.0%), generalized anxiety disorder (30.1%), and specific phobia (28.2%) were the most commonly observed emotional/behavioural disorders in the study population. While most disorders did not show a statistically significant association with nutritional status or lifestyle habits such as breakfast skipping or physical activity levels, enuresis was significantly associated with nutritional status ($p = 0.008$), suggesting that undernutrition may play a role in its occurrence."

The majority of children had a normal nutritional status (70.9%), and a large proportion engaged in adequate physical activity (93.2%) and reported regular breakfast consumption (89.3%). These results underline the importance of a balanced nutritional and lifestyle pattern in children but also highlight that emotional and behavioural health issues can occur regardless of these factors

SUMMARY

SUMMARY

This study involved 103 children aged 5 to 12 years to explore the relationships between their nutritional status, emotional and behavioral disorders, and lifestyle habits. The median age of the participants was 9 years, with a slightly higher number of males (55.3%) than females (44.7%).

Anthropometric analysis showed that "the average height and weight were 131.5 cm and 28.7 kg, respectively. Body Mass Index (BMI) assessment classified most children (70.9%) as having a normal weight, while the rest were categorized as underweight (6.8%), overweight (12.6%), or obese (9.7%)."

Among emotional and behavioural conditions, social anxiety (32%), generalized anxiety disorder (30.1%), and specific phobia (28.2%) were the most prevalent. Disorders like ADHD, autism, and conduct disorder were less common. Importantly, only enuresis (bedwetting) showed a statistically significant relationship with nutritional status ($p = 0.008$), suggesting a potential link between weight and this condition.

Regarding lifestyle habits, 10.7% of children reported skipping breakfast, and 6.8% engaged in less than the recommended 60 minutes of physical activity daily. However, these habits did not show significant associations with either nutritional status or the presence of emotional and behavioural disorders.

The findings emphasize that while most emotional and behavioral conditions do not appear to be directly related to nutritional or lifestyle factors, enuresis stands out as a condition that may be influenced by nutritional status. This highlights the importance of monitoring weight in managing specific paediatric disorders.

RECOMMENDATIONS

Regular mental health screenings and nutritional support are crucial for early identification and treatment of EBD in children. Enuresis is linked to nutritional status, so monitoring children's growth and BMI is essential. Parents should be educated about common behavioural disorders and the importance of balanced nutrition and routines. A multidisciplinary approach involving paediatricians, psychologists, nutritionists, and educators is essential for comprehensive assessment and management. Further research is needed to understand the complex interplay between nutrition, lifestyle, and psychological well-being in children.

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ANNEXURE

ANNEXURE

PATIENT INFORMATION SHEET

A STUDY ON ASSOCIATION OF NUTRITIONAL STATUS AND LIFE STYLE HABITS IN CHILDREN AGED 5-12 YEARS HAVING EMOTIONAL AND BEHAVIORAL DISORDER ATTENDING RURAL TERTIARY HEALTH CARE CENTRE

Principal Investigator: DR BHARGAVI S

I Dr Bhargavi S, Post graduate student in Department of paediatrics at Sri Devraj Urs Medical College, will be conducting a study titled **"**A study on association of nutritional status and life style habits in children aged 5-12 years having emotional and behavioral disorder attending rural tertiary health care centre", for my dissertation under the guidance of Dr.K.N.V. Prasad ,Professor , Department of Paediatrics. The participants of this study include All children between the age group of 5 to12 years visiting the paediatrics OPD at RL Jalappa hospital , All the parents or guardians of each children will be given the Child Symptom Inventory (CSI)-4[4] questionnaire or the investigator himself/herself ask the parents questions from questionnaire in their own local language, You will not be paid any financial compensation for the participation of your child in this research project. The financial expenditure if required for tests will be take care by principal investigator.

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 of the Principal Investigator

Contact number :9845988944

Date-

ರೋಗಿಯ ಮಾಹಿತಿ ಹಾಳೆ

ಭಾವನಾತ್ಮಕ ಮತ್ತು ವರ್ತನೆಯ ಅಸ್ವಸ್ಥತೆಯನ್ನು ಹೊಂದಿರುವ 6-12 ವರ್ಷ ವಯಸ್ಸಿನ ಮಕ್ಕಳಲ್ಲಿ ಪೌಷ್ಟಿಕಾಂಶದ ಸ್ಥಿತಿ ಮತ್ತು ಜೀವನ ಶೈಲಿಯ ಅಭ್ಯಾಸಗಳ ಸಂಬಂಧದ ಕುರಿತು ಒಂದು ಅಡ್ಡ ವಿಭಾಗದ ಅಧ್ಯಯನ

ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿ: ಡಿಆರ್ ಭಾರ್ಗವಿ ಎಸ್

ಶ್ರೀ ದೇವರಾಜ್ ಅರ್ಸ್ ಮೆಡಿಕಲ್ ಕಾಲೇಜಿನಲ್ಲಿ ಮಕ್ಕಳ ವಿಭಾಗದ ಸ್ನಾತಕೋತ್ತರ ವಿದ್ಯಾರ್ಥಿನಿ ಡಾ ಭಾರ್ಗವಿ ಎಸ್ ಅವರು 6-12 ವರ್ಷ ವಯಸ್ಸಿನ ಮಕ್ಕಳಲ್ಲಿ ಭಾವನಾತ್ಮಕ ಮತ್ತು ನಡವಳಿಕೆಯ ಅಸ್ವಸ್ಥತೆಯನ್ನು ಹೊಂದಿರುವ ಪೌಷ್ಟಿಕಾಂಶದ ಸ್ಥಿತಿ ಮತ್ತು ಜೀವನ ಶೈಲಿಯ ಅಭ್ಯಾಸಗಳ ಸಂಯೋಜನೆಯ ಕುರಿತು ಒಂದು ಅಡ್ಡ ವಿಭಾಗೀಯ ಅಧ್ಯಯನವನ್ನು ನಡೆಸಲಿದ್ದಾರೆ. ಗ್ರಾಮೀಣ ತೃತೀಯ ಆರೋಗ್ಯ ಕೇಂದ್ರಕ್ಕೆ", ಡಾ.ಕೆ.ಎನ್.ವಿ.ಯವರ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ನನ್ನ ಪ್ರಬಂಧಕ್ಕಾಗಿ. ಪ್ರಸಾದ್, ಪ್ರಾಧ್ಯಾಪಕರು, ಮಕ್ಕಳ ವಿಭಾಗ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಿದವರಲ್ಲಿ ಆರ್ಎಲ್ ಜಾಲಪ್ಪ ಆಸ್ಪತ್ರೆಯಲ್ಲಿ ಪೀಡಿಯಾಟ್ರಿಕ್ಸ್ ಒಪಿಡಿಗೆ ಭೇಟಿ ನೀಡುವ 6 ರಿಂದ 12 ವರ್ಷದೊಳಗಿನ ಎಲ್ಲಾ ಮಕ್ಕಳು ಸೇರಿದ್ದಾರೆ, ಪ್ರತಿ ಮಗುವಿನ ಎಲ್ಲಾ ಪೋಷಕರು ಅಥವಾ ಪೋಷಕರಿಗೆ ಮಕ್ಕಳ ರೋಗಲಕ್ಷಣದ ದಾಸ್ತಾನು (ಸಿಎಸ್ಐ) -44 ಅಥವಾ ತನಿಖಾಧಿಕಾರಿಗೆ ನೀಡಲಾಗುತ್ತದೆ. ತಾವೇ ಪೋಷಕರನ್ನು ಅವರದೇ ಸ್ಥಳೀಯ ಭಾಷೆಯಲ್ಲಿ ಕೇಳಿಕೊಳ್ಳಿ ಈ ಸಂಶೋಧನಾ ಯೋಜನೆಯಲ್ಲಿ ನಿಮ್ಮ ಮಗುವಿನ ಭಾಗವಹಿಸುವಿಕೆಗಾಗಿ ನಿಮಗೆ ಯಾವುದೇ ಹಣಕಾಸಿನ ಪರಿಹಾರವನ್ನು ನೀಡಲಾಗುವುದಿಲ್ಲ. ಪರೀಕ್ಷೆಗಳಿಗೆ ಅಗತ್ಯವಿದ್ದಲ್ಲಿ ಹಣಕಾಸಿನ ವೆಚ್ಚವನ್ನು ಪ್ರಧಾನ ತನಿಖಾಧಿಕಾರಿಗಳು ನೋಡಿಕೊಳ್ಳುತ್ತಾರೆ.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

ಸಂಪರ್ಕ ಸಂಖ್ಯೆ :9845988944

ದಿನಾಂಕ-

INFORMED CONSENT FORM

Date:

I, Mr/Mrs _____ , have been explained in my own vernacular language that my child will be included in "**A STUDY ON ASSOCIATION OF NUTRITIONAL STATUS AND LIFE STYLE HABITS IN CHILDREN AGED 5-12 YEARS HAVING EMOTIONAL AND BEHAVIORAL DISORDER ATTENDING RURAL TERTIARY HEALTH CARE CENTRE"** 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. 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 Patient attendant/mother) : ……...

(signature & name of researcher person/doctor) : …….

(Relation with patient)

Witness:

ಮಾಹಿತಿ ನೀಡಿದ ಒಪ್ಪಿಗೆ ನಮೂನೆ

ದಿನಾಂಕ:

ನಾನು, ಶ್ರೀ/ಶ್ರೀಮತಿ _____ , ನನ್ನ ಮಗುವನ್ನು "6 ವರ್ಷ ವಯಸ್ಸಿನ ಮಕ್ಕಳ ಜೀವನ ಶೈಲಿ ಮತ್ತು ಜೀವನಶೈಲಿ ಅಭ್ಯಾಸಗಳ 6 ನೇ ವಯಸ್ಸಿನಲ್ಲಿ-12 ನೇ ವಯಸ್ಸಿನಲ್ಲಿ ಪೌಷ್ಠಿಕಾಂಶದ ಸ್ಥಿತಿ ಮತ್ತು ಜೀವನಶೈಲಿಗಳ ಸಂಬಂಧದ ಕುರಿತಾದ ಅಡ್ಡ ವಿಭಾಗದ ಅಧ್ಯಯನದಲ್ಲಿ ಸೇರಿಸಲಾಗುವುದು. ಗ್ರಾಮೀಣ ತೃತೀಯ ಆರೋಗ್ಯ ಕೇರ್ ಸೆಂಟರ್", ಈ ಮೂಲಕ ನಾನು ಹೆಮಟೊಲಾಜಿಕಲ್ ಮತ್ತು ಕ್ಲಿನಿಕಲ್ ನಿಯತಾಂಕಗಳ ಅವಲೋಕನಗಳನ್ನು ದಾಖಲಿಸಲು ಯಾವುದೇ ಬಲ ಅಥವಾ ಪೂರ್ವಾಗ್ರಹವಿಲ್ಲದೆ ನನ್ನ ಮಾನ್ಯ ಲಿಖಿತ ತಿಳುವಳಿಕೆಯನ್ನು ನೀಡುತ್ತೇನೆ. 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. ಎಲ್ಲಾ ಡೇಟಾವನ್ನು ಪ್ರಕಟಿಸಬಹುದು ಅಥವಾ ಯಾವುದೇ ಶೈಕ್ಷಣಿಕ ಉದ್ದೇಶಕ್ಕಾಗಿ ಬಳಸಬಹುದು. ಕಾರ್ಯವಿಧಾನ / ಅಧ್ಯಯನದ ಸಮಯದಲ್ಲಿ ಯಾವುದೇ ಅಹಿತಕರ ಪರಿಣಾಮಗಳಿಗೆ ನಾನು ವೈದ್ಯರು / ಸಂಸ್ಥೆ ಇತ್ಯಾದಿಗಳನ್ನು ಹೊಣೆಗಾರರನ್ನಾಗಿ ಮಾಡುವುದಿಲ್ಲ.

(ರೋಗಿಯ ಪರಿಚಾರಕ ವ್ಯಕ್ತಿ /ತಾಯಿ ಸಹಿ ಮತ್ತು ಹೆಸರು) .....

(ಸಂಶೋಧಕರ/ವೈದ್ಯ ಸಹಿ ಮತ್ತು ಹೆಸರು).....

(ರೋಗಿಯೊಂದಿಗಿನ ಸಂಬಂಧ)

ಸಾಕ್ಷಿ:

PROFOMA

Child Symptom Inventory-4: Parent Checklist 5-12 Years Old

Name:

Gender:

DOB:

Age:

Date:

Name of Person Completing Form:

Relation to Child:

Directions: Check which rating best describes your child's overall behavior. Answer each question to the best of your ability.

CATEGORY A	NEVER	SOMETIMES	OFTEN	VERY OFTEN
1. Fails to give close attention to details or makes careless mistakes				
. 2. Has difficulty paying attention to tasks or play activities				
3.Does not seem to listen when spoken to directly.				
4. Has difficulty following through on instructions and fails to finish things.				
5. Has difficulty organizing tasks and activities.				
6. Avoids doing tasks that require a lot of mental effort (schoolwork, homework, etc.).				
7. Loses things necessary for activities				
8. Is easily distracted by other things going on.				

9. Is forgetful in daily activities.				
10. Fidgets with hands or feet or squirms in seat.				
11. Has difficulty remaining seated when asked to do so.				
12. Runs about or climbs on things when asked not to do so.				
13. Has difficulty playing quietly.				
. 14. Is “on the go” or acts as if “driven by a motor.”				
15. Talks excessively.				
16. Blurts out answers to questions before they have been completed				
17. Has difficulty awaiting turn in group activities.				
18. Interrupts people or butts into other children’s activities.				

CATEGORY B	NEVER	SOMETIMES	OFTEN	VERYOFTEN
19. Loses temper				
20. Argues with adults.				
21. Defies or refuses what you tell him/her to do.				
22. Does things to deliberately annoy others.				
23. Blames others for own misbehaviour or mistakes.				
24. Is touchy or easily annoyed by				

others.				
25. Is angry and resentful.				
26. Takes anger out on others or tries to get eve				

CATEGORY C	NEVER	SOMETIMES	OFTEN	VERYOFTEN
27. Plays hooky from school.				
28. Stays out at night when not supposed to.				
29. Lies to get things or to avoid responsibilities (cons others)				
30. Bullies, threatens or intimidates others				
31. Starts physical fights.				
32. Has runaway from home overnight.				
33. Has stolen things when others were not looking.				
34. Has deliberately destroyed others' property.				
35. Has deliberately started fires.				
36. Has stolen things from others using physical force.				
37. Has broken into someone else's house, building, or car.				
38. Has used a weapon when fighting (bat, brick, bottle, etc.)				
39. Has been physically cruel to animals.				

40. Has been physically cruel to people.				
41. Has been preoccupied with or involved in sexual activity				

CATEGORY D	NEVER	SOMETIMES	OFTEN	VERY OFTEN
42. Is overly concerned about abilities in academic, athletic, or social activities.				
43. Has difficulty controlling worries				
44. Acts restless or edgy				
45. Is irritable for most of the day.				
46. Is extremely tense or unable to relax				
47. Has difficulty falling asleep or staying asleep.				
48. Complains about physical problems (headaches, upset stomach, etc.) for which there is no				

apparent cause.				

CATEGORY E	NEVER	SOMETIMES	OFTEN	VERY OFTEN
49. Shows excessive fear to specific objects or situations (animals, heights, storms, insects, etc.)				
50. Cannot get distressing thoughts out of his/her mind (worries about germs and doing things perfectly, etc.)				
51. Feels compelled to perform usual habits (hand washing checking locks, repeating things a set number of times.)				
52. Has experienced an extremely upsetting event and continues to be bothered by it.				
53. Does unusual movements for no apparent reason (eye blinking, twitching, lip licking, head jerking, etc.)				
54. Makes vocal sounds for no apparent reason (coughing, throat clearing, sniffing ,grunting etc)				

CATEGORY F	NEVER	SOMETIMES	OFTEN	VERYOFTEN
55. Has strange ideas or beliefs that are not real (child's food is poisoned, people are trying to get him/her, etc.)				
56. Has auditory hallucinations. Hears voices talking to or telling him/her to do things.				
57. Has extremely strange or illogical thoughts or ideas.				

58. Laughs or cries at inappropriate times or shows no emotion in situations where most others of same age would react.				
59. Does extremely odd things (excessive preoccupation with fantasy friends, talks to self in a strange way, etc.)				

CATEGORY G

60. Is depressed for most of the day.				
61. Shows little interest in (or enjoyment of) pleasurable activities.				
62. Has recurrent thoughts of death or suicide.				
63. Feels worthless or guilty.				
64. Has low energy level or is tired for no apparent reason.				
65. Has little confidence or is very self-conscious.				
66. Feels that things never work out right				

CIRCLE YES or NO

67. Has experienced a big change in his/her normal appetite or weight.	YES	NO
68. Has experienced a big change in his/her normal sleeping habits -- cannot sleep or sleeps too much.	YES	NO

69. Has experienced a big change in his/her normal activity level -- overactive or inactive.	YES	NO
70. Has experienced a big change in his/her ability to concentrate.	YES	NO
71. Has experienced a big drop in school grades or school work.	YES	NO

CATEGORY H	NEVER	SOMETIMES	OFTEN	VERY OFTEN
72. Has a peculiar way of relating to others (avoids eye contact, odd facial expressions or gestures, etc.)				
73. Does not play or relate well with other children				
74. Not interested in making friends				
75. Is unaware or takes no interest in other people's feelings				
76. Has a significant problem with language				
77. Has difficulty making socially appropriate conversation				
78. Talks in a strange way (repeats what others say; confuses words like "you" and "i"; uses odd words or phrases, etc.)				
79. Is unable to "pretend" or "make believe" when playing				
80. Shows excessive preoccupation with one topic				

81. Gets very upset over small changes in routine or surroundings				
82. Makes strange repetitive movements (flapping arms, etc.)				
83. Has strange fascination for parts of objects				

CATEGORY I	NEVER	SOMETIMES	OFTEN	VERY OFTEN
84. Tries to avoid contact with strangers; abnormally shy				
85. Is excessively shy with peers				
86. Is generally warm and outgoing with family members and familiar adults				
87. when put in an uncomfortable social situation, child cries, freezes, or withdraws from interacting				

CATEGORY J	NEVER	SOMETIMES	OFTEN	VERY OFTEN
88. Gets very upset when child expects to be separated from home or parents				

89. Worries that parents will be hurt or leave home and not come back				
90. Worries that some disaster (getting lost, kidnapped, etc.) Will separate child from parents				
91. Tries to avoid going to school in order to stay home with parent				
92. Worries about being left at home alone or with a sitter				
93. Afraid to go to sleep unless near parent				
94. Has nightmares about being separated from parent				
95. Complains about feeling sick when child expects to be separated 96. Wets bed at night				
97. Wets or soils underwear				

during daytime hours				

ANTROPOMETRY

PARAMETER	ACTUAL	EXPECTED	PERCENTILE	IMPRESSION
Weight				
Height				
BMI				

LIFESTYLE HABITS

BREAKFAST SKIPPING	YES	NO	
MVPA-Moderate to vigorous intensity physical activity	<60 minutes	≥60 minutes	
WAKE UP TIME	<6:00am 6:00am-6:30am 6:30am – 8:29am		
BED TIME	7:00pm-8:59pm 9:00pm-9:59pm 10:00pm-11:59pm		

MASTER CHART

UHID	AGE	DOB	GENDER	PARENTS NAME	PLACE	WEIGHT	HEIGHT	BMI	NUTRITIONAL STATUS	ADHD	AUTISM	CONDUCT DISORDER	ODD	GAD	SAD	SOCIAL ANXIETY	SPECIFI+S1:S44C PHOBIA	OCD	POST TRAUMATIC STRESS DISORDER	SOMATOFORM DISORDER	TIC	ENURESIS	BREAKFAST SKIPPING	MVPA
257453	8y	11/07/2015	female	lokesha	kolar	18.9kg	121cm	13	NORMAL	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
315489	6Y	24/12/2017	MALE	RAGHAVENDRA	KOLAR	26.9KG	125CM	17.2	OVER WEIGHT	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
256017	7Y	07/07/2016	MALE	ABDUL RAZAK	KOLAR	17.8KG	118.5CM	12.9	NORMAL	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
319643	9Y	12/07/2014	MALE	BHARATH PRASAD	KOLAR	40.6KG	134CM	23.5	OBESE	present	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	YES	<60MIN
256876	7Y	10/07/2016	MALE	MANJUNATH	KGF	29KG	127CM	18.5	OBESE	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
316017	8Y	06/12/2016	MALE	MALLIKARJUNAIHA	KOLAR	29.5KG	131CM	17.5	OVER WEIGHT	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
258483	10Y	13/07/2013	female	MANJUNATH	kolar	30.8KG	132CM	18	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
316674	8Y	07/12/2015	female	USHA	kolar	22.3KG	121CM	15.7	NORMAL	no	PRSENT	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
316667	9Y	07/12/2015	MALE	ASFAQ	kolar	23.1KG	122CM	15.5	NORMAL	no	NO	NO	present	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
316680	8Y	07/11/2015	female	HARISH	kolar	31.9KG	129.5CM	19.2	OVER WEIGHT	no	NO	NO	NO	NO	NO	PRESENT	PRESENT	NO	NO	NO	NO	PRESENT	NO	>60MIN
316630	7Y	17/10/2016	female	LAKSHMI	kolar	21.9KG	120CM	16	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
257515	9Y	11/07/2014	MALE	DEVRAJ	kolar	27KG	127.5CM	14.2	NORMAL	present	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
257530	8Y	11/07/2015	MALE	SRINATH	kolar	25.7KG	131CM	15.2	NORMAL	no	NO	NO	NO	NO	NO	no	NO	present	NO	NO	NO	NO	NO	>60MIN
316431	8Y	16/12/2015	MALE	MOHAMMED	kolar	32KG	126CM	20.2	OBESE	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
263044	12Y	02/02/2011	female	MANJULA	kolar	54.5KG	153CM	23.5	OVER WEIGHT	no	NO	NO	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	NO	>60MIN
261345	7Y	06/12/2016	female	KRISHNA GOWDA	kolar	17KG	111CM	13.8	NORMAL	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	>60MIN
314992	5Y	04/12/2018	MALE	RAVI A	kolar	15.3KG	109CM	14.8	NORMAL	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
321567	12Y	19/01/2011	female	SARVESH KUMAR	kolar	48KG	160CM	19.2	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
325509	11Y	02/12/2012	female	SRIDEVI	kolar	37KG	150CM	16.4	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
356004	7Y	11/07/2016	MALE	RAGHUNATH	kolar	24KG	124CM	15.6	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	<60MIN
255473	6Y	06/06/2017	female	RAMESH BABU	KOLAR	17.2KG	113CM	14.1	NORMAL	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	YES	>60MIN
256013	7Y	07/07/2014	female	MACHINDRA SATE	kolar	18.7KG	121CM	12.8	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	>60MIN
254989	7Y	05/07/2017	MALE	JYOTHI	kolar	17.2KG	117CM	12.6	NORMAL	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
256008	5Y	12/07/2018	female	SATHISH KUMAR	kolar	18.4KG	120CM	12.7	NORMAL	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
254929	7Y	05/05/2017	MALE	ASHOK	kolar	18.7KG	115CM	14.3	NORMAL	present	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
319645	9Y	12/12/2014	MALE	UMESHA	kolar	22KG	130CM	13	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
263838	12Y	27/07/2011	MALE	RAMANI	kolar	57.4KG	156CM	25.1	OBESE	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
263003	12Y	25/07/2011	female	NAGESH	kolar	63.9KG	151CM	28	OBESE	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
260346	10Y	18/07/2013	MALE	JAGADISH	kolar	23KG	130.5CM	13.6	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
257897	8Y	12/07/2015	MALE	MANASA	kolar	29.4KG	127CM	18.6	OVER WEIGHT	no	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
315641	6Y	13/03/2017	female	WASEEM PASHA	kolar	18.2KG	116CM	13.5	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
314987	6Y	04/12/2017	MALE	VENKATESH	kolar	18.7KG	116CM	13.8	NORMAL	no	NO	NO	NO	PRRESENT	NO	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
315446	6Y	05/07/2017	MALE	JAYA PRAKASH	kolar	18KG	122CM	12.1	UNDER WEIGHT	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	PRESENT	NO	>60MIN
317273	9Y	08/12/2014	female	NAGARAJA	kolar	24.5KG	125CM	16	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
328503	12Y	08/03/2011	MALE	PAPANNA	kolar	44KG	150CM	19.5	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
315020	6Y	07/04/2017	MALE	ARIFULLA	kolar	18KG	114CM	14	NORMAL	no	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	<60MIN

315003	6Y	04/12/2017	MALE	NAGESH	kolar	18.7KG	112CM	15.5	NORMAL	no	NO	PRESENT	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
314912	6Y	09/08/2017	MALE	JAYASANKAR	kolar	19.3KG	113CM	15.7	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
315563	6Y	05/11/2017	MALE	PUSHPA	kolar	15.4KG	104CM	14.8	NORMAL	present	NO	NO	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	YES	>60MIN
352843	12Y	07/02/2012	female	VENKATAPPA	kolar	38KG	138CM	20.5	NORMAL	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
446318	11Y	11/06/2013	MALE	BHARATH PRASAD	KOLAR	43KG	146CM	20.1	OVER WEIGHT	no	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
446218	12Y	12/03/2012	FEMALE	CHALAPATHI	KOLAR	32.3KG	145CM	15.3	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
435677	9Y	29/05/2015	female	KHADAR	KGF	34.1KG	148CM	15.5	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
455210	5Y	01/03/2019	MALE	VINUTHA	KANAKPURA	11.2KG	98.5CM	11.6	UNDER WEIGHT	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
468537	10Y	02/12/2013	female	SYED ASLAM	kolar	21.5KG	128CM	13.1	NORMAL	no	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	YES	>60MIN
468535	10Y	07/03/2014	female	NAGARAJA	kolar	24KG	135CM	13.1	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
456308	11Y	22/08/2012	female	SADIKA	MALUR	33KG	145CM	15.7	NORMAL	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
455917	12Y	05/02/2012	female	RAJASHEKARA	KGF	42KG	149CM	18.9	NORMAL	no	NO	NO	NO	PRESENT	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
456114	11Y	01/01/2024	MALE	TAHIR MOHAMMAD	kolar	22.7KG	126CM	14.5	NORMAL	no	present	NO	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	NO	>60MIN
4688539	11Y	10/07/2013	female	MASTHAN PASHA	MULBAGAL	23.6KG	134CM	13.2	NORMAL	no	NO	NO	NO	NO	NO	NO	PRESENT	no	NO	NO	PRESENT	PRESENT	NO	>60MIN
468516	11Y	05/05/2013	female	RAGHAVENDRA CHARY	MULBAGAL	21KG	130CM	12.4	UNDER WEIGHT	no	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
468526	9Y	12/01/2015	female	RAKESH	MULBAGAL	32KG	134CM	17.9	OVER WEIGHT	present	NO	PRESENT	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	<60MIN
468524	12Y	01/02/2012	MALE	KHALID	MULBAGAL	32KG	156CM	13.1	UNDER WEIGHT	no	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
452569	6Y	02/08/2019	MALE	PAVAN	DODDABALLAPUR	20.7KG	108CM	17.8	OVER WEIGHT	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
297736	8Y	25/10/2016	MALE	DEEPAK(BROTHER)	MALUR	22.5KG	123CM	14.9	NORMAL	no	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
544757	6Y	03/12/2019	MALE	MANIKANTA	MALUR	22KG	110CM	18.1	OBESE	NO	NO	NO	NO	PRESENT	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
490628	12Y	18/01/2012	MALE	SWLF	kolar	38.7KG	161CM	14.88	NORMAL	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
490621	11Y	18/08/2013	female	SUNILKUMAR	kolar	65.6KG	157CM	25.6	OBESE	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
490758	11Y	25/08/2024	MALE	SELF	SRINIVASPURA	36.8KG	154CM	15.5	NORMAL	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
490891	11Y	2//7/2013	female	S.PASHA	MULBAGAL	38.2KG	142CM	19	NORMAL	present	NO	NO	NO	NO	NO	PRESENT	NO	present	NO	NO	NO	NO	NO	>60MIN
490730	10Y	21/12/2014	MALE	SELF	KOLAR	31.6KG	138CM	16.8	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
484656	12Y	04/09/2011	MALE	LEO EDISON	kolar	60KG	170CM	20.7	OVER WEIGHT	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	PRESENT	>60MIN
533613	12Y	05/07/2011	MALE	SUNIK NAYAK	MALUR	46KG	158CM	18.4	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	YES	>60MIN
481228	10Y	11/01/2014	female	BYRAPPA	kolar	24KG	130CM	14.2	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
489196	7Y	20/10/2016	female	ROYSTON	KGF	34KG	121CM	23.2	OBESE	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
489235	5Y	05/09/2018	female	PRADEEP	KGF	24KG	118CM	17.3	OVER WEIGHT	NO	NO	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
491523	12Y	21/10/2011	MALE	SHIVAPPA	BANGARPETE	45.5KG	170CM	15.7	NORMAL	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
493216	12Y	03/04/2012	MALE	PRAVEEN KUMAR	KGF	37KG	154CM	15.6	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	<60MIN
493980	11Y	06/08/2013	female	SUBRAMANI	kolar	37KG	148CM	16.8	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
498932	5Y	27/08/2019	female	ARUN KUMAR	kolar	18.8KG	108CM	16.2	OVER WEIGHT	NO	NO	NO	NO	PRESENT	NO	NO	NO	present	NO	NO	NO	NO	NO	>60MIN
505872	7Y	12/06/2017	female	SURENDRABABU	kolar	25KG	123CM	16.5	NORMAL	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
509405	6Y	09/08/2018	MALE	PRAVEEN KUMAR	KGF	17.9KG	118CM	12.8	NORMAL	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
515251	9Y	27/07/2015	MALE	KHIZAR ULLLA	kolar	15.8KG	116CM	11.7	UNDER WEIGHT	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
519099	12Y	29/03/3321	female	SYED ASIF	BANGLORE	34.3KG	144CM	16.5	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
523873	11Y	01/11/2013	MALE	MANJUNATH	KGF	39KG	149CM	17.5	NORMAL	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
523742	12Y	03/06/2012	MALE	RAVI KUMAR	kolar	42KG	150CM	18.6	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN

513945	10Y	02/01/2015	MALE	MANJUNATH	HOSKOTE	57KG	155CM	23.3	OBESE	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	>60MIN
548199	6Y	17/12/2019	MALE	JAGADISH	NARSAPURA	16.7KG	113CM	12.6	NORMAL	NO	NO	NO	present	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
547455	9Y	16/06/2016	MALE	PRADEEP	kolar	30KG	139CM	15.5	NORMAL	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
538242	11Y	12/03/2014	female	VENKATAPPA	MULBAGAL	35KG	146CM	16.4	NORMAL	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
546013	6Y	11/08/2019	MALE	SHIVRAJ	SRINIVASPURA	18.5KG	120CM	12.8	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
544143	11Y	09/10/2014	MALE	CHANDRAPPA	kolar	39KG	144CM	18.8	OVER WEIGHT	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
544726	12Y	06/04/2012	female	RAJENDRA	BANGARPETE	43KG	156CM	14.4	NORMAL	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
542966	11Y	31/03/2014	MALE	RUDRESH	kolar	35KG	156CM	14.4	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	<60MIN
540326	10Y	11/12/2015	MALE	SRINATH	kolar	50KG	157CM	23.1	OBESE	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	PRESENT	NO	NO	>60MIN
582804	7y	29/01/2017	female	NITYA NANDHA	KGF	23KG	118CM	16.5	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
568123	9Y	12/04/2015	female	MOMEEN	MULBAGAL	28KG	140CM	14.2	NORMAL	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
587796	10Y	2//2/2014	MALE	KUMAR	kolar	33KG	140CM	17	NORMAL	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
582801	7Y	09/07/2018	female	AMARESH	MALUR	20KG	122CM	13.4	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
592533	10Y	04/05/2015	MALE	SHAKTHI	kolar	24KG	138CM	12.6	UNDER WEIGHT	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
539846	5Y	30/06/2020	MALE	CHANDRASHEKAR	kolar	16KG	108CM	13.7	NORMAL	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
594353	12Y	17/7/1013	MALE	AROGYAPPA	BANGARPETE	30KG	145CM	14.3	NORMAL	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
406892	9Y	15/04/2016	MALE	MANJUNATH	MULBAGAL	20KG	120CM	14.6	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
594657	8Y	12/02/2017	female	SANJEEEV REDDY	kolar	29KG	138CM	15.2	NORMAL	NO	NO	NO	present	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
595437	9Y	29/04/2015	female	ANJAPPA	MULBAGAL	22KG	126CM	13.9	NORMAL	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
591900	8Y	02/08/2016	female	MAHESG	BETHMANGLA	20KG	126CM	12.6	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	YES	>60MIN
594698	5Y	16/08/2019	female	ASHOK KUMAR REDDY	MULBAGAL	17KG	108CM	14.6	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
587771	5Y	03/11/2019	female	VENKATACHALAPATHY	BANGARPETE	15.7KG	99CM	16	OVER WEIGHT	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
536005	6Y	25/11/2018	MALE	RAGHUNATH	kolar	17KG	108CM	14.6	NORMAL	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	NO	>60MIN
526093	12Y	07/10/2013	MALE	JAGANATH	kolar	36KG	140CM	18.4	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	NO	NO	NO	NO	NO	NO	NO	>60MIN
524785	11Y	04/04/2014	MALE	GIRISH H	BANGARPETE	21KG	135CM	11.5	UNDER WEIGHT	NO	NO	NO	NO	NO	NO	PRESENT	NO	no	NO	NO	NO	PRESENT	no	<60MIN
526458	11Y	07/06/2014	female	UMA PATHY	kolar	28KG	137CM	17.1	NORMAL	NO	NO	PRESENT	NO	NO	NO	NO	NO	no	NO	NO	NO	no	no	>60MIN
526384	5Y	01/07/2019	female	SRI MURALI	SRINIVASPURA	15KG	107CM	13.1	NORMAL	NO	NO	NO	NO	NO	NO	NO	PRESENT	no	NO	NO	NO	no	no	>60MIN
										8	5	8	7	31	4	33	28	6	0	0	3	6	11	7