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**“ASSESSMENT OF MENTAL HEALTH  
STATUS AMONG HIGH SCHOOL  
STUDENTS IN AN URBAN AREA  
– A CROSS-SECTIONAL STUDY”**

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(REG. NO. BD0122010)**

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JAWAHARLAL NEHRU MEDICAL COLLEGE, KAHER, BELAGAVI,  
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**MARCH 2025**

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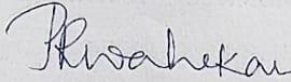
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## LIST OF ABBREVIATIONS USED

S.No.	Abbreviation	Expansion
1	WHO	World Health Organisation
2	ADHD	Attention Deficit Hyperactivity Disorder
3	SDQ	Strengths and Difficulties Questionnaire
4	TDS	Total Difficulties Score
4	STAI	State-Trait Anxiety Inventory
5	SD	Standard Deviation
6	M	Mean
7	C.I	Confidence Interval
8	MINI-Kid	Mini International Neuropsychiatric Inventory for Children
9	DSM	Diagnostic and Statistical Manual of mental disorders
10	$\chi^2$	Chi - square
11	PUC	Pre-University College
12	NGO	Non - Governmental organization
13	CPI	Consumer Price Index

14	MF	Multiplication Factor
15	SES	Socio Economic Status
16	EPS	Emotional Problem Score
17	PPS	Peer Problem Score
18	HS	Hyperactivity Score
19	TSQ	Teenage Screening Questionnaire
20	HC	Health Coaching
21	CFA	Confirmatory Factor Analysis
22	OR	Odd's Ratio
23	AOR	Adjusted Odd's Ratio
24	PTSD	Post-Traumatic Stress Disorder
25	USA	United States of America
26	PSCD	Perceived Social Class Discrimination
27	SPSS	Statistical Package for Social Sciences

## ABSTRACT

### ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA – A CROSS-SECTIONAL STUDY

#### **Background:**

Health is multi-dimensional. The World Health Organization (WHO) defines Health as “a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity”. Good mental health is the ability to respond to the many varied experiences of life with flexibility and sense of purpose. Mental well-being is one of the most important aspects for leading a healthy and peaceful life, but less importance has been given to that aspect of health compared to physical health. Mental health problems commonly begin during childhood and adolescence leading to serious mental illness in adult age. There are about 1.3 billion adolescents accounting for 16% of world’s population. It is the period of transition from dependent child to independent adult and also various physical and hormonal changes takes place. According to WHO, in 2019 one in every eight adolescents (12.5%) suffer from mental disorder and major mental illness like Depression (3.9%), Anxiety (8.2%), Conduct (6%) and Behavioural problems (5.5%). There is 13% increase in the mental health problems and substance use in the last decade and it keeps increasing with each decade in the world. Adolescents with mental disorder are particularly vulnerable to social exclusions, discrimination, stigma, educational difficulties, risk taking behaviour and human rights violation. India being a country with most adolescents accounting for 253 million (19.5% of population) of which many of them suffer from some sort of psychiatric problems, but yet under diagnosed due to social stigma and ignorance by parents, teachers and fellow mates. So, assessing the mental status of the students in their early life can lead to early diagnosis, thus helping them to have a healthy and peaceful life. Only few studies and data are available in this age group which may be due to less concentration on adolescents over the adult population.

So, this study has been planned to assess the mental health status of adolescents and identify those who are more prone for developing psychiatric problems. Based on our study findings specific interventions will be planned for prevention, so that the adolescents are made strong enough to handle the mental health issues in a better way.

### **Objectives:**

1. To assess the mental health status among high school students of an urban area
2. To study the factors influencing the mental health

### **Methodology:**

This cross-sectional study was conducted during April 2023 to March 2024 among 900 school students. A total of four schools were selected for the study and data was collected from them after obtaining permission from the respective school principal. Ethical clearance was obtained from the Institutional Ethics Committee. Informed consent was obtained from parents and informed assent from the study participants. A pre-deigned and structured questionnaire was used to collect the socio-demographic details of the participants and a standard Strength & Difficulties Questionnaire (SDQ) was used to assess the mental health of the participants.

### **Results:**

The mean age of the study participants was  $14.91 \pm 1.03$  years, with 324 (36.00%) students studying in 8th standard, 214 (23.78%) in 9th standard and 362 (40.22%) in 10th standard. Among them, 488 (54.22%) were male and 412 (45.78%) were female. The majority of the participants were Hindus (574, 63.78%), belonged to nuclear family (561, 62.33%) and were from socioeconomic status class II (362, 40.22%). Most of the students' fathers (887, 99.66%) and mothers (884, 98.44%) were literate. Regarding parental occupations, 487 (54.71%) of fathers were self-employed, while 664 (73.96%) of mothers were homemakers.

Most of the students (898, 99.78%) stayed at home, with 732 (81.51%) staying with both parents. A total of 308 (34.29%) spent more than five hours with their parents and 816 (90.86%) shared at least one meal with family members. Around one-fourth of the participants (199, 22.11%) had lost a close family member in the past year, with the most common loss being a grandfather (47.74%). The death significantly affected 151 (75.87%) students, with a mean pain scale score of  $5.18 \pm 2.53$  and a median of 4.

Regarding leisure activities, the majority of participants (812, 90.22%) had hobbies, with sports being the most common (401, 49.38%) and 385 (47.41%) spent about an hour on their hobbies. Additionally, 216 (24.00%) students participated in extracurricular classes, including educational programs (117, 54.17%) and life skills training (45, 20.83%), with an average duration of  $1.71 \pm 0.65$  hours. When it came to mobile phone ownership, 239 (26.56%) students owned a mobile phone, with most receiving it at the age of 14 years (mean:  $13.54 \pm 1.40$  years). Among them, 559 (62.11%) spent an hour daily on social media, primarily for studying (413, 40.45%) and gaming (391, 38.30%), with action/adventure games being the most popular (47.31%).

Academically, nearly half of the students (45.45%) secured first-class marks in their last examination and 212 (23.56%) held leadership positions in school, such as house captains, discipline ministers, etc. Experiences of discrimination were reported by 295 (32.78%) students, most commonly at the age of 12 years (28.81%), with a mean age of  $12.81 \pm 1.78$  years and a median of 13 years. Discrimination was primarily inflicted by a single individual (267, 90.50%), often classmates (103, 30.74%) and friends (70, 20.90%) were the perpetrators. The reasons for discrimination were personality traits (203, 68.81%) and academics (61, 20.68%). Bullying was reported by 126 (14.00%) students, with 47.62% experiencing mental bullying, 32.54% physical bullying and 19.84% verbal bullying. Physical violence was frequently encountered by 3.67% and occasionally by 47.46% of students.

In terms of mental health domains, abnormal scores were observed in 6.22% for hyperactivity (mean:  $7.37 \pm 0.70$ ), 13.89% for emotional issues ( $7.81 \pm 0.96$ ), 20.22% for conduct problems ( $5.98 \pm 1.01$ ), 12.00% for peer problems ( $6.61 \pm 0.83$ ) and 5.22% for prosocial behaviour ( $3.34 \pm 0.73$ ). Regarding total difficulty scores, 566 (62.89%) students had normal scores (mean:  $10.45 \pm 3.12$ ), 205 (22.78%) had borderline scores ( $17.27 \pm 1.05$ ) and 129 (14.33%) had abnormal scores ( $22.36 \pm 2.32$ ). Additionally, 51.68% of participants reported experiencing difficulties in areas such as emotions, concentration and behaviour. Among them, 5.23% rated their difficulties as severe, with 52.04% experiencing them for less than a month and 5.82% experiencing severe distress by these issues. The total impact score was abnormal in 176 (37.85%) students, with a mean of  $3.47 \pm 1.75$ .

### **Conclusions:**

This study highlights significant mental health concerns among urban high school students, with 37.11% showing borderline to abnormal SDQ scores and 14.33% falling in the abnormal range. Factors like discrimination, bullying, family structure, socioeconomic status and parental employment influenced their mental well-being, with female students being more affected. Addressing emotional, behavioral and peer-related challenges through early identification, counseling and school-based support systems is essential for improving students' mental health.

### **Keywords:**

Mental health, High school students, Urban area, Strength & Difficulties Questionnaires, Impact score, Discrimination, Bullying, Physical Violence.

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## INTRODUCTION

Health is multi-dimensional and also a fundamental right of human life, influencing overall well-being and quality of life. Various factors influence health, including genetics, lifestyle choices, environmental conditions and access to healthcare. Good health allows individuals to lead productive lives, contribute to society and enjoy everyday activities. Maintaining good health involves a balanced diet, regular physical activity, mental well-being and preventive healthcare measures. The World Health Organisation (WHO) defines Health as “a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity”. In the recent past the definition of Health also includes the ability to lead a “socially and economically productive life”.<sup>1</sup> Among all the dimensions of health, Mental health dimension is an important aspect of human life, hence it is included in the WHO definition of Health.

Mental health is not mere absence of mental illness. Good mental health is the ability to respond to the many varied experiences of life with flexibility and sense of purpose. Mental health has been defined as “a state of balance between the individual and the surrounding world, a state of harmony between one self and others, a coexistence between the realities of the self and that of other people and that of the environment”.<sup>1</sup> It is a fundamental human right and important for personal, societal and economic progress. Mental health refers to a state of well-being that empowers individuals to manage life’s challenges, learn effectively, work productively, recognize their potential and contribute positively to their community. It exists on a complex spectrum that varies in intensity and impact from person to person, with differing levels of distress, challenges and outcomes—both social and clinical. Mental wellbeing is one of the most important aspects for leading a healthy and peaceful life but less importance has been given to that aspect of health compared to physical health. Although mental health is an essential component of health, the scientific foundations of mental health are not yet clear.

Therefore, we do not have precise tools to assess the state of mental health unlike physical health.

Mental health conditions cover a broad range of issues, including mental disorders, psychosocial disabilities and other states of mental distress or dysfunction that may affect daily functioning or even pose risks such as self-harm.<sup>2</sup> The likelihood of mental health problems can be considerably increased by unfavourable social, economic, geopolitical and environmental conditions such as poverty, inequality, violence and environmental degradation. For instance, harsh parenting practices and physical punishment are known to adversely affect children's mental health, while bullying remains a leading risk factor for the development of mental health conditions.<sup>3&4</sup> These risks can emerge at any stage of life, but they are particularly harmful during critical periods of development, such as early childhood and adolescence, leading to serious mental illness in adult age.

Originating from the Latin word adolescent, which means "to grow up" or "to become," adolescence is the period between childhood and adulthood that usually lasts from the ages of 10 to 19. The basis for long-term health and well-being is laid at this crucial stage of human development. It is the period of transition from dependent child to independent adult and also various physical and hormonal changes takes place. The recent WHO data shows that adolescents make up one-sixth of the world's population, with 1.2 billion people.<sup>5</sup> According to the 2011 Census, there are 253 million adolescents in India, with 11.56 million of them living in Karnataka.<sup>6</sup> WHO data from 2019 shows that one in every eight adolescents (12.5%) suffer from mental disorder and major mental illness like Depression (3.9%), Anxiety (8.2%), Conduct (6.0%) and Behavioural problems (5.5%).<sup>6</sup>

Adolescents are more exposed to high level new technology in the community which increases the need for adaptation, which further adds to their existing stress- such as career decisions,

poverty, exclusions, relationship problems, parental income and state of employment, drug abuse, gambling, bullying by peers and sexual violence. Mental health problems and substance use in the last decade has increased to 13% and it keeps increasing with each decade in the world.<sup>7</sup> Adolescents with mental disorder are more vulnerable to social exclusions, discrimination, stigma, educational difficulties, risk taking behaviour and human rights violation.<sup>7</sup> India being a country with a large number of adolescents, of which many suffer from some sort of psychiatric problems, yet under diagnosed due to social stigma and ignorance by parents, teachers and fellow mates.<sup>7</sup>

Adolescents tend to be more susceptible to a variety of mental health issues, such as anxiety, depression, and other emotional or psychological disorders.<sup>8</sup> Stress can be greatly increased by social pressures like the need to fit in with peers or live up to social norms. Feelings of inadequacy and fatigue are sometimes exacerbated by academic pressures, such as studying for tests or getting good grades. More serious consequences, such as suicide thoughts or self-harming behaviours, may occasionally result from these pressures. Furthermore, the hormonal changes that are typical of this growth stage might affect brain chemistry, which in turn affects emotional stability and mood management. These biological alterations make people more vulnerable to mental health issues when paired with social and environmental influences. In addition, adolescents may experience difficulties with body image, identity formation, and altering family relationships.<sup>9</sup>

Hormonal changes in adolescents have a substantial impact on mental health because they affect social, emotional and cognitive development.<sup>10</sup> Changes in sex hormones, such as testosterone and oestrogen, can lead to emotional sensitivity, impatience and mood swings that frequently resemble mood disorders.<sup>10</sup> Particularly in women, elevated cortisol levels and altered serotonin activity increase the risk of anxiety and depression.<sup>10</sup> While the prefrontal cortex, which controls decision-making and impulse control, matures more slowly and causes

impulsivity and risk-taking behaviours. Sleep patterns are disturbed by altered melatonin synthesis, which exacerbates stress and cognitive impairments. Puberty-related physical changes can raise the likelihood of eating disorders by causing body dissatisfaction and problems with self-esteem. Adolescents also become more sensitive to peer opinions due to rising oxytocin levels, intensifying social pressure and potentially triggering anxiety or rejection. Additionally, hormonal influences on sexual maturation may cause confusion about gender identity or sexual orientation, contributing to identity-related challenges.

Mental health is a broad and multifaceted concept, making it challenging to assess all its domains in adolescents. Therefore, this study focused on five key domains that encompass a majority of the symptoms, providing a comprehensive yet practical approach to screening and evaluation. They are

1. Emotional symptoms
2. Conduct problems
3. Hyperactivity
4. Peer relationship problems
5. Prosocial behaviour

These domains provide a comprehensive overview of mental health functioning in children and adolescents.<sup>11</sup> Emotional symptoms assess internalizing issues like anxiety, depression and worry, as these are foundational to overall well-being and often under-recognized in adolescents.<sup>12</sup> Conduct problems focus on externalizing behaviours, such as aggression and defiance, which can disrupt relationships and learning if not addressed early.<sup>12</sup> Hyperactivity evaluates attention difficulties, impulsivity, and restlessness, which are core features of Attention Deficit Hyperactivity Disorder (ADHD) and critical to address for improved self-

regulation and focus.<sup>12</sup> Peer relationship problems highlight difficulties in forming and maintaining healthy social connections, signalling potential issues like bullying or social isolation that can impact self-esteem and emotional health.<sup>12</sup> Lastly, prosocial behaviour examines positive traits such as kindness and empathy, offering a balanced perspective by identifying a child's strengths alongside difficulties.<sup>12</sup> These areas are chosen because they address the most prevalent mental health and behavioural challenges affecting children and adolescents. They have significant implications for functioning at home, school, and in the community.

Thus, assessing the mental health of students during their early years is crucial for identifying potential issues at an early stage, enabling timely diagnosis and intervention. Early detection can pave the way for strategies that promote a healthy and peaceful life, helping adolescents to navigate challenges effectively. Only few studies and data are available in this age group which may be due to less concentration on adolescents over the adult population.<sup>13&14</sup> Another reason could be that, the adolescent age group is generally considered healthy. Hence, this study was planned to assess the mental health status of adolescents and identify those who are more prone for developing psychiatric problems in the future. Based on our study findings specific interventions will be developed, which will help the adolescents to get equipped enough to approach mental health issues in a positive way.

## **OBJECTIVES OF THE STUDY**

1. To assess the mental health status among high school students of an urban area
2. To study the factors influencing the mental health

## REVIEW OF LITERATURE

A sound mind in a sound body has long been regarded as an ideal standard in Indian society. Mental health refers to the balanced growth of an individual's personality and emotional responses, enabling them to live harmoniously with others. It is essential for our ability as humans to think clearly, express emotions, engage socially, work effectively and experience life's pleasures. Therefore, promoting, safeguarding and restoring mental health is a crucial priority for individuals, communities and societies worldwide. A mentally healthy person typically exhibits three key traits: (1) They feel confident and comfortable with themselves. (2) They maintain positive and healthy relationships with others. (3) They are capable of handling and adapting to life's challenges effectively.

Therefore, Mental health is a crucial aspect of overall well-being and studying it from an early age is essential for preventing mental illnesses & addressing issues before they escalate. Early identification and intervention can help reduce the long-term burden of mental health problems and improve quality of life by minimizing stress and trauma through effective strategies. To gain a deeper understanding of this topic, a comprehensive review of existing research was conducted using various search engines, literature reviews and articles. The following studies were identified as key sources of information:

1. A cross-sectional study was conducted among adolescents studying in government pre-university college of Uttara Kannada. Data was collected using a semi structured and pre-tested questionnaire for Sociodemographic variables. Self-reporting version of the Strengths and Difficulties Questionnaire (SDQ) was used to collect the perspectives of adolescents. Out of 319 students who participated in the study, 59.56% were girls and 40.44% were boys. Only 1.5% of fathers and 2.8% of mothers were illiterate. Majority

belonged to nuclear family (80.9%). The result of the study showed that most of the students had normal mental health but a significant number of students had borderline (18.4%) and abnormal (14.1%) range making a total of 32.5% which corresponds to an SDQ score between 16-40. Emotional problems were seen in 16.3%, Conduct problems accounted for 17.5%, hyperactivity among 6.3%, peer problems in 5.1% and pro social problems in 5.1% of the students. The study also showed that girl students had higher emotional, hyperactivity and pro-social problems than boys. This difference in the prevalence rate was statistically significant ( $p < 0.05$ ). Total difficulty score of SDQ was also statistically significantly associated with sex of the study participants ( $p < 0.001$ ). Adolescents who used social media were found to have 8.32 times higher odds of obtaining a high SDQ score compared to those who did not use social media (AOR = 8.32,  $p = 0.005$ ). Similarly, those with abnormal emotional problems scores had 113.84 times higher odds (AOR = 113.84,  $p < 0.001$ ), while adolescents with abnormal conduct problem scores had 15.23 times higher odds (AOR = 15.23,  $p < 0.001$ ) of obtaining a high SDQ score. Those with abnormal hyperactivity scores had 21.14 times higher odds (AOR = 21.14,  $p < 0.001$ ), and those with abnormal peer problem scores had 103.16 times higher odds (AOR = 103.16,  $p < 0.001$ ) of obtaining a high SDQ score. Additionally, adolescents with abnormal impact scores had 8.87 times higher odds of obtaining a high SDQ score compared to those with normal SDQ scores (AOR = 8.87,  $p = 0.003$ ). Other independent variables, including age, gender, family type, parental education, parental occupation, academic performance in the last annual exams, family history of mental illness, history of breaking the law in the family, experiences of sexual abuse and suicidal thoughts, were not found to be significant in the binary logistic regression model. The study highlights that a significant proportion of adolescents have borderline or abnormal mental health issues, with emotional, conduct and peer

problems being more prevalent among girls. Regular mental health screening, targeted interventions and responsible social media use are recommended to improve adolescent mental health.<sup>15</sup>

2. A study assessed emotional and behavioural problems among 1,087 adolescents in a pre-university college in Bangalore, India, using the SDQ. The mean age  $\pm$  SD of the participants was  $16.4 \pm 0.83$  years, with males more than females (57.50% v/s 42.50%). Majority of them were from urban area (63.20%), 3/4<sup>th</sup> belonged to nuclear family and paternal education was higher compared to maternal education. It was found that 10.10% of students had total difficulty scores in the abnormal range, with 9.00% exhibiting emotional symptoms, 13.00% conduct problems, 12.60% hyperactivity/inattention and 9.40% peer problems. Gender differences were observed, with females reporting significantly higher emotional symptoms ( $5.29 \pm 2.50$ ) compared to males ( $3.90 \pm 2.41$ ,  $p < 0.001$ ), while males exhibited more peer problems ( $3.03 \pm 1.76$ ) than females ( $2.78 \pm 1.75$ ,  $p < 0.05$ ). The prevalence of conduct problems and hyperactivity did not differ significantly between genders. Regression analysis identified five significant predictors, explaining 14.5% of the variance in total difficulty levels ( $F = 20.61$ ,  $p < 0.001$ ). Students in the Commerce stream ( $\beta = 0.09$ ,  $p < 0.01$ ) and in the second year ( $\beta = 0.08$ ,  $p < 0.01$ ) were at higher risk. Family-related factors, including parental marital discord ( $\beta = -0.18$ ,  $p < 0.001$ ), financial difficulties ( $\beta = -0.22$ ,  $p < 0.001$ ), and physical punishment ( $\beta = -0.11$ ,  $p < 0.001$ ), were identified as significant contributors to higher difficulty levels. Cut-off scores derived from the sample were higher than the original UK cut-offs, resulting in lower prevalence rates for emotional symptoms (9% vs. 22.4%) and conduct problems (13% vs. 18.8%), while hyperactivity (12.6%) and peer problems (9.4%) remained consistent. The findings of

this study highlighted the need for locally adapted cut-offs and gender-sensitive mental health interventions, emphasizing family-related risk factors.<sup>16</sup>

3. The study was conducted in three urban schools in Bangalore, India, among high school students aged 11 to 16 years. A total of 354 students participated, including 182 boys (45.8%) and 172 girls (54.2%), with a mean age of 13.4 years. The highest proportion of participants were aged 14 years (33.9%), followed by those aged 13 years (31.6%), 15 years (23.2%), 16 years (9.8%) and 12 years (1.4%). According to the SDQ self-assessment, the most frequent abnormal scores were observed in the conduct problems (16.7%), emotional problems (12.4%) and hyperactivity subscales (12.1%). Peer problems were less common, with 6.2% of students showing abnormal scores, while prosocial behavior had the lowest rate of abnormal scores at 4.4%. Abnormal SDQ scores were more common among females (10.2%) than males (8.2%). The difference was most pronounced in the emotional problems subscale, where females scored higher, indicating greater emotional difficulties. In contrast, males showed higher scores for conduct problems and lower (more abnormal) scores for prosocial behavior. Regarding the overall impact of these difficulties, 19.2% of students reported definite to severe difficulties in daily life, with only 2% experiencing severe difficulty. Of the total sample, 25% reported that their difficulties had lasted for over a year, while 47.7% stated that the problems had persisted for less than a month. A significant proportion (26.1%, n = 92) reported feeling distressed when trying to manage these difficulties, with 7.7% (n = 27) experiencing a high level of distress. The reported difficulties interfered with different aspects of daily life: 19.5% experienced difficulties in classroom learning, 19.2% in friendships, 18.4% in home life and 12.4% in leisure activities. A smaller percentage of students reported that these difficulties affected them "a great deal" in specific areas—5.9% in classroom learning, 5.4% in home life, 4.5%

in leisure activities and 4.2% in friendships. Additionally, the difficulties created strain for family members, friends and teachers in 39.5% of cases, with 30.5% reporting a minor effect, 5.9% reporting a significant impact and 3.1% reporting a severe effect on others. The study findings shows that conduct and emotional problems were the most frequently reported mental health issues among high school students, with emotional difficulties being more common in females & conduct problems in males. Consistent mental health support, focused interventions and school-based initiatives are suggested to help minimize the impact of these issues on daily life and social relationships.<sup>17</sup>

4. A cross-sectional study aimed to assess the behavioral and mental health problems of adolescents aged 11-16 years in urban and rural schools of Bengaluru, using the SDQ. The study was conducted over three months with 300 students (150 from urban and 150 from rural schools). Written consent was obtained from school heads and oral assent was taken from the students. The results showed that 45.00% were females & 55.00% were males with mean age of the participants was 15.4 years. The study revealed that 68.33% of the students had normal SDQ scores, while 19.66% had very high scores. Male students had higher scores in conduct and peer problems, while females had higher emotional problems, reflecting common gender differences in mental health issues. A significant difference was found between rural and urban students, with rural adolescents showing higher difficulty scores overall, especially in emotional ( $3.73 \pm 2.481$ ,  $p = 0.001$ ), conduct ( $3.73 \pm 1.805$ ,  $p = 0.001$ ) and peer problems ( $3.73 \pm 1.744$ ,  $p = 0.001$ ). The study concluded that mental health issues are a significant concern in both urban and rural school populations. Rural students faced more challenges, likely due to factors like limited healthcare access, socio-economic issues and stigma around mental health. It highlights the importance of addressing mental health concerns in adolescence to prevent more serious issues in adulthood and calls

for greater awareness and action to support adolescent mental health in both rural and urban contexts.<sup>18</sup>

5. A mixed method study was conducted in rural and urban government schools of Pondicherry to assess the mental health status and also to compare the risk factors associated with it among rural and urban students. Quantitative study was done using a SDQ followed by qualitative assessment using focus group discussions. Data collection was done among 329 students (166 urban and 163 rural) and Focus Group Discussion was done among eight school teachers (5 females and 3 males). The mean age of participants was  $13.9 \pm 1.2$  years. Males were 57.8% overall, but rural had 51.5% of female participants. About 95.0% of them belonged to Hindu religion. Total prevalence of mental health illness was 25.5% with 27.7% in urban and 23.3% in rural area. The mean rank on all scale of SDQ for total difficulties score was (176.55 v/s 153.24), Emotional symptoms scale (176.76 v/s 153.02) & hyperactivity scale (192.55 v/s 136.94) were found to be higher among urban adolescents compared to rural using Mann-Whitney U test ( $p < 0.05$ ). Parent's income & occupation played a major role as risk factors ( $p < 0.05$ ). Binary logistic regression showed significant association with family income and developing mental health illness (AOR = 8.070, CI = 1.64 to 39.69,  $p = 0.010$ ). In qualitative analysis, six subthemes were grouped into two thematic fields and interview was conducted. Common presentations were behavioural change of the students with mild drowsiness and lack of concentration. They also commented about the rude behaviour within peer group and teachers. The most perceived cause for mental health problems was family-oriented problems, social media influence and peer group pressure. The study highlights that mental health issues were more prevalent among urban students, with emotional symptoms and hyperactivity significantly higher.

Addressing family-related stress, social media influence and peer pressure through targeted interventions can help improve adolescent mental health.<sup>19</sup>

6. A cross-sectional descriptive study was conducted among 141 late-adolescent students in rural schools of Salem, to assess their mental health status using the SDQ-YR1. All participants were from the 12th standard, with a mean age of 17.1 years, and the majority were females (60.28%). The prevalence of mental health problems was indicated by abnormal total difficulties scores in 14.00% of students and borderline scores in 21.00%. The mean total difficulties score was  $14.22 \pm 4.60$ . About 66 participants had difficulties in at least one subscale and many had issues in more than one subscale. Borderline abnormalities in mental health status were noted in emotional problems (19%), conduct problems (10%), hyperactivity problems (7%), peer problems (20%), and prosocial behaviour (1%). Emotional difficulties were the most common issue, observed in 21.00% of students (mean  $\pm$  SD =  $5.01 \pm 2.00$ ). Conduct and hyperactivity problems were each reported in 11.00% of participants ( $2.34 \pm 1.52$  and  $4.11 \pm 1.73$ , respectively), while peer problems were noted in 6.00% ( $2.76 \pm 1.52$ ). Abnormal prosocial behaviour was reported in only one participant ( $8.92 \pm 1.32$ ). On analysis of gender variations, abnormal scores were more common in boys than girls across all four subscales: Emotional (Male: Female = 1.15:1), Conduct (4.4:1), Hyperactivity (3.3:1) and Peer problems (2.25:1). However, statistical significance was observed only for the Conduct and Hyperactivity subscales, with p-values of 0.004 and 0.019, respectively. The impact score was abnormal in 38.00% of participants, with a significant male predominance ( $p < 0.001$ ). Among those experiencing difficulties, 56% reported having them for less than one month, 29% for 1 to 5 months, 9% for 6 to 12 months and 6% for over a year. The impact score was normal in 53% of participants, borderline in 9%, and abnormal in 38%. Teachers and family members more frequently

reported hyperactivity and concentration difficulties in boys than girls ( $p = 0.025$ ), with boys more often described as awkward or troublesome ( $p = 0.046$  by family,  $p < 0.001$  by teachers). The study highlights a significant prevalence of mental health issues among rural adolescents, with boys showing higher rates of conduct and hyperactivity problems, underscoring the need for strengthening family and teacher support systems for early identification and intervention.<sup>20</sup>

7. A cross-sectional study aimed to assess the mental health of 63 adolescent girls aged 10 to 19 years residing in a government special home and children's home in Visakhapatnam, using the SDQ was planned. Data collection included an interview schedule addressing demographics, family background and history of mental illness, sexual abuse and suicidal behavior. The SDQ, validated in Telugu, was used to assess emotional symptoms, conduct problems, hyperactivity, peer pressure and pro-social behavior. The key findings of the study were: The mean age of participants was 14.2 years. The majority (44.4%) were runaway children and 34.9% were destitute. Emotional problems (22%) were the most common mental health issue, followed by conduct problems (16%), peer problems (14%) and hyperactivity (5%). The average Total Difficulties Score (TDS) was 12.89 (within the normal range). Only 16% had an abnormal TDS. Family factors, including broken families and a history of mental illness or law-breaking in the family, were linked to higher abnormal TDS scores. Education level, history of suicidal thoughts (47.6%) and suicide attempts (28.6%) were also associated with abnormal TDS scores. The study highlighted emotional issues as the most prevalent among the girls, contrary to some studies where conduct problems were more common. The findings suggest that family dynamics, including broken families and a history of mental illness, significantly influenced mental health outcomes. Suicidal ideation and attempts were notable risk factors, underlining the importance of

early mental health screening. The study found that emotional problems were most prevalent, and only two-thirds of the girls had normal mental health scores. The study recommends periodic mental health assessments, the provision of counseling services, and the introduction of life skills education to support adolescents in managing mental health issues and reducing the risk of suicides.<sup>21</sup>

8. Another cross-sectional study was conducted at Jaipur among 11 to 17-year-old school students of four government and four private schools. Data was collected using the self-reported version of SDQ. Out of 1008 students, 994 completed the study of which majority were females (51%) and in the age group of 15-17 years (45%). The mothers of the students were mostly illiterate (45%) and non-working (84%). The results also showed that 78.16% of students had normal mental health, 8.04% were borderline and 13.78% had abnormal values. Conduct problems was noted in 12.00% of students, emotional disturbances in 10.00%, peer problems in 7.00%, hyperactivity in 6.00% and prosocial problems in 5.00%. Poor mental health (24.00%), emotional problems (20.40%) and peer problems (30.40%) were significantly associated with students whose mothers were illiterate ( $\chi^2 = 28.439$ ,  $p < 0.001$ ). Mental health problems were higher in students with working mothers (18.50%) when compared to students with non-working mothers. Emotional problems (19.30%,  $\chi^2 = 0.717$ ,  $p = 0.699$ ) and hyperactivity problems (16.80%,  $\chi^2 = 4.002$ ,  $p = 0.135$ ) were more in those students whose mothers were working, while conduct (23.50%,  $\chi^2 = 4.004$ ,  $p = 0.135$ ), peer (29.60%,  $\chi^2 = 5.745$ ,  $p = 0.057$ ) and prosocial (11.80%,  $\chi^2 = 1.219$ ,  $p = 0.544$ ) problems were more in those with non-working mothers. Poor mental health, emotional problems, and peer issues were significantly higher among students with illiterate mothers. Mental health issues were more common in students with working mothers, highlighting the need for parental support and mental health interventions.<sup>14</sup>

9. In Assam cross sectional study, the mental health status of school students aged 13–17 years was assessed using the self-reported SDQ. A total of 10 schools were selected using a convenient sampling technique and 1403 students were enrolled in the study. The mean age of participants was 14.81 years (SD = 1.117), with more males (52.3%) than females (47.7%). Most participants were from class IX (35.2%), belonged to the Hindu religion (85.5%) and lived in semi-urban areas (91.9%). About 66% of the participants came from an upper socio-economic status and nearly three-fourths lived in nuclear families. The majority (52.7%) reported average academic performance. The analysis showed that 11% of participants had scores in the borderline range and 10.2% in the abnormal range for emotional problems. In the domain of conduct problems, 15.7% were in the borderline range and 15.1% were in the abnormal range. For hyperactive behavior, 8.1% of students scored in the borderline range and 5.7% in the abnormal range. Regarding peer problems, 21.4% were in the borderline range and 5.2% showed severe peer problems. The overall prevalence of mental health problems among school-going adolescents was 31.6% (including 23.8% in the borderline range and 7.8% in the abnormal range). Gender differences in mental health scores were significant in specific domains. An independent samples t-test showed that scores for emotional problems were significantly higher among females (M = 4.20, SD = 2.14) than males (M = 3.33, SD = 1.96), with  $t = 7.82$ ,  $p < 0.001$ . Males had higher scores in conduct problems (M = 2.96, SD = 1.68) than females (M = 2.83, SD = 1.56), but the difference was not statistically significant ( $t = 1.530$ ,  $p = 0.126$ ). For hyperactivity, males scored significantly higher (M = 3.48, SD = 1.89) than females (M = 3.27, SD = 1.87), with  $t = 2.069$ ,  $p = 0.039$ . A significant gender difference was also observed in peer problems, where males scored higher (M = 2.83, SD = 1.70) than females (M = 2.44, SD = 1.61), with  $t = 4.344$ ,  $p < 0.001$ . Conversely, females had significantly higher

scores in pro-social behavior ( $M = 7.79$ ,  $SD = 1.75$ ) compared to males ( $M = 7.47$ ,  $SD = 1.79$ ), with  $t = 3.390$ ,  $p = 0.001$ . In the total SDQ score, females scored slightly higher ( $M = 12.71$ ,  $SD = 4.87$ ) than males ( $M = 12.59$ ,  $SD = 4.76$ ), but this difference was not statistically significant ( $t = 0.476$ ,  $p = 0.635$ ). Age showed a significant positive correlation with emotional problems ( $r = 0.101$ ,  $p \leq 0.01$ ) and hyperactivity ( $r = 0.130$ ,  $p \leq 0.01$ ), but the correlation with conduct problems ( $r = 0.020$ ) was not statistically significant. Multiple regression analysis examined whether gender, education, family type, academic performance and socio-economic status predicted overall SDQ scores. Among these, academic performance and socio-economic status were significant predictors of mental health issues, explaining 9.79% of the variance ( $F = 5.040$ ,  $p < 0.001$ ): academic performance ( $\beta = 0.08$ ;  $t = 3.15$ ;  $p = 0.002$ ) and socio-economic status ( $\beta = 0.07$ ;  $t = 3.02$ ;  $p = 0.003$ ). The study highlights a high prevalence of mental health issues among school-going adolescents (31.6%), with emotional and prosocial problems being more common among females, while males showed higher levels of conduct issues, hyperactivity and peer problems. Academic performance and socio-economic status were significant predictors of overall mental health difficulties. Early identification and targeted interventions focusing on emotional and behavioral health are essential to improve adolescent mental health outcomes.<sup>22</sup>

10. A cross-sectional study assessed the mental health status of 702 school-going adolescents aged 13–19 years in Kohima district, Nagaland. Participants were selected through random sampling, with data collection using the SDQ. The mean age of the participants was  $16.4 \pm 1.32$  years. Majority of the participants were females (55.27%), from nuclear family (74.80%), from tribal community (97.00%) and belonging to upper lower socioeconomic status (43.45%). The prevalence of mental health issues, based on total difficulties scores, was 17.20% at the abnormal level and 28.80% at the

borderline level. Emotional problems were found in 17.10%, hyperactivity in 16.10%, conduct problems in 15.20%, peer problems in 5.60%, and abnormal prosocial behaviour in 5.10% of adolescents. The results of this study emphasize the need for early identification, treatment, and promotion of targeted mental health interventions for adolescents.<sup>23</sup>

11. In a cross-sectional study conducted in Anand district of Gujarat among adolescent students (10-19 years), using a pre-tested and validated Gujarati version of the SDQ. A total of 966 students participated, comprising 62.6% boys and 37.4% girls, with a mean age of 14.2 years (SD: 1.46). Of them, 54.80% were early adolescents, 45.20% were late adolescents. Majority of them attended day school (84.90%), 17.00% attended tuitions. About 2/3<sup>rd</sup> (64.20%) were Hindus, 59.60% were from joint family and 37.50% had 2 siblings. Normal SDQ scores were reported in 37.00% of students, while 30.00% had borderline scores and 33.00% had abnormal scores. Peer problems were the most frequently observed abnormality (45.90%), whereas prosocial behaviour abnormalities were the least common (1.10%). Higher rates of abnormal SDQ scores were statistically significant among girls ( $p=0.005$ ), Muslim students ( $p=0.001$ ), primary school students ( $p=0.001$ ), those from problematic families ( $p<0.001$ ) and those attending morning schools ( $p<0.001$ ). No significant associations were found between SDQ scores and birth order, family type, tuition attendance, extracurricular involvement or physical activity. Additionally, students with abnormal SDQ scores were more likely to experience difficulties in concentrating (37.70%), daily studies (37.10%) and getting along with others (16.5%). The study findings reveal a high prevalence of mental health issues among rural adolescents, with peer problems being the most common. Targeted interventions are needed, especially for high-risk groups such as girls, Muslim students and those from problematic families.<sup>24</sup>

12. A cross-sectional study was conducted to assess the mental health status of children aged 12-16 years in Patna district. The study took place across 15 rural and 20 urban schools, analysing a total of 1,114 students using the SDQ. Among the participants, 63.60% were in early adolescence (12-14 years), while 36.4% were in late adolescence (14-16 years), with a mean age of  $14.6 \pm 0.86$  years. Girls outnumbered boys (52.70% vs. 47.30%). Mental health issues were prevalent, with conduct problems (10.40%) and peer problems (10.00%) being the most common, followed by emotional problems (7.60%), with respective mean scores of  $5.59 \pm 0.84$ ,  $6.40 \pm 0.67$ , and  $7.88 \pm 1.00$ . The overall proportion of students with total difficulties was 7.50%, with a mean score of  $22.18 \pm 2.43$ . The study found that boys had a higher prevalence of mental health issues across all five domains, with conduct problems being significantly associated with gender ( $\chi^2 = 7.341$ ,  $p = 0.025$ ). While emotional, peer, hyperactivity, and total difficulties were comparable between age groups, conduct problems were more frequent in late adolescence, whereas prosocial problems were more common in early adolescence. Urban students exhibited higher rates of mental health issues across all domains except for prosocial problems, with emotional problems, peer problems and total difficulties showing statistically significant associations. Among the 589 participants who responded to the assessment of difficulties, 20.40% reported definite challenges in daily life and 11.40% faced severe difficulties. Notably, 22.20% had been experiencing these difficulties for over a year, while 69.90% had been affected for less than five months. Additionally, 15.80% of children reported distress in coping, with 7.80% experiencing severe distress. The study concluded that these difficulties impacted various aspects of children's lives, including home life, friendships, classroom learning and leisure activities.<sup>12</sup>

13. A multi-stage sampling method and a multi-informant approach were utilized in the study conducted in Kashmir, to assess mental health problems among 1,000 school children from 12 schools in the Shopian district, selected through systematic random sampling. Data were collected at two levels of screening using the SDQ (Teacher form) and the Mini International Neuropsychiatric Inventory for Children (MINI-Kid), along with a socio-demographic data sheet. Most of the students were aged 11 - 12 years (42.10%), with equal gender distribution (50.00%), belonging to rural area (64.80%), middle birth order (43.60%), from nuclear family (61.30%). Regarding education of parents, most of the students father had completed secondary education (37.40%) and mothers had completed primary education (58.20%). The prevalence of mental disorders among school children was found to be 27.10% (CI = 24.18 to 30.02) based on SDQ screening, while 22.20% (CI = 19.28 to 25.12) of cases were identified through second-level screening with MINI-Kid. Anxiety disorders (8.50%) were reported as the most prevalent, followed by mood disorders (6.30%) and behavioural disorders (4.30%). It was observed that the prevalence of mental health issues among school-going children in Kashmir was significantly higher than in other Indian states, possibly due to ongoing political conflict and limited mental health resources. Students were categorized based on SDQ scores, with 52.30% classified as normal, 20.60% as borderline and 27.10% as abnormal. Among the 271 cases flagged in the first screening, 222 were confirmed to have potential mental disorders through MINI-Kid. When second-level screening results were combined with further screening of initially non-potential cases, the overall prevalence based on MINI-Kid was determined to be 33.00% (CI 30.08 to 35.92), which exceeded the 27.10% prevalence identified through SDQ alone. The findings of this study emphasize the urgent need for mental health interventions in conflict-affected regions.<sup>25</sup>

14. A cross-sectional, school-based study was conducted in Sabarkantha, Gujarat, to assess the mental health of adolescents. The study included adolescents from both rural and urban areas of Sabarkantha district, including tribal and non-tribal groups. The study sample included 470 adolescents, equally split between the age groups of 11-14 years and 15-19 years, with a response rate of 80%. The adolescents were randomly selected from government schools and a self-reported mental health assessment tool, the SDQ, was used to evaluate mental health problems. In addition to the SDQ, sociodemographic factors such as parental education, employment status, family difficulties, and experiences with physical punishment were also considered. The mean age of the participants was  $14.2 \pm 1.4$  years with mean age of boys & girls were 14.3 & 14.1 years respectively. Approximately 9% of the fathers of study participants were unemployed, while the majority were employed as laborers and over 40% of the mothers were homemakers. Three participants reported the death of both parents, six reported the loss of their mother, and 16 reported the loss of their father. Additionally, 11 participants (2.3%) mentioned that their parents were separated or divorced. Around 7% of boys and 8.2% of girls reported a history of excessive alcohol consumption by their father or grandfather. Financial difficulties were reported by approximately 11% of boys and 13% of girls, highlighting challenges faced by their families. Furthermore, 72% of participants believed that physical punishment is necessary if children do not study properly; however, only 5.6% reported experiencing physical punishment on a daily basis. Among the participants, 14.6% of boys and 12.6% of girls exhibited an abnormal total SDQ score, whereas 15.3% of boys and 21.9% of girls fell into the borderline category. In total, 70.1% of boys and 65.6% of girls had a normal SDQ score. The difference in the mean total SDQ score between boys and girls (higher among girls) was statistically significant at  $p < 0.05$ . The regression model revealed a statistically

significant difference in the mean total SDQ score based on factors such as gender, mother's education level, both parents' occupations, family type, living away from family in a hostel, severe alcohol addiction within the family, daily physical punishment, and financial difficulties in the family. Nearly 40% of girls exhibited an abnormal or borderline Emotional Problem Score (EPS), compared to less than 30% of boys, with a statistically significant difference in mean EPS between genders ( $p < 0.001$ ). Approximately 38% of boys and 33% of girls had an abnormal or borderline Peer Problem Score (PPS), though this difference was not statistically significant. Girls had higher mean SDQ scores than boys in EPS, Hypersensitivity Score (HS), total SDQ score, and Prosocial Score, all of which were statistically significant. Boys, on the other hand, showed higher mean scores in Conduct Problem Score and PPS, but these differences were not statistically significant. The study highlights that factors such as parental education, employment status, financial difficulties and family structure were found to significantly influence mental health outcomes. The findings emphasize the need for targeted mental health interventions, especially focusing on emotional and behavioral support, along with improving family and social environments to enhance adolescent well-being.<sup>26</sup>

15. A cross-sectional study aimed to assess the mental health of adolescents in both rural and urban schools of Anand District and identify the psychosocial and medical factors that contribute to mental health issues. A total of 693 students from grades 9 to 12 (age 13–17 years) participated in the study. The SDQ and the Teenage Screening Questionnaire (TSQ) were used to assess mental health and associated factors. The TSQ evaluates psychosocial and medical issues such as academic performance and family problems. The male:female ratio was similar between rural and urban (50 % v/s 52% in rural and urban respectively) with mean age of 15 years and majority of them

belonged to 10th grade. The SDQ identified 15% of the participants as having high mental health risk, with 9% scoring borderline and 6% scoring abnormal. Peer problems (28%), emotional problems (13%) and conduct problems (8%) were the most common mental health issues observed. The key findings of the study included: Gender differences: Girls showed higher levels of emotional problems, while boys were more likely to have conduct issues, hyperactivity and peer relationship difficulties. Rural vs. Urban: Rural students exhibited better pro-social behavior ( $p = 0.04$ ) compared to their urban counterparts, but all other mental health domains were similar across both groups. Factors influencing mental health: Negative factors associated with higher SDQ scores included poor academic performance, eye problems, failure in exams, difficulties studying at home, punishment (more homework) and relationship issues with parents. Protective factors such as having friends, physical fitness, and engaging in extracurricular activities (like watching movies) were linked to lower SDQ scores. Statistical analysis revealed that older age ( $p = 0.005$ , AOR= 1.73 (1.18 to 2.53), academic failure ( $p = 0.006$ ) and difficulties discussing friends with parents (AOR = 3.55 (1.93 to 6.52),  $p = 0.001$ ) were significant contributors to mental health problems. Conversely, having friends (AOR = 0.38 (0.18 to 0.81),  $p = 0.001$ ) and participating in after-school activities were found to reduce the likelihood of mental health difficulties. The study concluded that mental health problems are prevalent among Indian adolescents, with 15% of students showing signs of emotional or behavioral difficulties. The study underscores the importance of mental health education, better communication between students and parents, and the use of tools like the SDQ and TSQ for early identification of at-risk adolescents. The findings suggest that incorporating life skills education into school curricula could help address these issues and promote better mental well-being among adolescents.<sup>27</sup>

16. The study was a cross-sectional survey conducted in five private higher secondary schools located in the urban area of Rohtak district. A total of 420 questionnaires were distributed, out of which 95.2% were returned and included in the analysis. The study involved school-going adolescents aged 15 to 17 years, with 53.2% males and 46.8% females. The age distribution showed that 22% of the participants were 14 years old, 22.5% were 15 years old, 34.8% were 16 years old and 20.8% were 17 years old. Regarding parental education, most mothers (67.7%) had completed education up to the 10th–12th standard, while 18% had education up to the 10th standard and 14.2% had completed graduation or higher. Similarly, 64.3% of fathers had completed education up to the 10th–12th standard, 29.2% had completed graduation or higher and 6.5% had education up to the 10th standard. In terms of occupation, the majority of mothers were homemakers (88%), while 10.5% worked in the government sector and 1.5% were employed in the private sector or self-employed. Among fathers, 43.2% were farmers, 38% worked in the government sector and 18.8% were employed in the private sector. Most of the adolescents (65.5%) belonged to nuclear families, while 34.5% lived in joint families. The mean total difficulty score on the SDQ was 10.14 with a standard deviation of 5.22. Based on the total difficulty score, 85.8% of participants were classified as normal, 8.8% as borderline and 5.5% as abnormal. Emotional problems were found in 3.8% of the adolescents, with 91.8% scoring in the normal range and 4.5% in the borderline range. Conduct problems were reported in 8.8% of students, with 79% scoring normal and 12.2% borderline. Hyperactivity problems were observed in 6% of adolescents, with 84.2% in the normal range and 9.8% in the borderline range. Peer problems were reported in 5.5% of students, with 79.2% scoring normal and 15.2% borderline. Prosocial behavior issues were seen in 3.8% of students, with 93% scoring normal and 3.2% borderline. When analyzed by

gender, emotional problems were more common in females, with 5.3% of girls scoring in the abnormal range compared to 2.3% of boys, although the difference was not statistically significant ( $\chi^2 = 4.221$ ,  $p = 0.121$ ). Conduct problems were also more prevalent in boys, with 9.3% of boys showing abnormal scores compared to 8% of girls ( $\chi^2 = 1.79$ ,  $p = 0.710$ ). Hyperactivity was more common in girls, with 7.4% of girls having abnormal scores compared to 4.6% of boys ( $\chi^2 = 4.314$ ,  $p = 0.116$ ). Peer problems were nearly identical across genders, with 5.6% of boys and 5.3% of girls scoring in the abnormal range ( $\chi^2 = 0.031$ ,  $p = 0.985$ ). For prosocial behavior, 4.8% of girls had abnormal scores compared to 2.8% of boys ( $\chi^2 = 1.099$ ,  $p = 0.577$ ). However, the total difficulty score was significantly higher in females (8.5%) compared to males (2.8%), with a statistically significant difference ( $\chi^2 = 6.483$ ,  $p = 0.039$ ). Analysis of the association between SDQ scores and demographic variables revealed no statistically significant relationship with age, parental education, parental occupation or family type. For age, abnormal total difficulty scores were reported in 14-year-olds (4.5%), 15-year-olds (6.7%), 16-year-olds (7.2%) and 17-year-olds (2.4%) ( $\chi^2 = 5.997$ ,  $p = 0.423$ ). Regarding parental education, among students with abnormal scores, 5.6% had mothers educated up to the 10th standard, 4.2% had mothers educated up to the 10th–12th standard and 9.4% had mothers with graduation or higher qualifications ( $\chi^2 = 2.962$ ,  $p = 0.814$ ). Similarly, 7.2% of students with abnormal scores had fathers educated up to the 10th–12th standard, 7.5% had fathers with graduation or higher and none had fathers educated up to the 10th standard ( $\chi^2 = 8.542$ ,  $p = 0.201$ ). Among students with abnormal scores, 5.1% had homemaker mothers, 7.5% had mothers working in the government sector and 20% had a self-employed or private sector-employed mother ( $\chi^2 = 3.184$ ,  $p = 0.528$ ). Regarding fathers' occupation, 5.8% of students with abnormal scores had fathers who were farmers, 7.3% had fathers working

in the government sector and 1.5% had a father employed in the private sector ( $\chi^2 = 5.022, p = 0.285$ ). Family type also showed no significant association, with 5% of students with abnormal scores belonging to nuclear families and 6.5% from joint families ( $\chi^2 = 0.490, p = 0.483$ ). A significant gender difference was noted in total difficulty scores, which were higher in females. However, no significant associations were found between SDQ scores and demographic variables such as age, parental education, parental occupation and family type, suggesting that other psychosocial factors may influence adolescent mental health.<sup>28</sup>

17. A cross-sectional study was conducted in the Doiwala block of Dehradun to determine the prevalence of psychosocial problems among adolescents. A total of 840 adolescents were selected through multistage random sampling and data were collected using a structured and pretested questionnaire, followed by clinical examinations. Students were aged between 10 to 19 years with equal distribution among the gender. The overall prevalence of psychosocial problems was found to be 31.2%, with a higher prevalence in males (34.77%) compared to females (27.6%). Conduct disorder, depression and anxiety were identified as the most common issues, with late adolescent boys exhibiting the highest rates of conduct disorder (30.6%), depression (36%) and anxiety (38.8%). Substance abuse was found to be more prevalent among boys from joint families (25.2%). No significant difference in psychosocial problems was observed between adolescents from nuclear (31.4%) and joint families (30.7%), although boys from joint families showed a higher prevalence of depression (39.2%) and anxiety (49.9%). The findings highlighted the need for strengthening adolescent mental health services in existing programs and initiatives.<sup>11</sup>

18. A cross-sectional study conducted in Nepal, in a private school among students of 6<sup>th</sup> to 10<sup>th</sup> standard, assessed the mental health status of the participants using self-reported

SDQ with impact supplement. A total of 159 students were enrolled in the study and their mean age was 14.11 years with minimum age of 11 years and maximum of 17 years. There were 60.00% males & 40.00% females in the study. Majority of their fathers were employed (93.00%). Among mothers, 72.00% were unemployed and 28.00% were employed. The prevalence of mental health illness was 26.40% and statistically significant gender difference was seen in emotional problems and hyperactivity. Females had higher emotional and total difficulty score on SDQ ( $p < 0.05$ ) and males had significantly higher hyperactivity scores than females ( $p < 0.05$ ). Emotional problems were noted abnormal in 24.50% of the students, hyperactivity in 11.60%, conduct problems in 16.40%, peer problems in 22.00% and prosocial problems in 7.60%. This study emphasizes the importance of screening school children and adolescents for mental health problems, as failing to identify and address these issues may negatively impact their academic performance and future adult life<sup>13</sup>

19. This cross-sectional study was conducted in Iran, involving 2000 participants aged 6–18 years, selected using a random multistage cluster sampling method based on population distribution. Among the participants, 513 (26%) had a total problem score higher than the cutoff point, with no significant difference between genders. Conduct disorder had the highest prevalence (34.7%), followed by peer relationship problems (25.4%), emotional problems (24.5%), hyperactivity (23%) and impaired prosocial behavior (5.7%). Total problem scores were higher in the 6–13 years age group compared to the 14–18 years group. Emotional problems were significantly more prevalent in girls ( $p = 0.003$ ). Hyperactivity was more common in the younger age group in both sexes ( $p = 0.023$  in girls,  $p = 0.021$  in boys). Peer problems were significantly higher in 6–13-year-old girls than in older girls ( $p = 0.04$ ). The impact score was abnormal in 34.3% of the participants, with a significant difference between

genders ( $p = 0.02$ ). Children aged 6–10 years and 11–13 years had 2.39 times (95% CI: 1.52–3.76) and 2.17 times (95% CI: 1.31–3.59) higher odds of an abnormal total problem score than those aged 14–18 years, respectively. Psychiatric problems were 2.44 times more likely in children with homemaker mothers than those with employed mothers (95% CI: 0.22–0.77, OR: 0.41). Similarly, children with fathers who had only primary or secondary education had 2.61 times (95% CI: 1.32–5.16) and 2.59 times (95% CI: 1.44–4.65) higher odds of psychiatric disorders than those whose fathers had higher education. The likelihood of psychiatric disorders increased by 6 times with an abnormal prosocial behavior score and by 9.1 times with an abnormal impact score. The study highlights that younger children (6–13 years) were found to have higher total problem scores than older adolescents (14–18 years) and emotional problems were significantly more common in girls. Psychiatric problems were more likely among children with homemaker mothers and those whose fathers had only primary or secondary education. However, not all potential risk factors influencing mental health were included in the study.<sup>29</sup>

20. An analysis of 2,987 first-year primary school students from the Adachi Child Health Impact of Living Difficulty (A-CHILD) study in Tokyo explored the associations between parental returning home times and child mental health outcomes. The data, showed that 27.0% of families had both parents returning home on time, 55.2% had mothers on time and fathers returning late or at irregular times, 5.7% had mothers returning late and fathers on time and 12.1% had both parents returning late or at irregular times. Mothers who returned home late or irregularly ( $n = 532$ ) tended to be older ( $p = 0.004$ ) and more educated ( $p = 0.014$ ), whereas fathers who returned late or irregularly ( $n = 1,821$ ) were younger ( $p \leq 0.001$ ) and also more educated ( $p < 0.001$ ), with families in these groups having higher annual incomes ( $p < 0.001$ ) and a greater

likelihood of living with grandparents ( $p = 0.093$ ), though psychological distress levels were consistent across all parental return-time categories ( $p = 0.89$ ). Using age-specific thresholds for Japanese children aged 4–12 years, 13.7% scored in the clinical range for total difficulties, 9.8% for emotional symptoms, 13.4% for conduct problems, 12.5% for hyperactivity/inattention, 7.8% for peer relationship problems, and 13.7% for prosocial behavior, with children in households where both parents returned home late or irregularly exhibiting higher scores for conduct problems ( $p = 0.024$ ) and hyperactivity/inattention ( $p = 0.008$ ) compared to other groups. Multivariable regression analyses indicated that parental return-time patterns were linked to total difficulties, conduct problems, and hyperactivity/inattention after adjusting for other factors, as children in families where both parents returned late or irregularly had higher scores for total difficulties ( $\beta = 1.20$ , 95% CI: 0.55 to 1.85), conduct problems ( $\beta = 0.37$ , 95% CI: 0.13 to 0.60), and hyperactivity/inattention ( $\beta = 0.53$ , 95% CI: 0.24 to 0.82) compared to those in households where neither parent returned late, though no significant effects were observed when only one parent returned late or irregularly. Parent-child interaction scores were also significantly associated with parental return times, showing negative associations in all groups where at least one parent returned late ( $\beta = -0.52$  to  $-1.34$ ), and after controlling for parent-child interaction, the strength of these associations diminished but remained statistically significant, with total difficulties ( $\beta = 0.95$ , 95% CI: 0.31 to 1.60), conduct problems ( $\beta = 0.31$ , 95% CI: 0.07 to 0.54), and hyperactivity/inattention ( $\beta = 0.41$ , 95% CI: 0.12 to 0.69) continuing to show significant relationships with parental return-time patterns. Sensitivity analyses, including multinomial regression, confirmed that late parental return times were associated with a significantly higher risk of clinical categories for total difficulties ( $p = 0.001$ ) and conduct problems ( $p = 0.019$ ), as well as for both borderline and clinical

categories of hyperactivity/inattention ( $p = 0.027$  and  $p = 0.004$ ). A reduced risk of the borderline category of emotional symptoms ( $p = 0.043$ ) was observed in these families. This study highlights the significant impact of parental return time on children's mental health outcomes, particularly in relation to conduct problems and hyperactivity/inattention. When both parents return home late or at irregular times, children are more likely to experience psychological difficulties. Therefore, interventions aimed at improving family time and parent-child interactions may help mitigate these mental health risks.

21. The baseline sample included 1090 children and their parents, with an overall response rate of 17% at baseline and 56% at follow-up. Most questionnaires were answered by mothers (80.3%) and boys represented 60.2% of the sample. The children's mean age was 6.9 years (SD 3.3), with the number of children per family ranging from 1 to 5. Approximately 30.6% of the children received Health Coaching (HC) – intervention treatment. Conduct disorder (29.7% vs. 21.5%) and enuresis (17.1% vs. 4.6%) were more frequent in the intervention group, whereas developmental speech and language disorders (57.3% vs. 41.1%) and abdominal pain (22.2% vs. 16.5%) were more common in the control group. The parent-reported SDQ (SDQ-P) was completed for 922 children (aged  $\leq 11$  years), while the self-reported SDQ (SDQ-S) was completed by 168 minors. At baseline, the mean SDQ score was 8.4 (SD 5.7) for SDQ-P and 11.1 (SD 6.4) for SDQ-S. A total of 23.5% had an "at risk" SDQ score at baseline (SDQ-P  $> 13$ : 23.2%; SDQ-S  $> 15$ : 25%), with no significant differences between the intervention and control groups. At follow-up, 654 participants responded to the questionnaire. After excluding 55 participants with missing SDQ data, 599 participants had complete data for longitudinal analysis. Changes in SDQ total score and individual items between intervention and control groups were not significant. Improvement in

SDQ cut-offs (from "at risk" at baseline to "not at risk" at follow-up) was seen in 26.2% of the intervention group and 46.7% of the control group. However, most participants showed no change (73.8% in the intervention vs. 53.3% in the control group) and a notable proportion worsened (from "not at risk" at baseline to "at risk" at follow-up: 11.9% vs. 7.5%). These differences were not statistically significant ( $p = 0.056$ ). Separate analysis of SDQ-P and SDQ-S showed no significant difference between groups. Boys in the intervention group had a mean SDQ-S decrease of -2.8 (SD 4.1) versus -2.2 (SD 4.2) in the control group ( $p = 0.879$ ). Age was significantly associated with higher SDQ scores when modeled as a continuous variable (0.161,  $p = 0.021$ ). The control group showed a slight but non-significant decrease in total SDQ score (-0.6, SD 4.1;  $p = 0.065$ ). Children with conduct disorder had the highest SDQ scores (10.6, SD 5.7), but the difference between intervention and control groups was not significant ( $p = 0.559$ ). In the linear mixed effects model, time was significantly associated with lower SDQ scores (-0.414,  $p = 0.017$ ), but HC treatment had no significant effect (0.484,  $p = 0.312$ ). After adjusting for confounders, higher SDQ scores were significantly associated with male sex (2.000,  $p < 0.001$ ). Higher parental education was linked to lower SDQ scores (-2.127,  $p = 0.034$ ). Age (15–17 years) was associated with higher SDQ scores (1.533,  $p = 0.513$ ), but the effect was not significant. There was a significant improvement over time in the control group (-0.814,  $p = 0.001$ ), while SDQ scores in the intervention group remained stable (-0.012 points;  $p = 0.020$ ). No significant demographic or health-related differences were found between participants with and without follow-up data. These findings suggest that HC did not lead to significant improvements in child mental health outcomes, with demographic factors such as sex and parental education having a more notable influence on SDQ scores.<sup>30</sup>

22. This study was a sub-study of a larger cluster-randomized controlled trial called PREPARE (Promoting Sexual and Reproductive Health among Adolescents in Southern and Eastern Africa). The study involved Grade 8 adolescents (mean age 13 years) from 42 public high schools randomly selected from the database of high schools in the Western Cape Province, South Africa. One school dropped out, leaving a total of 3451 adolescents who participated in the baseline survey. Among the 3360 students who reported their gender, 39.7% were males and 60.3% were females. Most students (99.1%) were between the ages of 12 and 16 years, with an average age of 13.7 years. The study assessed the psychometric properties of the SDQ-Short Form. Statistical tests showed that girls had significantly higher scores than boys for emotional symptoms (difference = 1.16;  $p < 0.001$ ), prosocial behavior (difference = 0.63;  $p < 0.001$ ) and total difficulties (difference = 0.56;  $p < 0.01$ ). Boys scored significantly higher than girls for conduct problems (difference = 0.30;  $p < 0.001$ ) and hyperactivity/inattention (difference = 0.21;  $p < 0.01$ ). The SDQ-S scores were grouped into three categories—normal, borderline, and abnormal. The distribution of these categories was compared with UK norms, which are based on an 80–10–10% distribution. Compared to the UK data, South African adolescents had higher rates of high scores for total difficulties (14.9% vs. 9.2%), emotional symptoms (26.0% vs. 11.2%), peer problems (33.7% vs. 9.2%) and impact (16.9% vs. 5.8%). However, they showed better prosocial behavior (15.7% vs. 8.6%) and lower rates of hyperactivity/inattention (3.7% vs. 11.5%). Revised cut-offs were suggested to reflect the South African distribution more accurately. South African adolescents had higher mean scores for emotional symptoms and conduct problems than other samples, with slight overlap of confidence intervals with the Chinese sample for boys. For peer problems, South African adolescents scored higher than their counterparts in the UK and Australia but lower than Chinese boys.

Hyperactivity/inattention scores were lower for South African adolescents compared to all other samples, with only slight overlap between South African and Australian girls. Prosocial behavior scores were similar across most groups, except for Chinese boys, who scored lower than all other groups. On the total difficulties scale, South African and Chinese boys had the highest scores, while South African girls scored higher than girls from other countries. Additionally, South African adolescents reported higher impact scores than those from the UK. Confirmatory factor analysis (CFA) was performed to evaluate the five-factor structure of the SDQ-S. The initial model demonstrated poor fit ( $\chi^2 = 2710.14$ ; d.f. = 265;  $p < 0.001$ ; RMSEA = 0.052; CFI = 0.629; TLI = 0.580). After step-by-step modifications based on modification indices, including allowing for significant cross-loading, the final model achieved acceptable fit ( $\chi^2 = 637.54$ ; d.f. = 258;  $p < 0.001$ ; RMSEA = 0.021; CFI = 0.942; TLI = 0.933). Emotional problems and prosocial behavior factors had loadings above 0.40 on all five relevant indicators, while hyperactivity and conduct problems loaded on three relevant indicators each, and peer problems loaded on two indicators. Emotional problems had one irrelevant loading (0.28), and prosocial behavior had six irrelevant loadings, four of which were above 0.40. The strongest correlations were observed between emotional problems and peer problems (0.81), hyperactivity/inattention and conduct problems (0.73), and emotional problems and hyperactivity/inattention (0.67). The study underscores notable gender differences, with girls exhibiting more emotional symptoms and boys displaying more conduct problems and hyperactivity. The confirmatory factor analysis supported a five-factor SDQ structure after adjustments, highlighting the strong interconnections between emotional, behavioral, and peer-related issues.<sup>31</sup>

## METHODOLOGY

### **Source of Data:**

Belagavi is a district situated in the northwestern region of Karnataka state. According to the Census 2011 data, the population of Belagavi city was 4,779,661. As per the Aadhar Unique Identification Authority of India data from 2022, the district's estimated population was 5,143,390. For effective administration, Belagavi district is divided into 10 taluks, comprising of 18 municipalities, 22 towns, 35 hoblies, 485-gram panchayats and 1,270 villages. Schools in the district are divided into six blocks: Belgaum City Block, Belgaum Rural Block, Bailhongal Block, Khanapur Block, Ramdurg Block and Soundatti Block. Belagavi city has 361 primary and secondary schools, including 243 providing primary education, 93 secondary education and 25 schools offering both primary and secondary education. Out of 361 schools, 322 are co-educational schools, 29 are exclusively for girls and 10 are for boys only. The majority of the population in Belagavi district speaks Kannada, Marathi and Hindi, while others communicate in languages such as Konkani, Urdu, Sindhi, Telugu, Punjabi and Tamil.

### **Study design:**

A Cross - Sectional study.

### **Study population:**

School children aged 12 - 17 years from the selected four Co - educational schools of Belagavi city.

### **Study period:**

1<sup>st</sup> April 2023 – 31<sup>st</sup> March 2024

**Study area:**

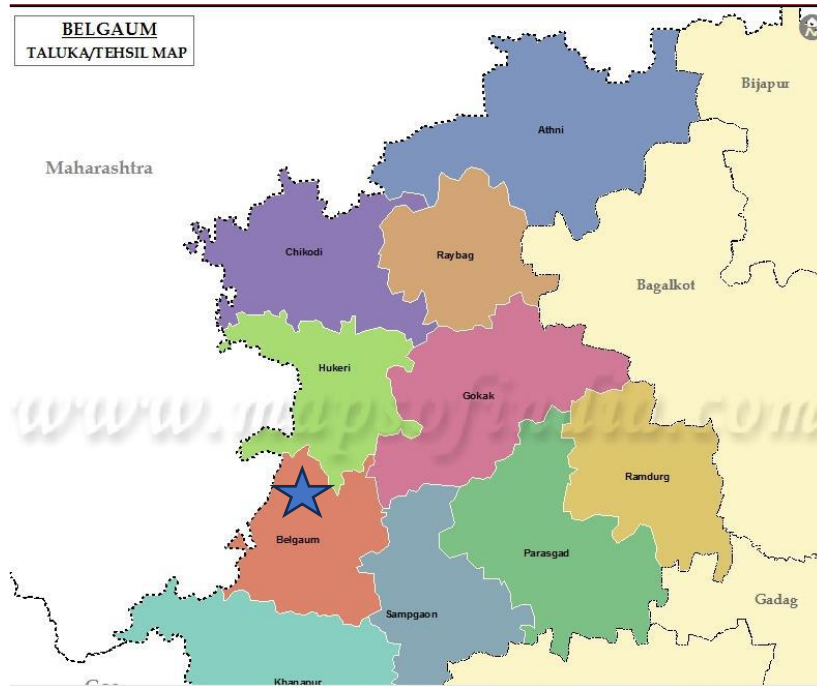


Fig 1. Image showing the locations of the study area (district)

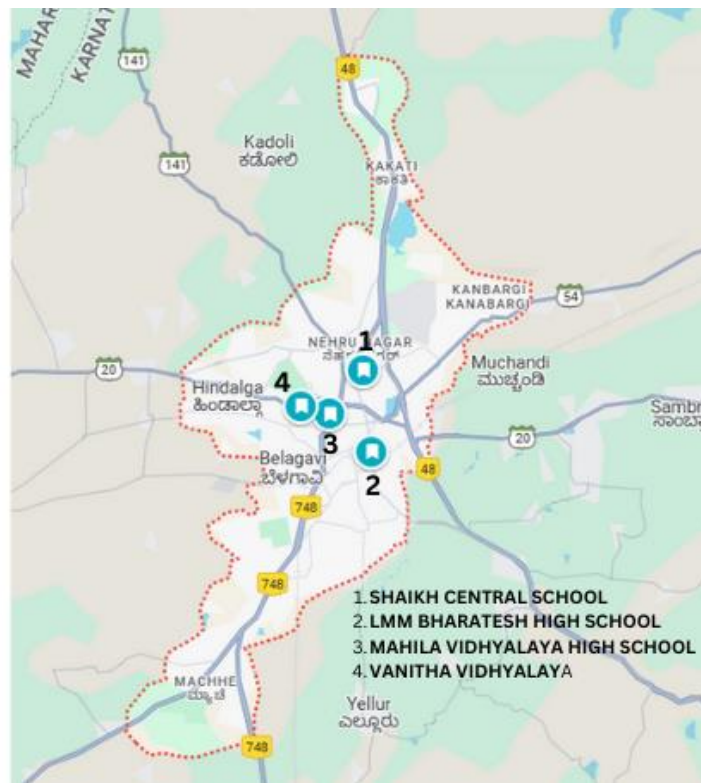


Fig 2. Image showing the locations of the selected school

**Sample size:**

Sample size was calculated using formula  $n = 4pq/d^2$

Where,

$$P = 27.7\% \text{ (P = prevalence of mental health problem)}^{19}$$

$$q = 100 - p = 100 - 27.7 = 72.3$$

$$d = \text{Absolute error} = 3\%$$

$$\text{sample size (n)} = 4pq / d^2$$

$$= 4 \times (27.7 \times 72.3) / (3 \times 3)$$

$$= 8010.84 / 9$$

$$= 890 \approx 900$$

**Sampling Method:**

As per the list obtained from nodal officer for schools in Belagavi city, there are a total of 361 schools. One school from north, one from south, one from west and one from east zone of Belagavi city were randomly selected. Permission was sought from the principal of these chosen four schools with official request letter explaining the purpose of the study. A proportionate sample based on the total student population of each school was used to determine the number of students selected per school. A sampling frame was prepared using the attendance register and the required number of students from each school were selected through computer-generated random numbers using simple random sampling method.

<b>Name of the school</b>	<b>Total strength</b>	<b>Population proportionate sample</b>
Shaikh Central School [North]	291	166
LMM Bharathesh High School [East]	335	192
Mahila Vidhyalaya High School [West]	445	254
Vanitha Vidhyalaya [South]	504	288
<b>Total</b>	<b>1575</b>	<b>900</b>

**Inclusion Criteria:**

High school students studying in 8<sup>th</sup>, 9<sup>th</sup> & 10<sup>th</sup> standards.

**Exclusion Criteria:**

1. Students with known mental illness
2. Students who are on anti-psychiatric drugs

**Ethical Clearance:**

Ethical clearance was obtained from Institutional Ethical Committee, J.N. Medical College, KAHER, Belagavi. (Ref No. MDC/JNMCIEC/46 dated 31/3/2023)

**Data collection procedure:**

A detailed letter explaining the purpose of the study was submitted to the selected schools. Upon receiving approval, the principals were requested to inform the students and their parents about the study and seek their permission. Data collection was carried out after obtaining informed written consent from the parents and assent from the students of the selected schools.

Data was collected by personal interview from all the study participants regarding socio-demographic variables using a structured and pre-tested questionnaire. The assessment of the mental health status of the students was done using Strength and Difficulty Questionnaire (SDQ).

SDQ is an instrument used to measure the mental health status of the adolescents which contains 25 questions. It has several versions, but in this study self-reported questionnaire was used. It helps to assess 5 domains of mental health such as emotional, conduct, hyperactivity, peer problems and pro-social problems. Each domain has five questions and a total score of 0-10 (each question carrying 2 marks each). Each question has three responses as 0-not true, 1-somewhat true and 2-certainly true. For hyperactivity and emotional domain, the scoring was similar, 0-5 is considered normal (unlikely to have a problem in domain), 6 as borderline (slight risk of clinically significant problem in domain) and 7 to 10 as abnormal (substantial risk of clinically significant problem in domain). Similarly for peer problems and conduct, 0-3 is considered normal, 4 as borderline and 5 - 10 as abnormal. Sum of 4 domains except pro-social gives total difficulties score of 0-40, in which 0-15 is considered normal, 16-19 as borderline and 20-40 as abnormal. Abnormal scores in SDQ indicate that the participant is at substantial risk of clinically significant mental health problems. Prosocial is considered as a positive indicator and its scoring is

different from other domains, 0-5 is abnormal, 6 as borderline and 7 – 10 considered as normal.

After the initial 25 questions, an additional 5 questions were asked to assess the impact factor, which measures how the difficulties are perceived by students in their daily lives. The focus was on how these difficulties affected the child's functioning rather than the burden on others (such as teachers, family and friends). The chronicity of the difficulties and their effect on others were not considered, as the goal was to understand the direct impact on the child. Each question had four response options: 0 – Not at all, 1 – A little, 2 – A medium amount and 3 – A great deal. For scoring, options 0 and 1 were given 0 points, option 2 was given 1 point and option 3 was given 2 points. The total impact score ranged from 0 to 10: a score of 0 was considered normal (indicating that difficulties did not affect the child), 1 was borderline (indicating that difficulties affected the child to some extent) and a score of greater than or equal to 2 was considered abnormal (indicating that difficulties had a major impact on the child's everyday life and activities).

## **DATA ANALYSIS**

The collected survey sheets were organized and numbered according to their respective schools. The data was then entered into Excel sheet and analysed using the trial version of SPSS software. Quantitative data was analysed using mean, median and standard deviation, while qualitative data was summarized as percentages and proportions. The association between variables was assessed using the Chi-square test. Variables found to be significant with Chi-square test were subjected for further analysis through univariate and multivariate logistic regression. A p-value of  $< 0.05$  was considered as statistically significant.

### **Definition of Study variables:**

1. **Age:** Age was recorded to the nearest completed years.

### **2. Type of family:**

I. Nuclear: The family consisting of married couple along with their dependent children.

II. Joint: The family consisting of more than one married couple and their dependent children.

III. Broken: A broken family is one where the parents have separated, or where death has occurred of one or both the parents.

### **3. Literacy status:**

I. Illiterate: A person who cannot read or write with understanding in any language

II. Primary: A person who has studied up to 7th standard

III. Secondary: A person who has studied up to 10th standard

IV. Pre- University College (PUC): A person who has completed education up to PUC 2nd year

V. Diploma: A person who has completed any diploma course

VI. Degree: A person who has completed any graduate degree course

VII. Post graduate: A person who has completed any post - graduation course

### **4. Occupation:**

I. Farmer: A person who owns land or on a contract basis or works at agricultural fields on a daily wage basis.

II. Labourer: A person who works in any place on a daily wage basis.

III. Self - employed: A person engaged in commercial or industrial business either an owner or executive.

IV. Government employee: A person who is a permanent or contract worker in any government agency.

V. Private employee: A person who is a permanent or contract worker in any private company or factory or Non - Governmental organizations (NGOs).

VI. Unemployed: A person who is currently not working.

VII. Home maker: A person who looks after the home and children.

### **5. Socioeconomic class:**

The B.G. Prasad scale was initially introduced in 1961, with the base Consumer Price Index (CPI) set at 100 for the year 1960. It was subsequently updated using linking factors of 4.63, 4.93, and 2.88 for the years 1982, 2001 and 2016 respectively, as provided by the Labor Bureau of India.

Average CPI for the period 1<sup>st</sup> April 2023 – 31<sup>st</sup> March 2024 is 138.7

Multiplication factor = Average CPI for the period 1<sup>st</sup> April 2023 – 31<sup>st</sup> March 2024

$$= (138.7) / \text{Base index value in 2016 (100)}$$

$$= 1.387$$

The new income value is calculated using the following equation:

$$\text{New income value} = \text{Multiplication factor (MF)} \times \text{Old income value} \times 4.63 \times 4.93 \times 2.88.$$

Upon substituting the values in the equation, the updated ranges were calculated as shown below.

**Revised BG Prasad Socio- economic Status Classification for the period 1<sup>st</sup> April 2023 – 31<sup>st</sup> March 2024**

<b>Socio-economic classes</b>	<b>Original B.G Prasad’s classification (1961) (in Rs.)</b>	<b>Revised B.G Prasad’s classification for 1<sup>st</sup> April 2023 – 31<sup>st</sup> March 2024 (in Rs.)</b>
I	100 and above	9027 and above
II	50-99	4469 – 9026
III	30-49	2645 – 4468
IV	15-29	1367 – 2644
V	Below 15	Below 1367

**6. Discrimination**

Discrimination refers to the unfair or unjust treatment of an individual based on characteristics such as race, gender, religion, socioeconomic status or physical appearance. Among school students, discrimination may occur through exclusion, biased treatment by peers or teachers or being targeted for differences in personality, academic performance or socio-economic status.

**7. Hobby**

A hobby is an activity that a person engages regularly during their free time for enjoyment and relaxation. For school students, hobbies may include sports, music, art, reading, gaming or other creative or physical activities.

## **8. Extracurricular class**

Extracurricular classes are structured activities that take place outside the regular academic curriculum, aimed at developing additional skills and interests. These may include educational programs (such as language or computer classes), life skills training, music, dance or sports.

## **9. Bullying**

Bullying refers to repeated aggressive behaviour towards an individual that involves an imbalance of power. It can be physical (hitting, pushing), verbal (insults, name-calling), social (exclusion, spreading rumours) or online (cyberbullying).

## **10. Physical violence**

Physical violence involves the intentional use of force to cause bodily harm or injury to another person. In the context of school students, it may include hitting, kicking, pushing or other forms of aggressive physical contact.

## **RESULTS**

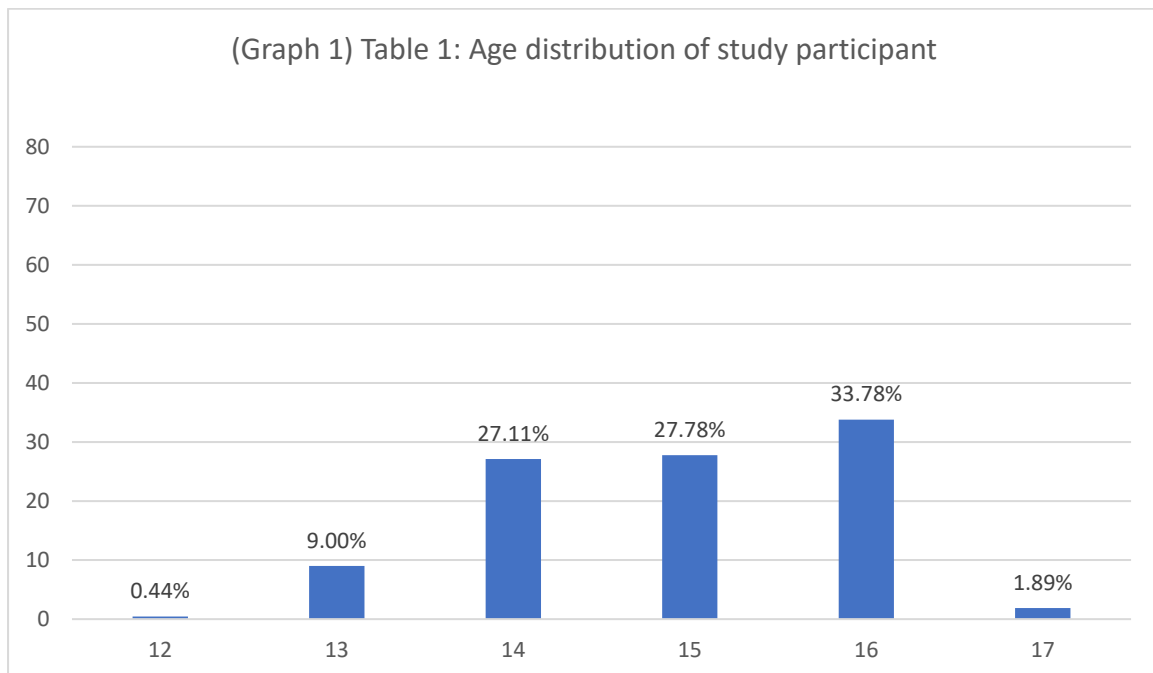
The results of our study will be analysed under the following headings

- I. Socio-Demographic Profile of Study Participant
- II. Profile of Risk Factors for Mental Health Problems among Study Participant
  - A. Risk Factors at Home
  - B. Individual's Risk Factors
  - C. Risk Factors at School
  - D. Predictors for Mental Health Problems
- III. Assessment of Mental Health Status of Study Participant
- IV. Association between Socio Demographic Factors & Profile of Risk Factors with Total Difficulties Score

## I. SOCIO-DEMOGRAPHIC PROFILE OF STUDY PARTICIPANT

**Table 1: Age distribution of study participant**

Age (in years)	Number	Percentage
12	4	0.44
13	81	9.00
14	244	27.11
15	250	27.78
16	304	33.78
17	17	1.89
<b>Total</b>	<b>900</b>	<b>100</b>



In our study, out of 900 school children studied, 304 (33.78%) were aged 16 years, 250 (27.78%) were aged 15 years, 244 (27.11%) were aged 14 years, 81 (9.00%) were aged 13 years, 17 (1.89%) and 4 (0.44%) were aged 17 and 12 years respectively. The mean age  $\pm$  standard deviation (SD) of study participants was  $14.91 \pm 1.03$  years and the range was 12 to 17 years. The median age of the participants was 15 years. On further analysis, it was found that 324 (36.00%) participants were studying in 8<sup>th</sup> standard, 214 (23.78%) in 9<sup>th</sup> standard and 362 (40.22%) in 10<sup>th</sup> standard.

**Distribution of study participant according to sex:** Among 900 participants, 488 (54.22%) were male and 412 (45.78%) were female.

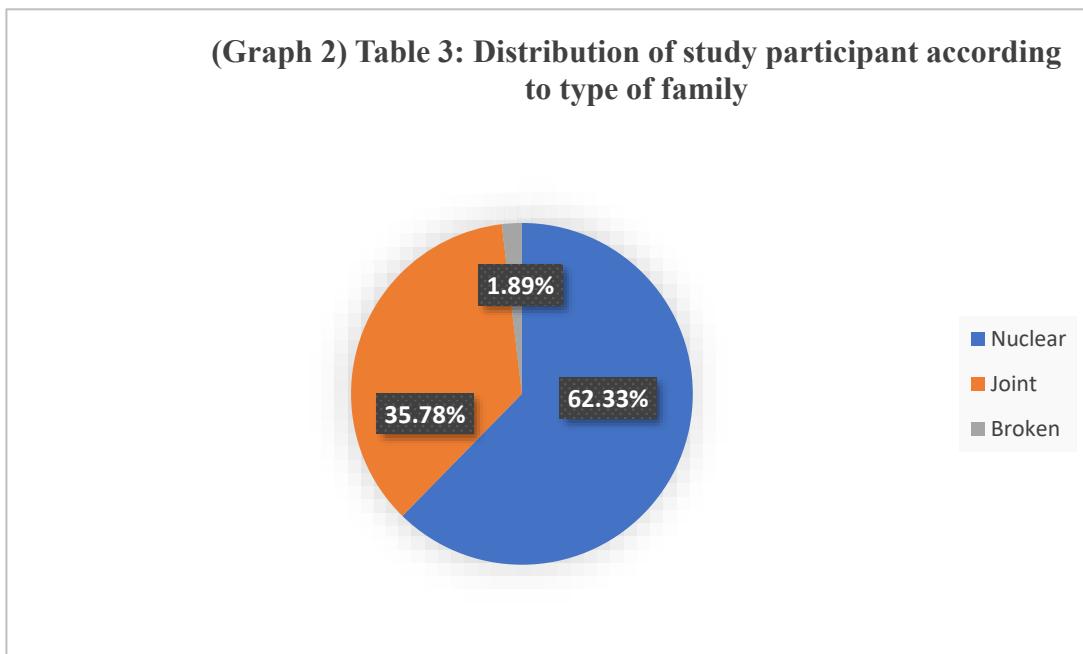
**Table 2: Distribution of study participant according to religion**

<b>Religion</b>	<b>Number</b>	<b>Percentage</b>
Hindu	574	63.78
Muslim	258	28.67
Jain	43	4.78
Christian	22	2.44
Others	3	0.33
<b>Total</b>	<b>900</b>	<b>100</b>

In the study, participants were from various religious backgrounds. Among the 900 children studied, 574 (63.78%) of them followed Hinduism, 258 (28.67%) Islam, 43 (4.78%) Jainism, 22 (2.44%) Christianity and 3 (0.33%) followed other religions.

**Table 3: Distribution of study participant according to type of family**

Type of family	Number	Percentage
Nuclear	561	62.33
Joint	322	35.78
Broken	17	1.89
<b>Total</b>	<b>900</b>	<b>100</b>

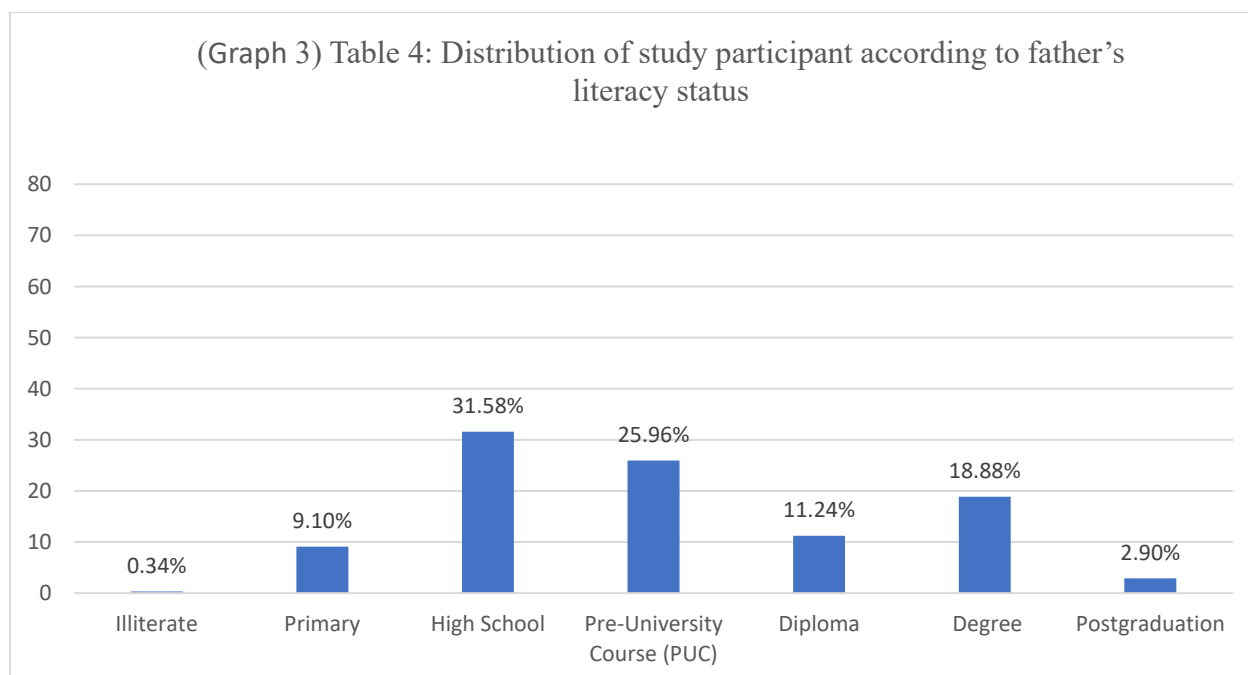


Among the 900 participants in our study, 561 (62.33%) children were from nuclear family, 322 (35.78%) joint family and 17 (1.89%) belonged to broken family.

**Table 4: Distribution of study participant according to father’s literacy status**

<b>Father’s literacy status</b>	<b>Number</b>	<b>Percentage</b>
Illiterate	3	0.34
Primary	81	9.10
High School	281	31.58
Pre-University Course (PUC)	231	25.96
Diploma	100	11.24
Degree	168	18.88
Postgraduation	26	2.90
<b>Total</b>	<b>890*</b>	<b>100</b>

\* 10 students had lost their father



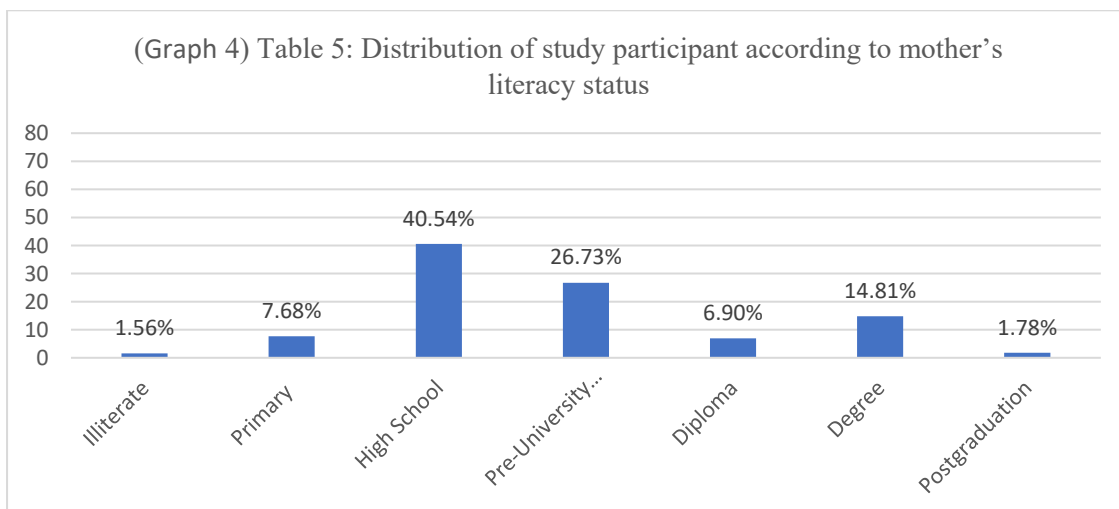
In the present study, majority of the study participant’s fathers’ were literate 887 (99.66 %).

Among the literates, 281 (31.58%) had completed high school, 231 (25.96%) had completed PUC, 168 (18.88%) were degree holders, 100 (11.24%) had completed diploma, 81 (9.10%) had completed primary education and 26 (2.90%) had a post graduate degree.

**Table 5: Distribution of study participant according to mother’s literacy status**

Mother’s literacy status	Number	Percentage
Illiterate	14	1.56
Primary	69	7.68
High School	364	40.54
Pre-University Course (PUC)	240	26.73
Diploma	62	6.90
Degree	133	14.81
Postgraduation	16	1.78
<b>Total</b>	<b>898*</b>	<b>100</b>

\* 2 students had lost their mother



In the present study, majority of the study participant's mothers' were literate 884 (98.44%). Among the literates, 364 (40.54%) had completed high school, 240 (26.73%) had completed PUC, 133 (14.81%) were degree holders, 62 (6.90%) had completed diploma, 69 (7.68%) had completed primary education and 16 (1.78%) had a post graduate degree.

**Table 6: Distribution of study participant according to father's occupation**

<b>Father's Occupation</b>	<b>Number</b>	<b>Percentage</b>
Farmer	31	3.48
Labourer	47	5.28
Self-employed	487	54.71
Government	160	17.98
Private	158	17.76
Unemployed	7	0.79
<b>Total</b>	<b>890*</b>	<b>100</b>

\* 10 students had lost their father

In the present study, regarding the occupation of the school student's father, it was noted that more than half (54.71%) of them were self-employed, 160 (17.98%) were employed in government sector, 158 (17.76%) were employed in private sector, 47 (5.28%) and 31 (3.48%) were labourer and farmer respectively. Only 7 (0.79%) were unemployed.

**Table 7: Distribution of study participant according to mother's occupation**

<b>Mother's Occupation</b>	<b>Number</b>	<b>Percentage</b>
Farmer	6	0.67
Labourer	20	2.22
Self-employed	97	10.80
Government	42	4.67
Private	69	7.68
Home maker	664	73.96
<b>Total</b>	<b>898*</b>	<b>100</b>

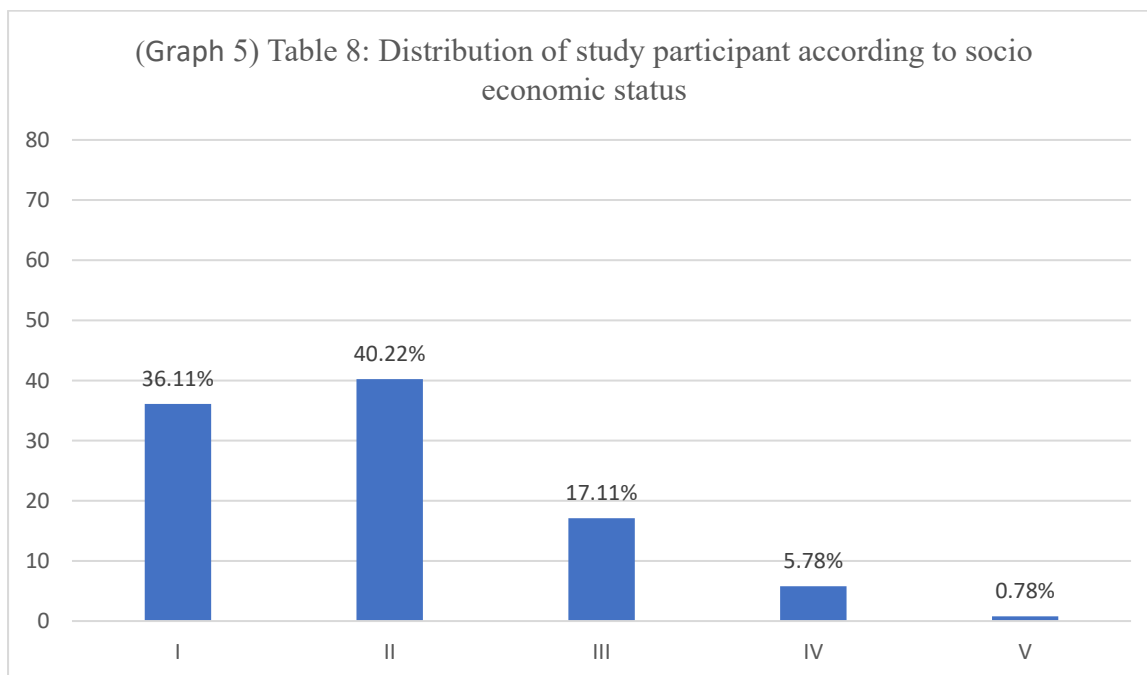
\* 2 students had lost their mother

In the present study, out of 900 school children studied, 664 (73.96%) mothers were home makers and 234 (26.04%) were employed in one or the other occupation. Among them, 97 (10.80%) were self-employed, 69 (7.68%) were employed in private sector, 42 (4.67%) in government sector, 20 (2.22%) and 6 (0.67%) were labourer and farmer respectively.

**Table 8: Distribution of study participant according to socio economic status**

<b>Socio economic status</b>	<b>Number</b>	<b>Percentage</b>
I	325	36.11
II	362	40.22
III	154	17.11
IV	52	5.78

V	7	0.78
<b>Total</b>	<b>900</b>	<b>100</b>



Among the 900 participants in our study, 362 (40.22%) belonged to Class II socio economic status according to modified B. G. Prasad's classification, 325 (36.11%) belonged to class I, 154 (17.11%) belonged to class III, 52 (5.78%) to class IV and 7 (0.78%) belonged to class V.

## II. PROFILE OF RISK FACTORS FOR MENTAL HEALTH PROBLEMS AMONG STUDY PARTICIPANT

### A. RISK FACTORS AT HOME

**Distribution of study participant according to where do they stay:** Out of 900 school children, 898 (99.78%) stayed at home along with family members and only 2 (0.22%) students stayed in a hostel.

**Table 9: Distribution of study participant according to whom do they live with**

Whom do they live with	Number	Percentage
Both parents	732	81.51
Only mother	38	4.23
Both parents & Both grandparents	33	3.67
Distant relatives	29	3.23
Close relatives	15	1.67
Both grandparents	14	1.56
Both parents & grandmother	14	1.56
Only father	6	0.67
Only grandmother	6	0.67
Both parents, both grandparents & relatives	5	0.56
Both parents & grandfather	3	0.34
Both parents & relatives	2	0.22
Only grandfather	1	0.11
<b>Total</b>	<b>898*</b>	<b>100</b>

\* 2 students stayed at hostel

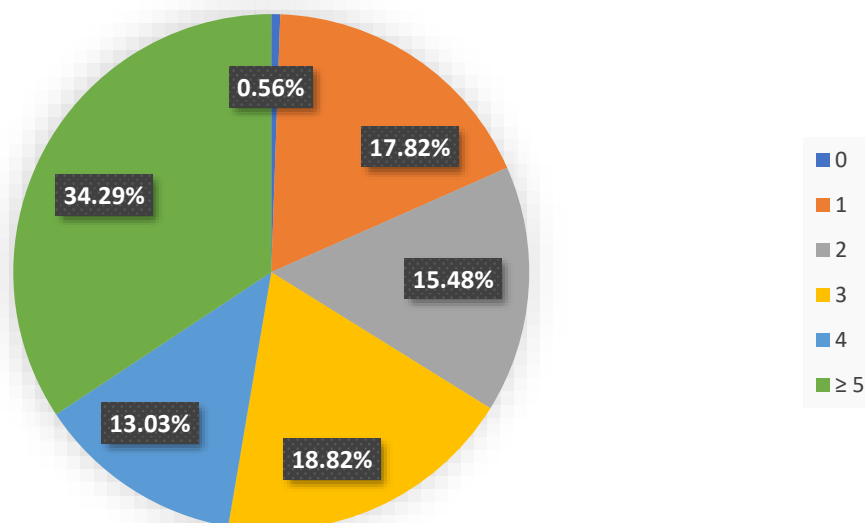
In the present study, out of 898 participant who stayed at home, 732 (81.51%) stayed with both parents i.e, father and mother, 38 (4.23%) with mother, 33 (3.67%) with both parents & grandparents, 29 (3.23%) with distant relatives and 15 (1.67%) with close relatives i.e uncle and aunt. Both grandparents, both parents & grandmother about 14 (1.56%) each student stayed with them. Only father and only grandmother nearly 6 (0.67%) each student stayed with them. Five (0.56%) students stayed with both parents, both grandparents and relatives, 3 (0.34%) with both parents and grandfather, 2 (0.22%) with both parents and relatives and only 1 (0.11%) student stayed with only grandfather.

**Table 10: Distribution of study participant according to time spent with family members**

<b>Time spent with family members (in hours)</b>	<b>Number</b>	<b>Percentage</b>
0	5	0.56
1	160	17.82
2	139	15.48
3	169	18.82
4	117	13.03
≥ 5	308	34.29
<b>Total</b>	<b>898*</b>	<b>100</b>

\* 2 students stayed at hostel

**(Graph 6) Table 10: Distribution of study participant according to time spent with family members**



In the present study, out of 898 who stayed at home, 308 (34.29%) spent  $\geq 5$  hours of time with family members, 169 (18.82%) spent 3 hours, 160 (17.82%) spent 1 hour, 139 (15.48%) spent 2 hours and 117 (13.03%) spent 4 hours with family members. Whereas, 5 (0.56%) students did not spend any time with the family members. The mean  $\pm$  standard deviation time spent with family members was  $3.29 \pm 1.52$  hours and the median was 3 hours.

**Table 11: Distribution of study participant according to whether they had one meal with family members**

One meal with family members	Number	Percentage
Yes	816	90.86
No	82	9.14
<b>Total</b>	<b>898*</b>	<b>100</b>
<b>If not, reasons (n = 82)</b>		
Parents were working	64	7.14
Likes to eat alone	10	1.11

Don't know	7	0.78
Student is busy	1	0.11

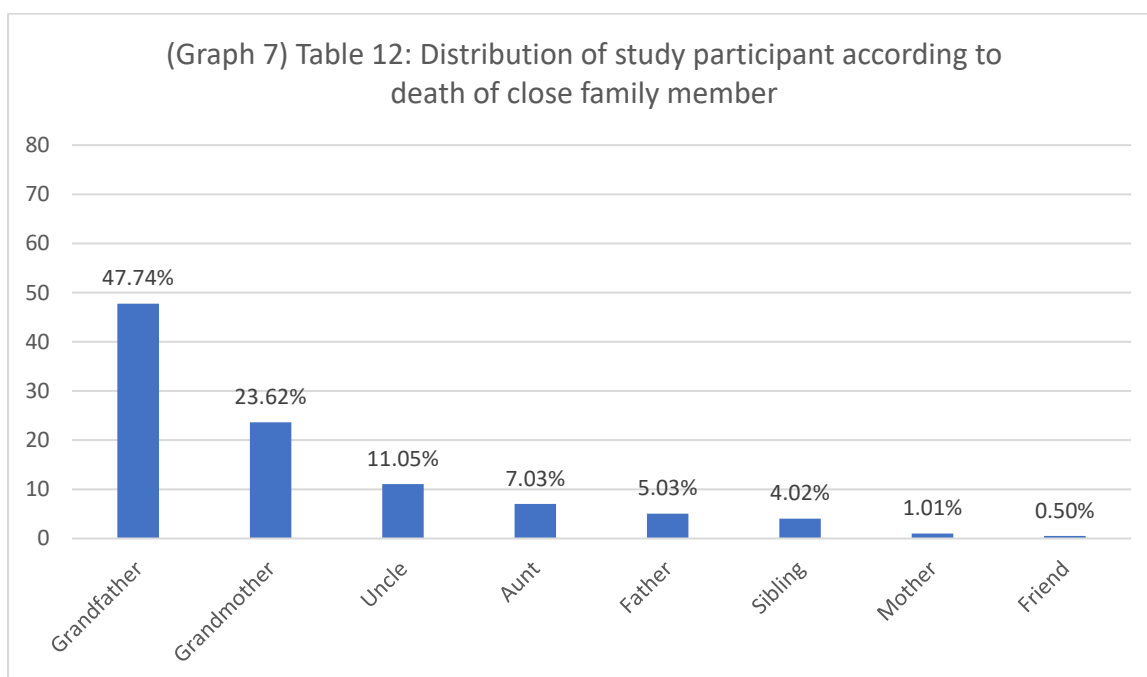
\* 2 students stayed at hostel

In this study, out of 898 participants, 816 (90.86%) of them have at least one meal with their family members and 82 (9.14%) doesn't have one meal also with their family members in a day. Among 82 participants who doesn't have one meal with family members, 64 (7.14%) said that their parents were busy at work, 10 (1.11%) said that they wanted to eat alone, 7 (0.78%) don't know what was the reason and 1 (0.11%) student claimed that he/she was busy with some work.

**Table 12: Distribution of study participant according to death of close family member**

<b>Death of close family member</b>	<b>Number</b>	<b>Percentage</b>
Yes	199	22.11
No	701	77.89
<b>Total</b>	<b>900</b>	<b>100</b>
<b>If yes, who (n = 199)</b>		
Grandfather	95	47.74
Grandmother	47	23.62
Uncle	22	11.05
Aunt	14	7.03
Father	10	5.03

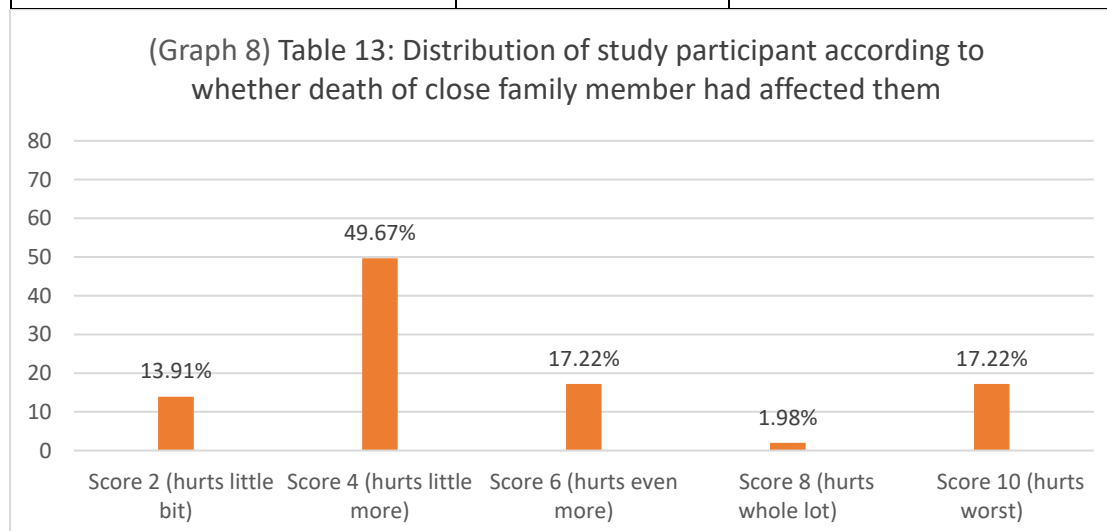
Sibling	8	4.02
Mother	2	1.01
Friend	1	0.50
<b>Total</b>	<b>199</b>	<b>100</b>



In the present study, 199 participants (22.11%) reported experiencing the loss of a close family member or friend within the past one year. Among them, 95 (47.74%) had lost their grandfather, 47 (23.62%) their grandmother, 22 (11.05%) their uncle and 14 (7.03%) their aunt. Additionally, 10 participants (5.03%) had lost their father, 2 (1.01%) their mother, 8 (4.02%) their sibling and 1 (0.50%) student had lost a close friend.

**Table 13: Distribution of study participant according to whether death of close family member had affected them**

<b>Death of close family member has affected you</b>	<b>Number</b>	<b>Percentage</b>
Yes	151	75.87
No	48	24.13
<b>Total</b>	<b>199</b>	<b>100</b>
<b>If yes, scoring on a pain scale (n = 151)</b>		
Score 2 (hurts little bit)	21	13.91
Score 4 (hurts little more)	75	49.67
Score 6 (hurts even more)	26	17.22
Score 8 (hurts whole lot)	3	1.98
Score 10 (hurts worst)	26	17.22
<b>Total</b>	<b>151</b>	<b>100</b>

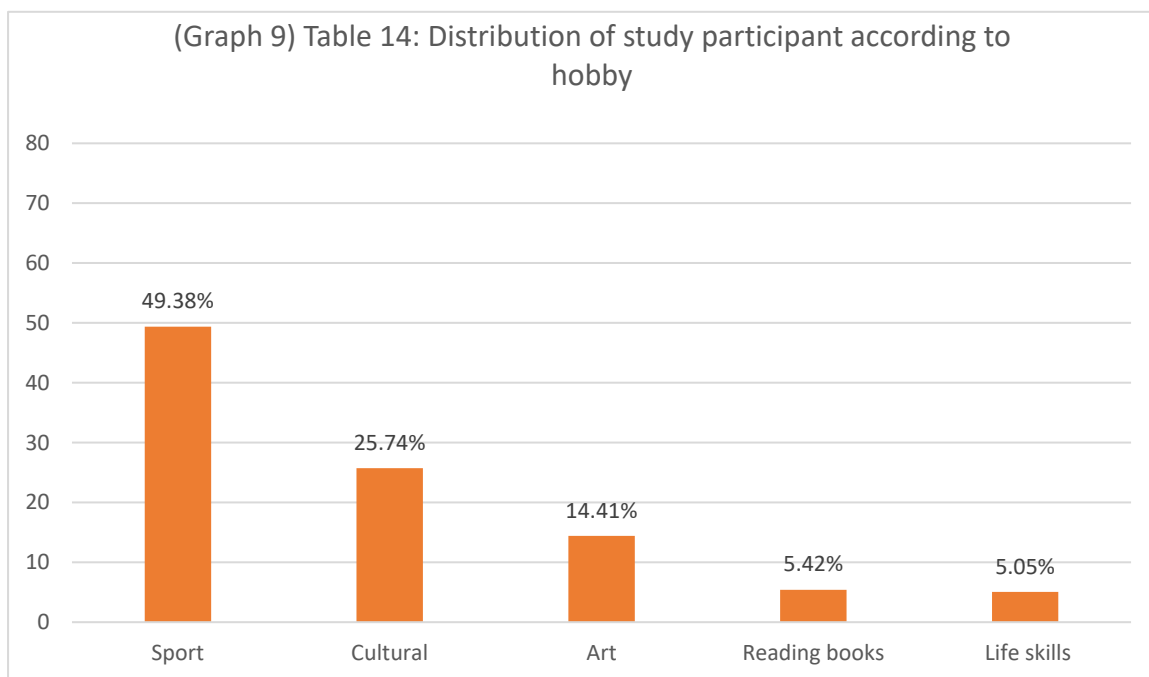


In the present study, out of 199 participants who had experienced the loss of a close family member or friend, 151 (75.87%) reported being affected by the death, while 48 (24.13%) stated it had not affected them. Among the 151 students who were affected by the death of close family members, when told to score on a pain scale the following results were noted: score 2 (hurts little bit) in 21 (13.91%), score 4 (hurts little more) 75 (49.67%), score 6 (hurts even more) 26 (17.22%), score 8 (hurts whole lot) 3 (1.98%) and score 10 (hurts worst) in 26 (17.22%). The pain scale score ranged from 2 to 10, with mean  $\pm$  standard deviation of  $5.18 \pm 2.53$  and a median of 4.

## B. INDIVIDUAL'S RISK FACTORS

**Table 14: Distribution of study participant according to hobby**

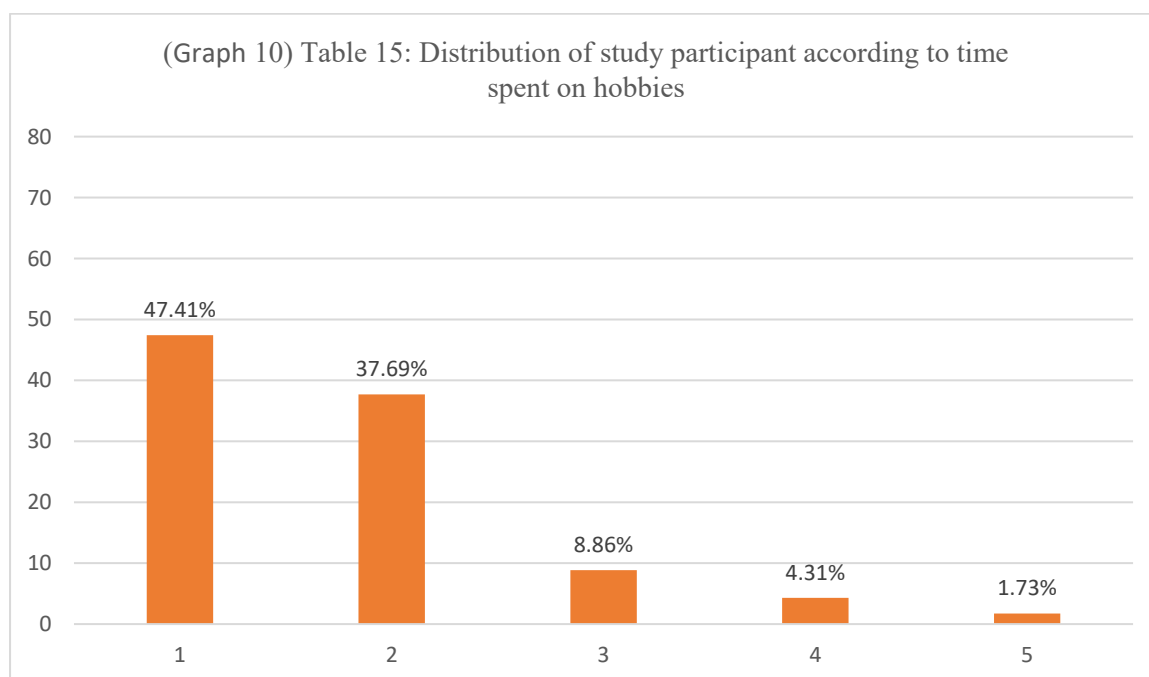
<b>Hobby</b>	<b>Number</b>	<b>Percentage</b>
Yes	812	90.22
No	88	9.78
<b>Total</b>	<b>900</b>	<b>100</b>
<b>If yes, what (n = 812)</b>		
Sport	401	49.38
Cultural	209	25.74
Art	117	14.41
Reading books	44	5.42
Life skills	41	5.05
<b>Total</b>	<b>812</b>	<b>100</b>



In the study, out of 900 participants, 812 (90.22%) students had one or the other hobby. Among those students who had hobby, 401 (49.38%) engaged in sports, 209 (25.74%) participated in cultural activities, 117 (14.41%) pursued art-based hobbies, 44 (5.42%) enjoyed reading books and 41 (5.05%) focused on skill development. The students were involved in the following sports activities: 157 (39.15%) cricket, 75 (18.71%) football, 60 (14.98%) badminton, 47 (11.73%) carrom, 22 (5.49%) karate and 40 (9.94%) kabaddi. The cultural hobbies noted in our study were: 108 (51.68%) dancing, 64 (30.63%) singing and 37 (17.69%) were learning musical instruments. The hobbies related to art were 81 (69.24%) drawing, 24 (20.52%) painting and 12 (10.24%) craft. The life skill development hobbies noted in students were: 17 (41.47%) cooking, 11 (26.83%) cycling, 9 (21.96%) swimming, 2 (4.87%) each yoga and financial management.

**Table 15: Distribution of study participant according to time spent on hobbies**

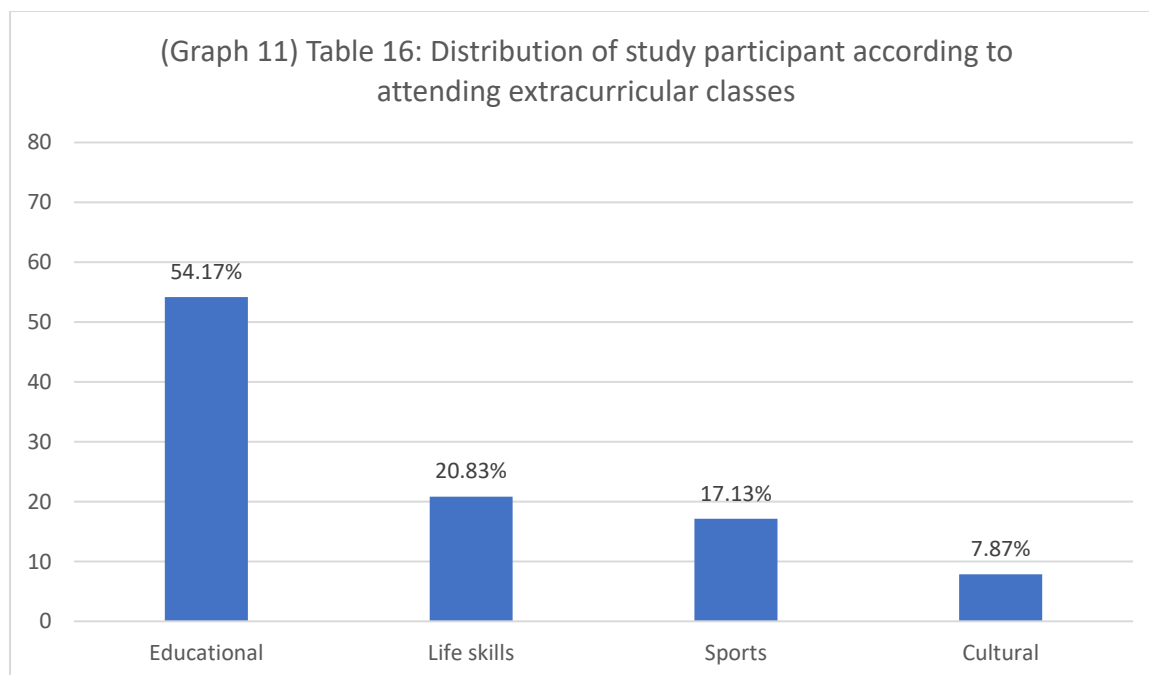
<b>Time spent on hobbies (in hours)</b>	<b>Number</b>	<b>Percentage</b>
1	385	47.41
2	306	37.69
3	72	8.86
4	35	4.31
5	14	1.73
<b>Total</b>	<b>812</b>	<b>100</b>



In the present study, out of 812 students who had hobbies, 385 (47.41%) spent 1 hour, 306 (37.69%) 2 hours, 72 (8.86%) 3 hours, 35 (4.31%) 4 hours and 14 (1.73%) students spent 5 hours on their hobbies. The mean  $\pm$  standard deviation hours spent on hobbies was  $1.75 \pm 0.90$  hours and median was 2 hours.

**Table 16: Distribution of study participant according to attending extracurricular classes**

<b>Extracurricular Class</b>	<b>Number</b>	<b>Percentage</b>
Yes	216	24.00
No	684	76.00
<b>Total</b>	<b>900</b>	<b>100</b>
<b>If yes, which class (n = 216)</b>		
Educational	117	54.17
Life skills	45	20.83
Sports	37	17.13
Cultural	17	7.87
<b>Total</b>	<b>216</b>	<b>100</b>



In the present study, out of 900 participants 216 (24.00%) were engaged in extracurricular classes and 684 (76.00%) did not go for any extracurricular classes. Out of 216 students who attended extracurricular classes, most of them 117 (54.17%) were engaged in educational based

classes, 45 (20.83%) in life skill developing classes, 37 (17.13%) in sports classes and 17 (7.87%) in cultural events-based classes. The time spent in extracurricular classes was as follows: 85 (39.35%) 1 hour, 2 (0.92%) 1.5 hours, 106 (49.07%) 2 hours and 23 (10.66%) 3 hours. The mean  $\pm$  standard deviation time spent on extracurricular classes was  $1.71 \pm 0.65$  hours and median was 2 hours.

**Table 17: Distribution of study participant according to owning a mobile**

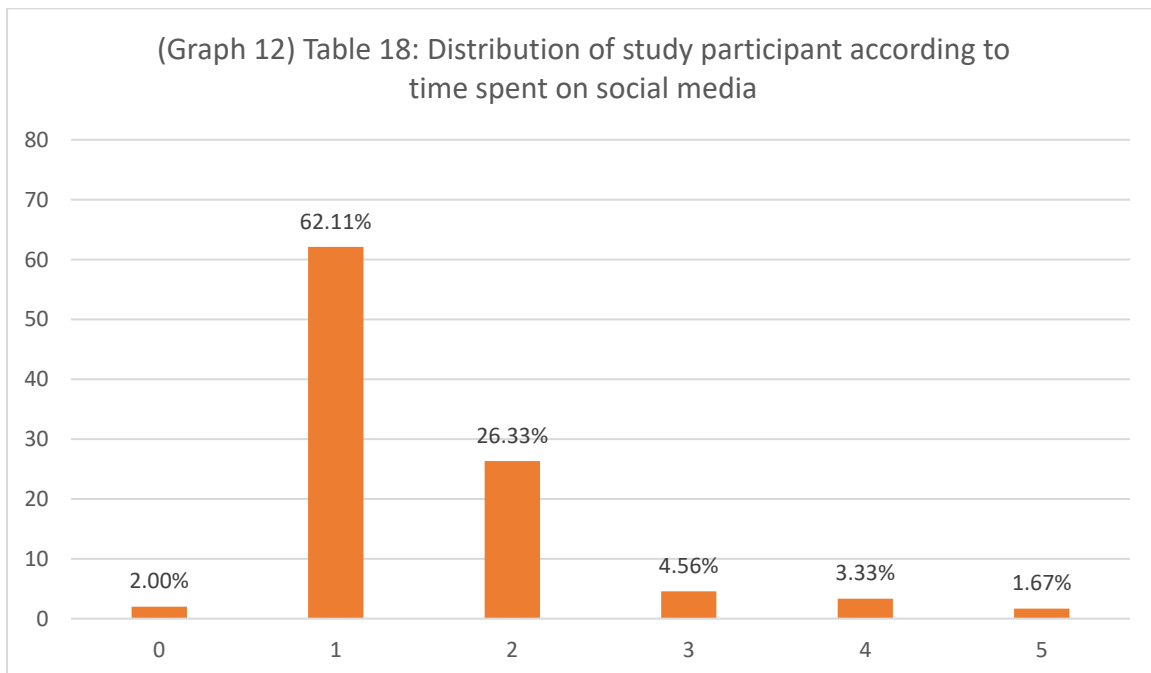
<b>Own Mobile</b>	<b>Number</b>	<b>Percentage</b>
Yes	239	26.56
No	661	73.44
<b>Total</b>	<b>900</b>	<b>100</b>
<b>If yes, at what age (n = 239)</b>		
10	7	2.93
11	9	3.76
12	45	18.83
13	45	18.83
14	70	29.29
15	49	20.50
16	14	5.86
<b>Total</b>	<b>239</b>	<b>100</b>

In the present study, out of the 900 participants, 239 (26.56%) owned a mobile phone, while 661 (73.44%) did not. Out of 239 students, 7 (2.93%) owned a mobile at the age of 10 years, 9 (3.76%) at 11 years, 45 (18.83%) at 12 years, 45 (18.83%) at 13 years, 70 (29.29%) at 14 years,

49 (20.50%) at 15 years and 14 (5.86%) at 16 years. The mean  $\pm$  standard deviation age at which students acquired their mobile phone was  $13.54 \pm 1.40$  years and median was 14 years.

**Table 18: Distribution of study participant according to time spent on social media**

<b>Time spent on social media (in hours)</b>	<b>Number</b>	<b>Percentage</b>
0	18	2.00
1	559	62.11
2	237	26.33
3	41	4.56
4	30	3.33
5	15	1.67
<b>Total</b>	<b>900</b>	<b>100</b>

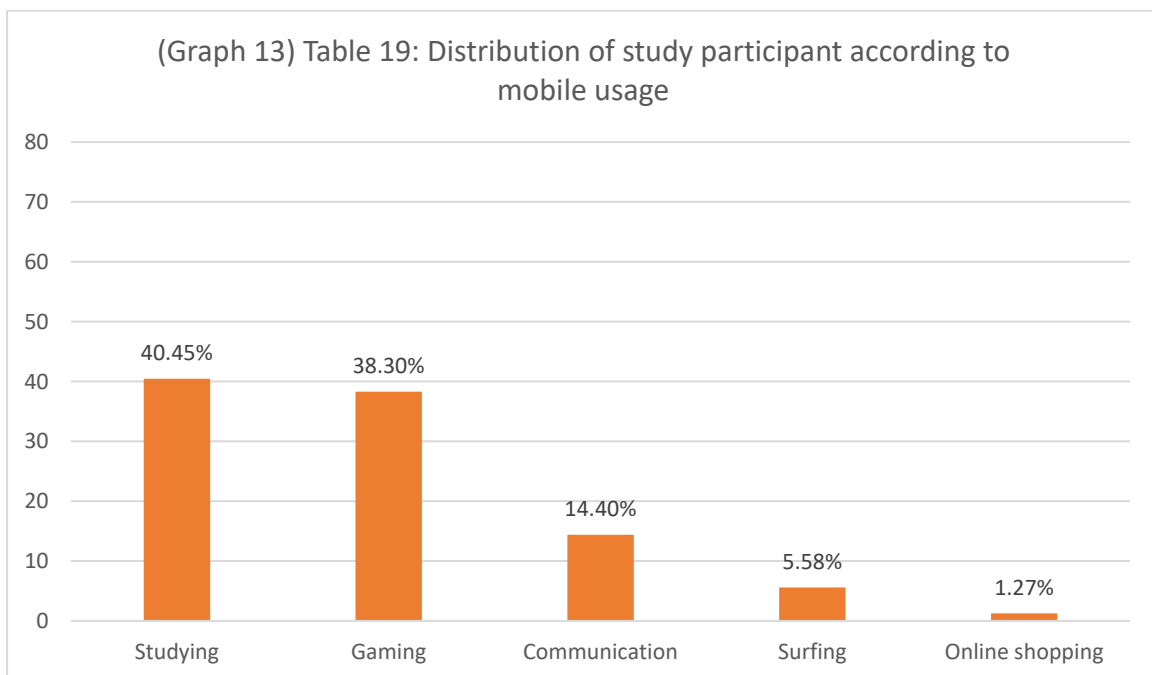


In the present study, 882 (98.00%) students spent time on social media using their own mobile or their family members mobile. The mean  $\pm$  standard deviation time spent on social media was  $1.53 \pm 0.87$  hours and median was 1 hour. Out of 882 students, 559 (62.11%) spent 1 hour on social media, 237 (26.33%) 2 hours, 41 (4.56%) 3 hours, 30 (3.33%) 4 hours and 15 (1.67%) spent 5 hours on social media.

**Table 19: Distribution of study participant according to mobile usage**

Mobile usage	Number	Percentage
Studying	413	40.45
Gaming	391	38.30
Communication	147	14.40
Surfing	57	5.58
Online shopping	13	1.27
<b>Total</b>	<b>1021*</b>	<b>100</b>

\* Multiple responses

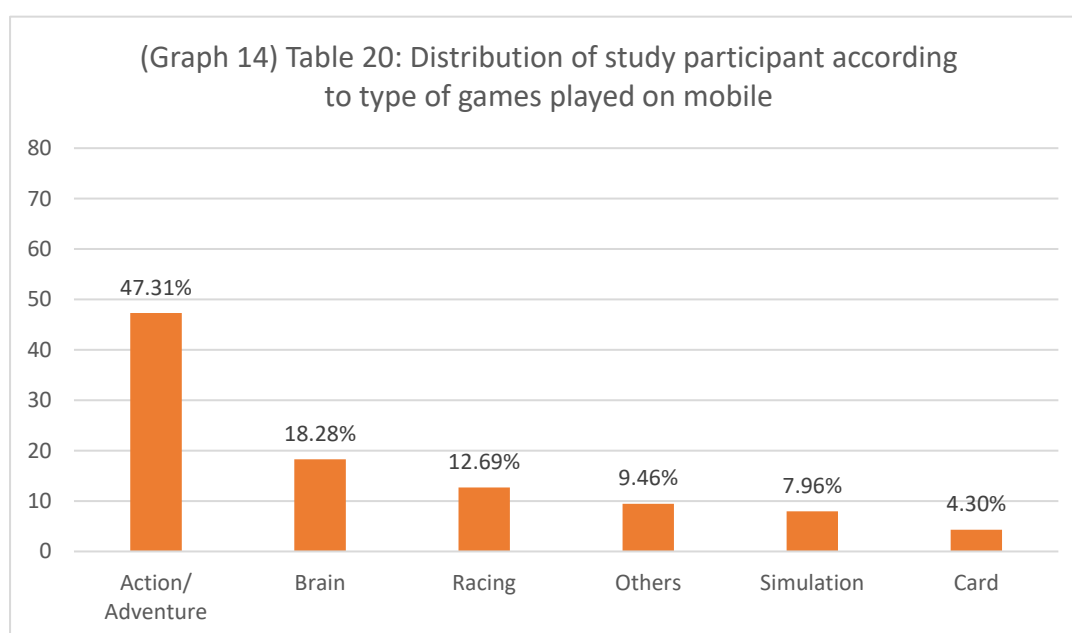


In the study, it was found that most of the participants used mobile for studying purpose 413 (40.45%), 391 (38.30%) used for gaming purpose, 147 (14.40%) for communication, 57 (5.58%) for surfing and 13 (1.27%) for online shopping.

**Table 20: Distribution of study participant according to type of games played on mobile**

Type of games played on mobile	Number	Percentage
Action/ Adventure	220	47.31
Brain	85	18.28
Racing	59	12.69
Others	44	9.46
Simulation	37	7.96
Card	20	4.30
<b>Total</b>	<b>465*</b>	<b>100</b>

\*Multiple responses



In the present study, 391 students used mobile to play different types of games available on the internet. The pattern of games played on mobile was as follows: 220 (47.31%) played action/ adventure games, 85 (18.28%) brain games, 59 (12.69%) racing games, 37 (7.96%) simulation games, 20 (4.30%) card games and 44 (9.46%) students played other games like puzzle, board, cooking, candy crush, colouring etc.

### C. RISK FACTORS AT SCHOOL

**Table 21: Distribution of study participant according to last academic performance**

<b>Last academic performance</b>	<b>Number</b>	<b>Percentage</b>
Distinction	237	26.33
1st class	409	45.45
2nd class	254	28.22
<b>Total</b>	<b>900</b>	<b>100</b>

Among the 900 students included in the study, 237 (26.33%) got distinction in their last academic year, 409 (45.45%) obtained 1<sup>st</sup> class and 254 (28.22%) obtained 2<sup>nd</sup> class.

**Distribution of study participant according to post held at the school:** In this study, out of 900 participants, 212 (23.56%) students held post in the school and 688 (76.44%) did not hold any post in school. The various post held by the students were house captain, discipline minister, cleanliness minister, finance minister, sports minister, library minister, class monitor etc.

## D. PREDICTORS FOR MENTAL HEALTH PROBLEMS

**Table 22: Distribution of study participant according to discrimination faced**

<b>Discrimination faced</b>	<b>Number</b>	<b>Percentage</b>
Yes	295	32.78
No	605	67.22
<b>Total</b>	<b>900</b>	<b>100</b>
If yes, at what age (n = 295)		
6	1	0.33
7	1	0.33
9	4	1.36
10	34	11.53
11	12	4.07
12	85	28.81
13	46	15.60
14	55	18.64
15	43	14.58
16	14	4.75
<b>Total</b>	<b>295</b>	<b>100</b>

In the study, out of 900 participants 295 (32.78%) of them told that they have faced discrimination by one or the other person and 605 (67.22%) had not faced discrimination. The mean age  $\pm$  standard deviation of the participant's faced discrimination was  $12.81 \pm 1.78$  years and median was 13 years. Out of 295 students who faced discrimination, 1(0.33%) each at the age of 6 years and 7 years, 4 (1.36%) at the age of 9 years, 34 (11.53%) at 10 years, 12 (4.07%) at 11 years, 85 (28.81%) at 12 years, 46 (15.60%) at 13 years, 55 (18.64%) at 14 years, 43 (14.58%) at 15 years and 14 (4.75%) at 16 years.

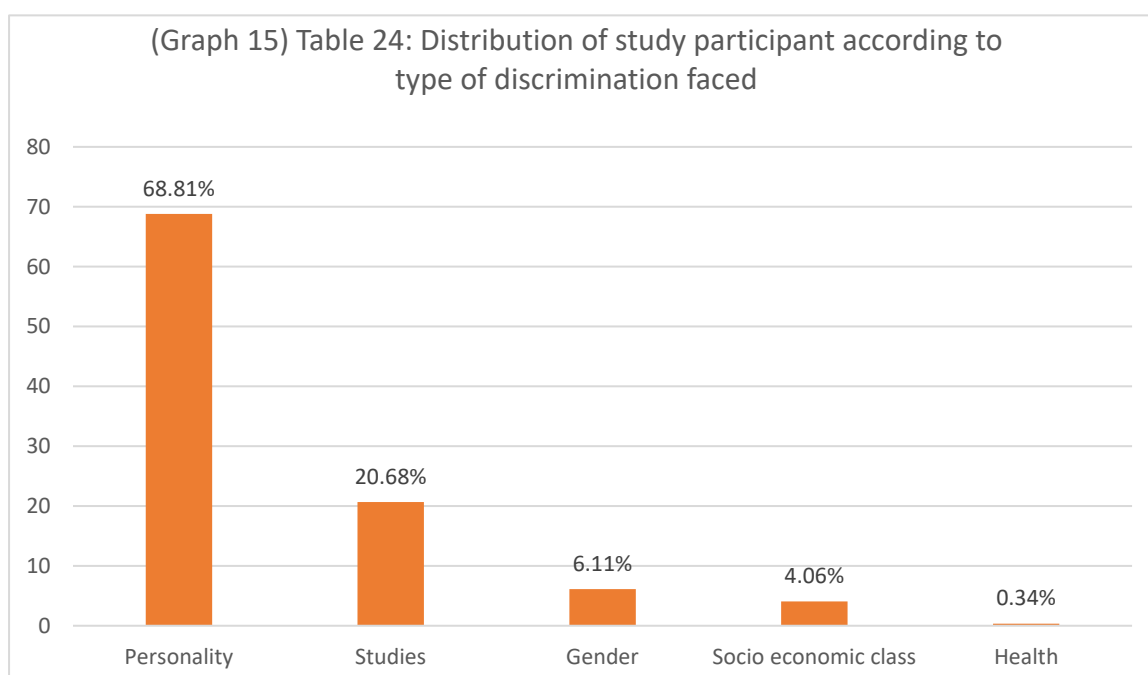
**Table 23: Distribution of study participant according to discrimination faced**

<b>Discrimination faced</b>	<b>Number</b>	<b>Percentage</b>
1 person	267	90.50
2 persons	20	6.78
$\geq 3$ persons	8	2.72
<b>Total</b>	<b>295</b>	<b>100</b>
<b>If yes, by whom?</b>		
Classmates	103	30.74
Friends	70	20.90
Relatives	57	17.01
Mother	34	10.15
Brother	28	8.36
Sister	21	6.26
Father	16	4.78
Grandfather	3	0.90
Grandmother	3	0.90
<b>Total</b>	<b>335</b>	<b>100</b>

Out of 295 students who faced discrimination, 267 (90.50%) was by 1 person, 20 (6.78%) by 2 persons and 8 (2.72%) by  $\geq 3$  persons. The pattern of discrimination faced by the study participants was as follows: 103 (30.74%) participants had faced discrimination from classmates, 70 (20.90%) from friends, 57 (17.01%) from relatives, 34 (10.15%) from mother, 28 (8.36%) from brother, 21 (6.26%) from sister, 16 (4.78%) from father and 3 (0.90%) each students by grandfather and grandmother.

**Table 24: Distribution of study participant according to type of discrimination faced**

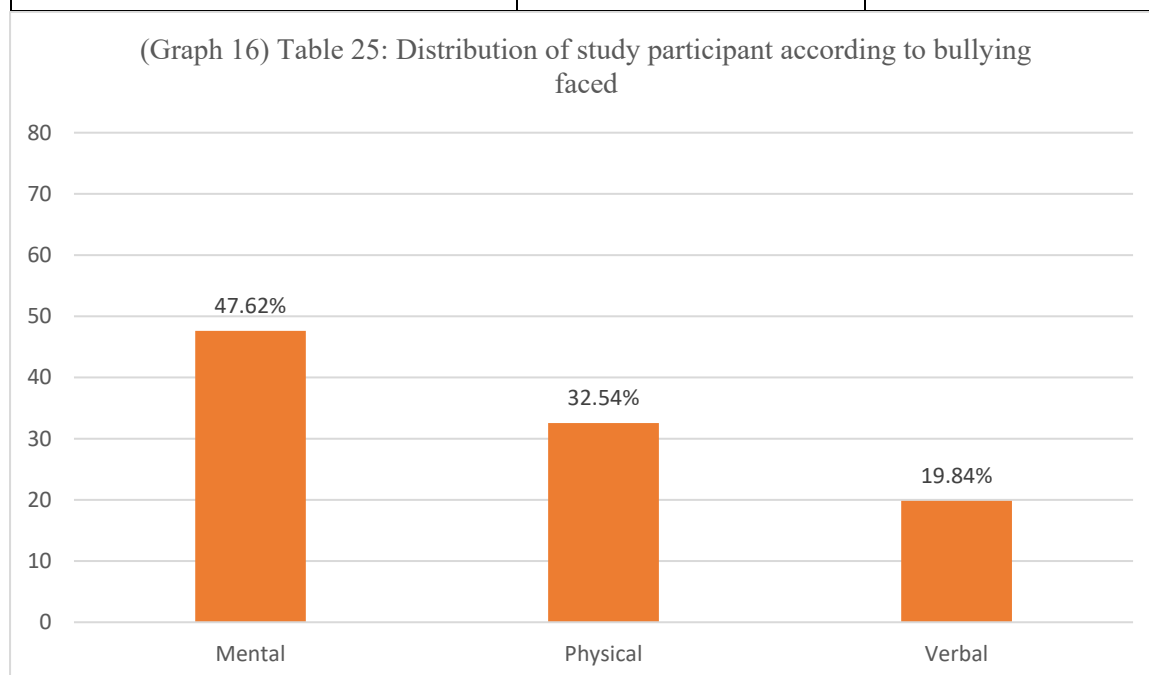
Type of discrimination faced	Number	Percentage
Personality	203	68.81
Studies	61	20.68
Gender	18	6.11
Socio economic class	12	4.06
Health	1	0.34
<b>Total</b>	<b>295</b>	<b>100</b>



In the present study, out of 295 participants who faced discrimination, 203 (68.81%) faced personality-based discrimination, 61 (20.68%) based on studies, 18 (6.11%) based on gender, 12 (4.06%) based on socio-economic status and 1 (0.34%) student faced discrimination because of health issues.

**Table 25: Distribution of study participant according to bullying faced**

<b>Bullying faced</b>	<b>Number</b>	<b>Percentage</b>
Yes	126	14.00
No	774	86.00
<b>Total</b>	<b>900</b>	<b>100</b>
<b>If yes, which type (n = 126)</b>		
Mental	60	47.62
Physical	41	32.54
Verbal	25	19.84
<b>Total</b>	<b>126</b>	<b>100</b>



In the present study, out of 900 participants 126 (14.00%) told that they faced bullying in one or the other forms and 774 (86.00%) did not face any bullying. Among the 126 students who had faced bullying, 60 (47.62%) was mental bullying, 41 (32.54%) physical and 25 (19.84%) faced verbal type of bullying. The types of mental bullying noted in our study were shouting, being sarcastic, avoiding them, ridiculing or demeaning them, telling insensitive jokes etc. The types of verbal bullying noted were name calling, use of abusive, threatening or insulting words or behavior.

**Table 26: Distribution of study participant according to physical violence faced**

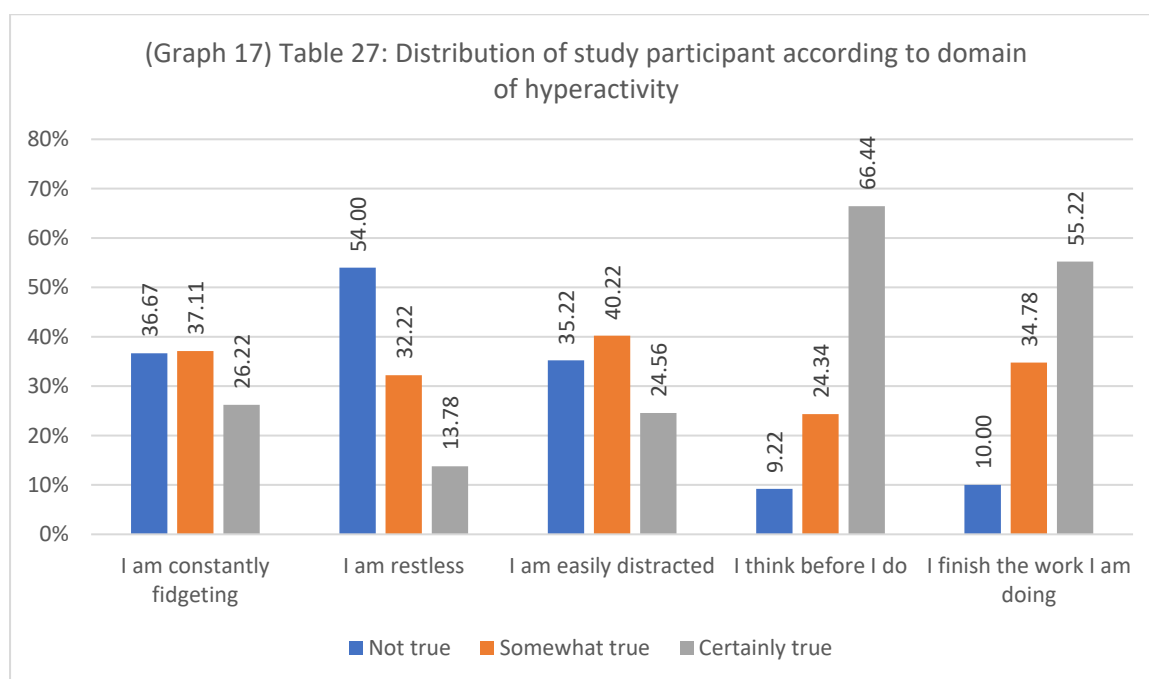
<b>Physical violence faced</b>	<b>Number</b>	<b>Percentage</b>
Never	439	48.77
Few times	428	47.56
Frequently	33	3.67
<b>Total</b>	<b>900</b>	<b>100</b>

In this study, out of 900 participants, 33 (3.67%) participants said that they faced physical violence frequently, 428 (47.56%) a few times and 439 (48.77%) had never faced physical violence.

### III. ASSESSMENT OF MENTAL HEALTH STATUS OF STUDY PARTICIPANT

**Table 27: Distribution of study participant according to domain of hyperactivity**

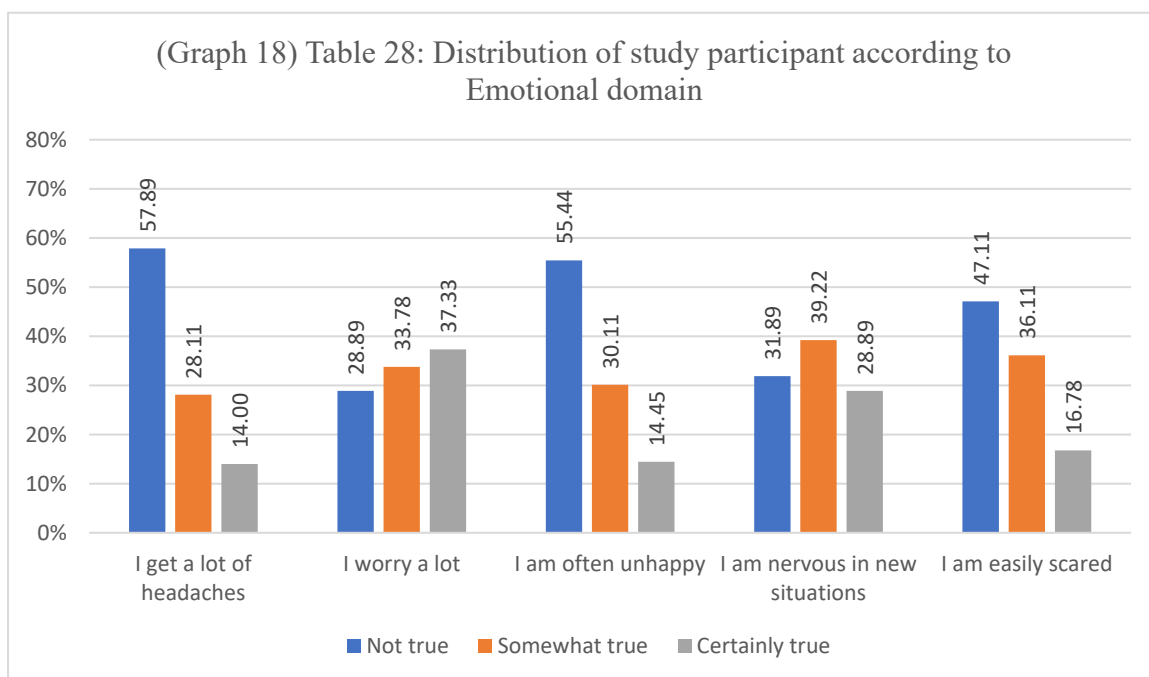
Domain of Hyperactivity	Not true	Somewhat true	Certainly true	Total
	n (%)	n (%)	n (%)	n (%)
I am constantly fidgeting	330 (36.67%)	334 (37.11%)	236 (26.22%)	<b>900 (100)</b>
I am restless	486 (54.00%)	290 (32.22%)	124 (13.78%)	<b>900 (100)</b>
I am easily distracted	317 (35.22%)	362 (40.22%)	221 (24.56%)	<b>900 (100)</b>
I think before I do	83 (9.22%)	219 (24.34%)	598 (66.44%)	<b>900 (100)</b>
I finish the work I am doing	90 (10.00%)	313 (34.78%)	497 (55.22%)	<b>900 (100)</b>



In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the analysis related to domain of hyperactivity showed the following results: out of 900 students, 330 (36.67%) said that they were not constantly fidgeting, 334 (37.11%) did sometimes and 236 (26.22%) were constantly fidgeting or squirming. More than half of them 486 (54.00%) were never restless, 290 (32.22%) students were restless sometimes and 124 (13.78%) were always restless and could not stay still for long time. When asked about whether they were easily distracted, 317 (35.22%) students said that they were never distracted, 362 (40.22%) sometimes and 221 (24.56%) most of the time got distracted and found it difficult to concentrate. Among 900 students, 598 (66.44%) said that they always think before whatever they do, 219 (24.34%) sometimes and 83 (9.22%) do not think before they do. Nearly 55.22% (497) students said that they will always finish the work and their attention was good, 313 (34.78%) sometimes and only 90 (10.00%) were not able to finish the work they do every time.

**Table 28: Distribution of study participant according to Emotional domain**

<b>Emotional domain</b>	<b>Not true</b>	<b>Somewhat true</b>	<b>Certainly true</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
I get a lot of headaches	521 (57.89%)	253 (28.11%)	126 (14.00%)	<b>900 (100)</b>
I worry a lot	260 (28.89%)	304 (33.78%)	336 (37.33%)	<b>900 (100)</b>
I am often unhappy	499 (55.44%)	271 (30.11%)	130 (14.45%)	<b>900 (100)</b>
I am nervous in new situations	287 (31.89%)	353 (39.22%)	260 (28.89%)	<b>900 (100)</b>
I am easily scared	424 (47.11%)	325 (36.11%)	151 (16.78%)	<b>900 (100)</b>

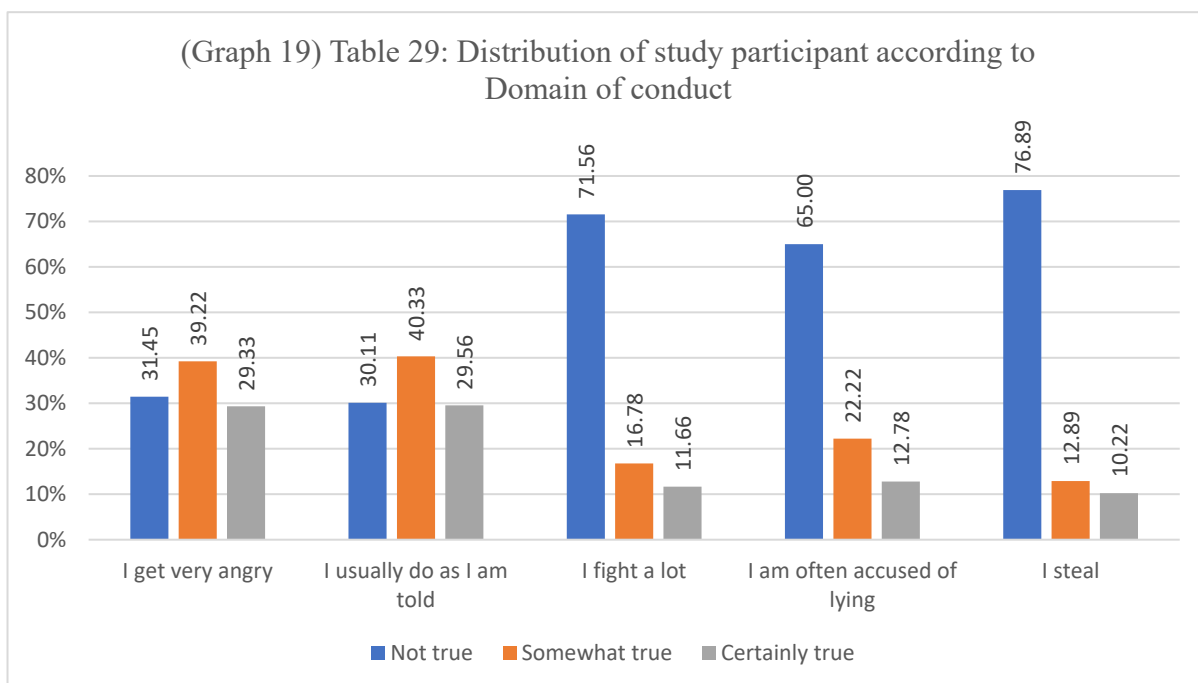


In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the analysis related to emotional domain showed the following results: out of 900 students, 521 (57.89%) said that they do not get lot of headaches, stomach aches or sickness, 253 (28.11%) said they get sometimes and 126 (14.00%) said they get frequent headaches. About one third of them 260 (28.89%) said that they do not worry a lot, 304 (33.78%) worry sometimes and 336 (37.33%) said they worry frequently. More than half of them 499 (55.44%) said they are not often unhappy, down hearted or tearful, 271 (30.11%) sometimes and 130 (14.45%) felt unhappy most of the times. When asked about whether they were nervous in new situations and easily lose confidence, 287 (31.89%) said they do not feel like that, 353 (39.22%) felt sometimes and 260 (28.89%) felt nervousness quite frequently. About 16.78% (151) students said that they had many fears and got scared easily, 325 (36.11%) sometimes and 424 (47.11%) never got scared easily.

**Table 29: Distribution of study participant according to Domain of conduct**

Domain of Conduct	Not true	Somewhat true	Certainly true	Total

	n (%)	n (%)	n (%)	n (%)
I get very angry	283 (31.45%)	353 (39.22%)	264 (29.33%)	<b>900 (100)</b>
I fight a lot	644 (71.56%)	151 (16.78%)	105 (11.66%)	<b>900 (100)</b>
I am often accused of lying	585 (65.00%)	200 (22.22%)	115 (12.78%)	<b>900 (100)</b>
I steal	692 (76.89%)	116 (12.89%)	92 (10.22%)	<b>900 (100)</b>
I usually do as I am told	271 (30.11%)	363 (40.33%)	266 (29.56%)	<b>900 (100)</b>

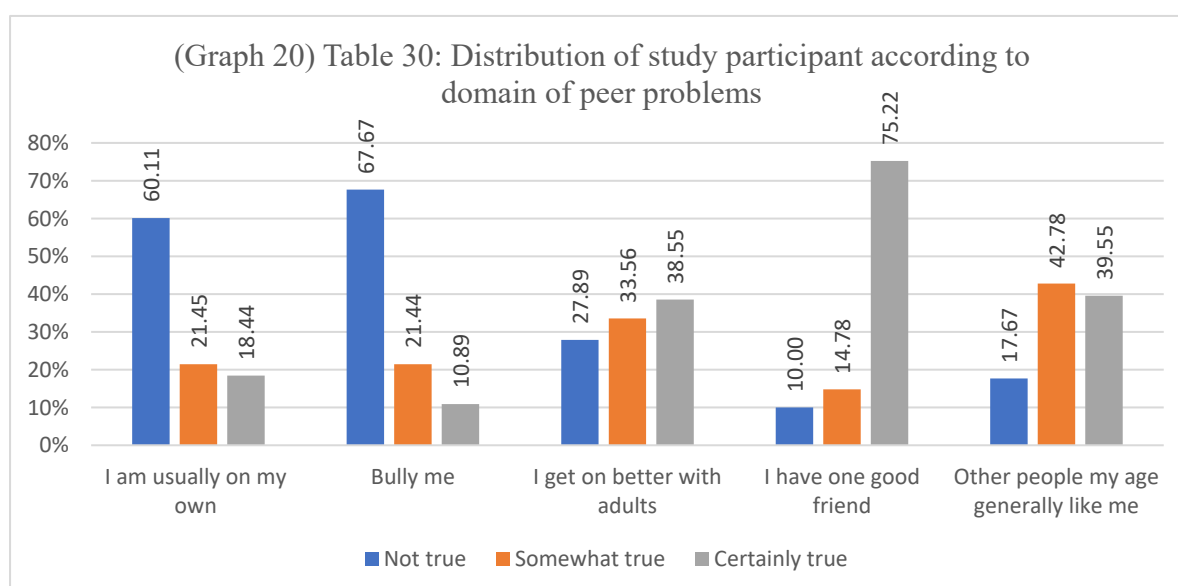


In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the analysis related to domain of conduct showed the following results: out of 900 students, 283 (31.45%) said that they do not get angry or lose temper, 353 (39.22%) sometimes and 264 (29.33%) said that they get angry easily and lose temper. Only 105 (11.66%) students said that they fight a lot and make other people do what they want, 151 (16.78%) sometimes and 644 (71.56%) said they never fight or make other people do what they want. When asked about whether they were often accused of lying or cheating, 585 (65.00%) said they were never accused of lying, 200

(22.22%) sometimes and 115 (12.78%) said they were often accused of lying or cheating. Majority of them 692 (76.89%) denied that they take things which are not theirs from home, school or elsewhere, 116 (12.89%) do sometimes and 92 (10.22%) of them take things which are not theirs. Among 900, 266 (29.56%) said that they do things usually as they are told, 363 (40.33%) sometimes and 271 (30.11%) do not do things as they are told.

**Table 30: Distribution of study participant according to Domain of peer problems**

Domain of peer Problems	Not true	Somewhat true	Certainly true	Total
	n (%)	n (%)	n (%)	n (%)
I am usually on my own	541 (60.11%)	193 (21.45%)	166 (18.44%)	900 (100)
Other children bully me	609 (67.67%)	193 (21.44%)	98 (10.89%)	900 (100)
I get on better with adults	251 (27.89%)	302 (33.56%)	347 (38.55%)	900 (100)
I have one good friend	90 (10.00%)	133 (14.78%)	677 (75.22%)	900 (100)
Other people my age generally like me	159 (17.67%)	385 (42.78%)	356 (39.55%)	900 (100)

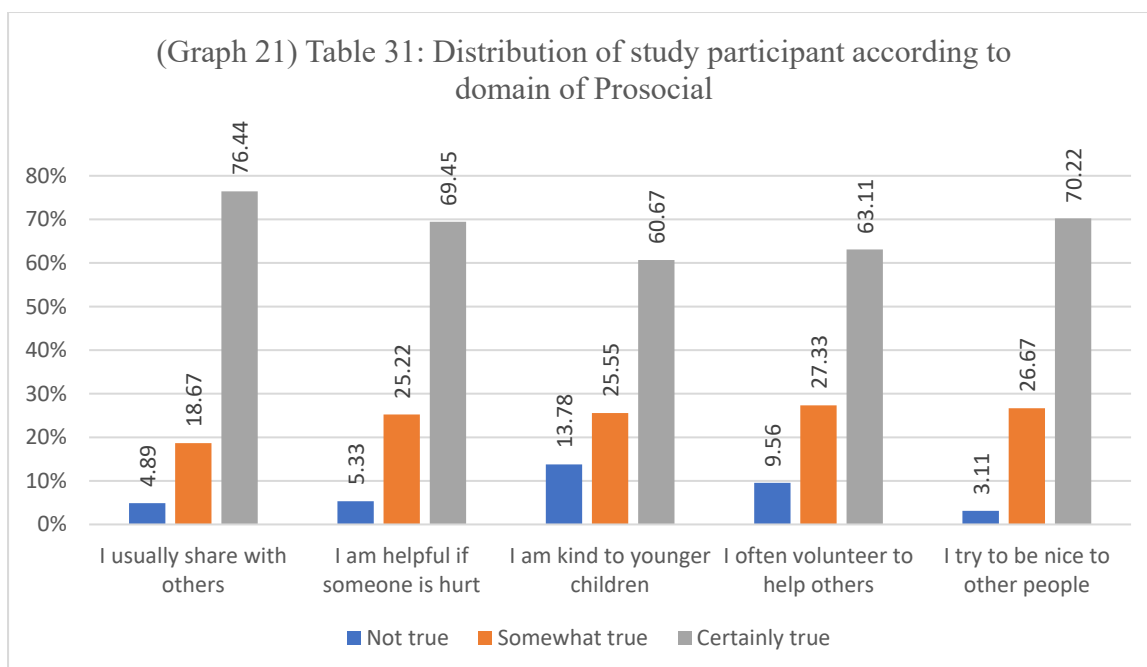


In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the analysis related to domain of peer problems showed the following results: out of 900 students, 166 (18.44%) said that they are usually on their own and generally play alone, 193 (21.45%) do it sometimes and 541 (60.11%) said they are never alone. More than half of them 609 (67.67%) said that they are not bullied by other children, 193 (21.44%) experienced bullying sometimes and 98 (10.89%) said they had faced bullying by other children many times. When asked about whether they get on better with adults than people of their age, 347 (38.55%) said they certainly get along well, 302 (33.56%) sometimes and 251 (27.89%) do not get along well with adults. About three fourth 677 (75.22%) students said they had a one or more good friends, 133 (14.78%) sometimes and 90 (10.00%) did not have any good friend. Among 900 students, 356 (39.55%) said that other people of their age generally like them, 385 (42.78%) sometimes and 159 (17.67%) felt that other people of their age doesn't like them.

**Table 31: Distribution of study participant according to Domain of Prosocial**

<b>Domain of Pro Social</b>	<b>Not true</b>	<b>Somewhat true</b>	<b>Certainly true</b>	<b>Total</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
I usually share with others	44 (4.89%)	168 (18.67%)	688 (76.44%)	<b>900 (100)</b>
I am helpful if someone is hurt	48 (5.33%)	227 (25.22%)	625 (69.45%)	<b>900 (100)</b>
I am kind to younger children	124 (13.78%)	230 (25.55%)	546 (60.67%)	<b>900 (100)</b>
I often volunteer to help others	86 (9.56%)	246 (27.33%)	568 (63.11%)	<b>900 (100)</b>

I try to be nice to other people	28 (3.11%)	240 (26.67%)	632 (70.22%)	<b>900 (100)</b>
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In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the analysis related to domain of pro social showed the following results: out of 900 students, 688 (76.44%) said that they usually share (food, games, pens) with others, 168 (18.67%) sometimes and 44 (4.89%) said that they don't share. When asked about whether they were helpful to people who were hurt, 625 (69.45%) said they are helpful most of the times, 227 (25.22%) sometimes and 48 (5.33%) said they don't help others when they are hurt. Out of 900 students, 546 (60.67%) said that they are kind to younger children, 230 (25.55%) sometimes and 124 (13.78%) said they were not kind to younger children. More than half 63.11% (568) of the students said that they often volunteer to help others (parents, teachers, other children), 246 (27.33%) sometimes and 86 (9.56%) said that they do not volunteer to help others. Out of 900 participants, 632 (70.22%) said that they tried to be nice to other people and cared about their feelings, 240

(26.67%) sometimes and 28 (3.11%) said that never tried to be nice or cared about others' feelings.

**Table 32: Distribution of study participant according to hyperactivity, emotional, conduct and peer problems score**

<b>SCORE</b>	<b>Number</b>	<b>Percentage</b>	<b>Mean score</b>	<b>Standard Deviation</b>
<b>Hyperactivity</b>				
0 to 5 (normal)	786	87.33	2.88	1.50
6 (borderline)	58	6.45	-	-
7 to 10 (abnormal)	56	6.22	7.37	0.70
<b>Emotional</b>				
0 to 5 (normal)	683	75.89	2.80	1.48
6 (borderline)	92	10.22	-	-
7 to 10 (abnormal)	125	13.89	7.81	0.96
<b>Conduct</b>				
0 to 3 (normal)	554	61.56	2.04	0.89
4 (borderline)	164	18.22	-	-
5 to 10 (abnormal)	182	20.22	5.98	1.01
<b>Peer problem</b>				
0 to 3 (normal)	537	59.67	2.03	0.89
4 to 5 (borderline)	255	28.33	4.40	0.49

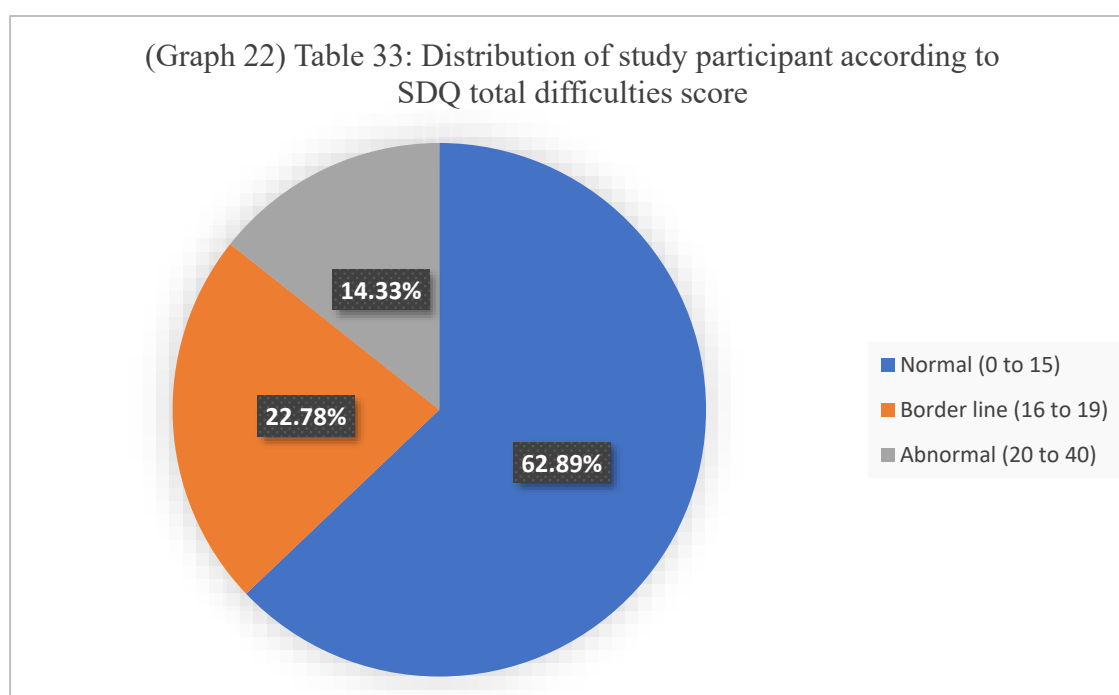
6 to 10 (abnormal)	108	12.00	6.61	0.83
<b>Pro social</b>				
0 to 5 (abnormal)	47	5.22	3.34	0.73
6 (borderline)	55	6.11	-	-
7 to 10 (normal)	798	88.67	8.52	1.32

In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the scoring of various domains were as follows: Out of 900 students, 786 (87.33%) were unlikely to have a problem in domain of hyperactivity, 58 (6.45%) had slight risk of clinically significant problem and 56 (6.22%) had substantial risk of clinically significant problem in the domain of hyperactivity. Among 900 study participants, 683 (75.89%) students were unlikely to have problem in the emotional domain, 92 (10.22%) had slight risk of clinically significant problem and 125 (13.89%) had substantial risk of clinically significant problem in the domain of emotion. In the study participants, it was found that 554 (61.56%) students were unlikely to have a problem in domain of conduct, 164 (18.22%) had slight risk of clinically significant problem and 182 (20.22%) had substantial risk of clinically significant problem in the domain of conduct. The present study revealed that 537 (59.67%) students were unlikely to have a problem in the domain of peer problems, 28.33% had slight risk of clinically significant problem and 108 (12.00%) had substantial risk of clinically significant problem in the domain of peer problems. In the last domain, it was found that 798 (88.67%) participants were unlikely to have a problem in pro social domain, 55 (6.11%) had slight risk of clinically significant problem and 47 (5.22%) had substantial risk of clinically significant problem in the domain of pro social.

**Table 33: Distribution of study participant according to SDQ Total Difficulties score**

<b>SDQ Total Difficulties score*</b>	<b>Number (%)</b>	<b>Mean score <math>\pm</math> SD</b>
Normal (0 to 15)	566 (62.89)	10.45 $\pm$ 3.12
Border line (16 to 19)	205 (22.78)	17.27 $\pm$ 1.05
Abnormal (20 to 40)	129 (14.33)	22.36 $\pm$ 2.32
<b>Total</b>	<b>900 (100)</b>	

\* Pro social domain excluded



In the present study, according to Strengths & Difficulties Questionnaire (SDQ) the total difficulties score was obtained by analyzing the domains of hyperactivity, emotion, conduct & peer problems. Out of 900 school children, 566 (62.89%) were unlikely to have mental health problems, 205 (22.78%) had slight risk of clinically significant mental health problems and 129 (14.33%) had substantial risk of clinically significant mental health problems.

**Table 34: Distribution of study participant according to difficulties in emotions, concentration and behavior**

<b>Difficulties in emotions, concentration and behavior</b>	<b>Number</b>	<b>Percentage</b>
No	435	48.32
Yes	465	51.68
If yes,		
Minor difficulties	304	33.78
Definite difficulties	114	12.67
Severe difficulties	47	5.23
<b>Total</b>	<b>900</b>	<b>100</b>

In the present study, out of the 900 participants 435 (48.32%) said that they did not have any difficulties in emotions, concentration and behavior, while 465 (51.68%) participants thought that they had some difficulty in one or the other above-mentioned areas. Out of 465 students, 304 (33.78%) had minor difficulties, 114 (12.67%) had definite difficulties and 47 (5.23%) had severe difficulties.

**Table 35: Distribution of study participant according to presence of difficulties**

<b>Presence of difficulties (in months)</b>	<b>Number</b>	<b>Percentage</b>
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<1	242	52.04
1 to 5	66	14.19
6 to 12	69	14.85
>12	88	18.92
<b>Total</b>	<b>465*</b>	<b>100</b>

\* Students who thought they had difficulties

In the present study, out of the 465 participants who had difficulty in emotions, concentration or behaviour, 242 (52.04%) had it for less than a month, 66 (14.19%) had it for 1 to 5 months, 69 (14.85%) had it for 6 -12 months and 88 (18.92%) had it for more than 12 months.

**Table 36: Distribution of study participant according to does the difficulties upset or distress them**

<b>Does the difficulties upset or distress you</b>	<b>Number</b>	<b>Percentage</b>
Not at all	81	17.46
Only a little	250	53.88
Quite a lot	106	22.84
A great deal	27	5.82
<b>Total</b>	<b>465*</b>	<b>100</b>

\* Students who thought they had difficulties

In the present study, out of 465 students, 81 (17.46%) said that their difficulties did not upset or distress them, 250 (53.88%) said that it upsets them only a little, 106 (22.84%) said that it upsets them quite a lot and 27 (5.82%) had distress about their difficulties for a great deal.

**Table 37: Distribution of study participant according to does the difficulties interfere with everyday life**

<b>Does the difficulties interfere with everyday life</b>	<b>Number</b>	<b>Percentage</b>
<b>Home life</b>		
Not at all	189	40.65
Only a little	170	36.56
Quite a lot	68	14.62
A great deal	38	8.17
<b>Friendship</b>		
Not at all	192	41.29
Only a little	173	37.21
Quite a lot	80	17.20
A great deal	20	4.30
<b>Classroom learning</b>		
Not at all	150	32.26
Only a little	182	39.14
Quite a lot	105	22.58
A great deal	28	6.02
<b>Leisure activities</b>		

Not at all	215	46.24
Only a little	159	34.19
Quite a lot	69	14.84
A great deal	22	4.73
<b>Total</b>	<b>465*</b>	<b>100</b>

\* Students who thought they had difficulties

In the present study, out of 465 participants, when asked about whether the difficulties had affected or interfered with everyday life at home, 38 (8.17%) said that it affected to a great deal, 68 (14.62%) quite a lot of time, 170 (36.56%) for only a little time and 189 (40.65%) said it did not affect at all. In relation to friendship, 20 (4.30%) had difficulty to a great deal, 80 (17.20%) a quite lot of time, 173 (37.21%) for only a little time and 192 (41.29%) had no problem. In classroom, 28 (6.02%) had problem to a great deal, 105 (22.58%) quite a lot of time, 182 (39.14%) for only a little time and 150 (32.26%) had no problem regarding their difficulties in classroom learning. During leisure time, 22 (4.73%) had difficulty to a great deal, 69 (14.84%) had difficulty quite a lot of time, 159 (34.19%) had only a little difficulty and 215 (46.24%) had no difficulty at all.

**Table 38: Distribution of study participant according to Impact score**

<b>Total Impact Score</b>	<b>Number</b>	<b>Percentage</b>	<b>Mean</b>	<b>SD</b>
Normal (0)	197	42.37	-	-
Borderline (1)	92	19.78	-	-
Abnormal ( $\geq 2$ )	176	37.85	3.47	1.75
<b>Total</b>	<b>465*</b>	<b>100</b>		

\* Students who thought they had difficulties

In the present study, out of 465 students who had difficulties in emotions, concentration or behavior, in 197 (42.37%) children the difficulties did not affect them, in 92 (19.78%) children the difficulties did affect them to some extent and in 176 (37.85%) children the difficulties in emotions, concentration or behavior had major impact on everyday life and activities.

**Table 39: Distribution of study participant according to does the difficulties make it harder for others**

<b>Difficulties make it hard for others</b>	<b>Number</b>	<b>Percentage</b>
Not at all	208	44.74
Only a little	142	30.54
Quite a lot	78	16.78
A great deal	37	7.94
<b>Total</b>	<b>465*</b>	<b>100</b>

\* Students who thought they had difficulties

Out of 465 participants who thought they had difficulties, 37 (7.94%) expressed that their difficulty had made it hard for others to a great deal, 78 (16.78%) a quite a lot of time, 142 (30.54%) only a little and 208 (44.74%) said that their difficulties did not make it hard for others like family members, friends, teachers, etc.

#### IV. ASSOCIATION BETWEEN SOCIO DEMOGRAPHIC FACTORS & PROFILE OF RISK FACTORS WITH TOTAL DIFFICULTIES SCORE

**Table 40: Association between age of the study participant and total difficulties score**

Age (in years)	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
12 - 13	61 (71.76)	24 (28.24)	85 (100)
14 - 15	302 (61.13)	192 (38.87)	494 (100)
16 - 17	203 (63.23)	118 (36.77)	321 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 3.54$			<b>p = 0.17</b>

In the present study, out of 900 students aged 12 to 13 years, 61 (71.76%) were unlikely to have mental health problems and 24 (28.24%) had substantial risk of clinically significant mental health problems. Among students aged 14 to 15 years, 302 (61.13%) were unlikely to have mental health problems and 192 (38.87%) had substantial risk of clinically significant mental health problems. Among students aged 16 to 17 years, 203 (63.23%) were unlikely to have mental health problems and 118 (36.77%) had substantial risk of clinically significant mental health problem. The variations are not consistent to indicate a particular trend, but as the age increased the substantial risk of clinically significant mental health problems also increased, the association was not statistical significant. ( $\chi^2 = 3.54$ ,  $p = 0.17$ )

**Table 41: Association between sex of the study participant and total difficulties score**

Sex	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Male	317 (65.00)	171 (35.00)	488 (100)
Female	249 (60.43)	163 (39.57)	412 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 1.95$			$df = 1$
			$p = 0.16$

In the present study, among 488 male participants, 317 (65.00%) were unlikely to have mental health problems and 171 (35.00%) had substantial risk of clinically significant mental health problems. Whereas, among 412 female participants, 249 (60.43%) were unlikely to have mental health problems and 163 (39.57%) had substantial risk of clinically significant mental health problems. Although female school children had slightly higher substantial risk of clinically significant mental health problems, the association was not statistically significant. ( $\chi^2 = 1.95$   $p = 0.16$ )

**Table 42: Association between standard of the study participant and total difficulties score**

Standard	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
8 <sup>th</sup>	214 (66.04)	110 (33.96)	324 (100)
9 <sup>th</sup>	136 (63.55)	78 (36.45)	214 (100)

10 <sup>th</sup>	216 (59.66)	146 (40.34)	362 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 3.04$		<b>df = 2</b>	<b>p = 0.22</b>

In our study, among 324 eighth standard students, 110 (33.96%) had substantial risk of clinically significant mental health problems. Among ninth & tenth standard students, 78 (36.45%) & 146 (40.34%) had substantial risk of clinically significant mental health problems respectively. Although with higher standards, substantial risk of clinically significant mental health problems also increased, but the association was not found to be statistically significant. ( $\chi^2 = 3.04$ ,  $p = 0.22$ )

**Table 43: Association between religion of the study participant and total difficulties score**

Religion	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Hindu	364 (63.41)	210 (36.59)	574 (100)
Others	202 (63.95)	124 (36.05)	326 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 0.13$		<b>df = 1</b>	<b>p = 0.72</b>

In the current study, the substantial risk of clinically significant mental health problems was similar in students belonging to Hindu religion & other religions (36.59% v/s 36.05%). There is not much of differences in substantial risk of clinically significant mental health problems among students belonging to Hindu and other religions, the association was not statistically significant. ( $\chi^2 = 0.13$ ,  $p = 0.72$ )

**Table 44: Association between family type of the study participant and total difficulties score**

Type of family	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Nuclear	358 (63.81)	203 (36.19)	561 (100)
Joint	199 (61.80)	123 (38.20)	322 (100)
Broken	9 (52.94)	8 (47.06)	17 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
<b><math>\chi^2 = 1.09</math></b>			<b>df = 2</b>
			<b>p = 0.58</b>

In the present study, among 561 participants who belonged to nuclear family 358 (63.81%) were unlikely to have mental health problems and 203 (36.19%) had substantial risk of clinically significant mental health problems. Among 322 students who belonged to joint family, 199 (61.80%) were unlikely to have mental health problems and 123 (38.20%) had substantial risk of clinically significant mental health problems. Out of 17 students from broken family, 9 (52.94%) students were unlikely to have mental health problems and 8 (47.06%) had substantial risk of clinically significant mental health problems. Although students from the broken family had higher substantial risk of clinically significant mental health problems the association was not statistically significant. ( $\chi^2 = 1.09$ ,  $p = 0.58$ )

**Table 45: Association between literacy status of the study participant’s father and total difficulties score**

Father’s literacy status	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Illiterate			
Primary education	220 (60.27)	145 (39.73)	365(100)
High school			
PUC	218 (65.86)	113 (34.14)	331 (100)
Diploma			
Degree	122(62.88)	72 (37.12)	194 (100)
Post graduate			
<b>Total</b>	<b>560 (62.92)</b>	<b>330 (37.08)</b>	<b>890 (100)</b>
$\chi^2 = 2.32$		<b>df = 2</b>	<b>p = 0.31</b>

In the present study, among 365 students whose fathers were illiterate and had lesser education, 145 (39.73%) had substantial risk of clinically significant mental health problems. Among 331 students whose fathers had PUC / diploma, 113 (34.14%) had substantial risk of clinically significant mental health problems. Out of 194 students whose father had a degree or post-graduation 72 (37.12%) had substantial risk of clinically significant mental health problems. Although higher substantial risk of clinically significant mental health problems was seen among students whose father had lesser education or were illiterate, the association was not statistically significant. ( $\chi^2 = 2.32$ ,  $p = 0.31$ )

**Table 46: Association between literacy status of the study participant’s mother and total difficulties score**

<b>Mother’s literacy status</b>	<b>Total Difficulties Score</b>		<b>Total n (%)</b>
	<b>Normal n (%)</b>	<b>Abnormal n (%)</b>	
Illiterate			
Primary education	264 (59.06)	183 (40.94)	447 (100)
High school			
PUC	203 (67.21)	99 (32.79)	302 (100)
Diploma			
Degree	98 (65.77)	51 (34.23)	149 (100)
Post graduate			
<b>Total</b>	<b>565 (62.91)</b>	<b>333 (37.09)</b>	<b>898 (100)</b>
<b><math>\chi^2 = 5.77</math></b>			<b>df = 2</b>
			<b>p = 0.06</b>

In the present study, among 447 students whose mothers were illiterate or had lesser education 264 (59.06%) were unlikely to have mental health problems and 183 (40.94%) had substantial risk of clinically significant mental health problems. Among 302 students whose mothers had PUC / diploma, 203 (67.21%) were unlikely to have mental health problems and 99 (32.79%) had substantial risk of clinically significant mental health problems. Out of 149 students whose mothers had a degree or post-graduation 98 (65.77%) were unlikely to have mental health problems and 51 (34.23%) had substantial risk of clinically significant mental health problems. Although higher substantial risk of clinically significant mental health problems was seen among students whose mother had lesser education, the association was not statistically significant. ( $\chi^2 = 5.77$ ,  $p = 0.06$ )

**Table 47: Association between occupation of the study participant’s father and total difficulties score**

Father’s occupation	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Farmer	19 (61.29)	12 (38.71)	31 (100)
Labourer	33 (70.21)	14 (29.79)	47 (100)
Self employed	297 (60.98)	190 (39.02)	487 (100)
Government	106 (66.25)	54 (33.75)	160 (100)
Private	104 (65.82)	54 (34.18)	158 (100)
Unemployed	1 (14.28)	6 (85.72)	7 (100)
<b>Total</b>	<b>560 (62.92)</b>	<b>330 (37.08)</b>	<b>890 (100)</b>
<b><math>\chi^2 = 10.32</math></b>			<b>df = 5</b>
			<b>p = 0.07</b>

In the present study, among 31 students whose fathers were farmer, 12 (38.71%) had substantial risk of clinically significant mental health problems & among 47 children whose fathers were laborers, 14 (29.79%) had substantial risk of clinically significant mental health problems. Among the 487 students whose fathers are self-employed, 190 (39.02%) had substantial risk of clinically significant mental health problems & 54 (33.75%) of the students whose fathers were employed at government sector had substantial risk of clinically significant mental health problems. Out of 158 students whose fathers worked at private sector, 54 (34.18%) had substantial risk of clinically significant mental health problems & 6 (85.72%) had substantial risk of clinically significant mental health problems when the students fathers were unemployed. Although students whose fathers were unemployed had higher substantial risk of

clinically significant mental health problems. The association between occupation of the participant's father and total difficulties score was not significant. ( $\chi^2 = 10.32, p = 0.07$ )

**Table 48: Association between occupation of the study participant's mother and total difficulties score**

<b>Mother's occupation</b>	<b>Total Difficulties Score</b>		<b>Total n (%)</b>
	<b>Normal n (%)</b>	<b>Abnormal n (%)</b>	
Working	135 (57.69)	99 (42.31)	234 (100)
Home maker	430 (64.75)	234 (35.25)	664 (100)
<b>Total</b>	<b>565 (62.91)</b>	<b>333 (37.09)</b>	<b>898 (100)</b>
<b><math>\chi^2 = 3.41</math></b>			<b>df = 1</b>
			<b>p = 0.06</b>

In the present study, among 234 students whose mothers were employed, 135 (57.69%) were unlikely to have mental health problems and 99 (42.31%) had substantial risk of clinically significant mental health problems. Among 664 children whose mothers were homemakers, 430 (64.75%) were unlikely to have mental health problems and 234 (35.25%) had substantial risk of clinically significant mental health problems. Although students of mothers' who were employed had substantial risk of clinically significant mental health problems, the association was not statistically significant. ( $\chi^2 = 3.41, p=0.06$ )

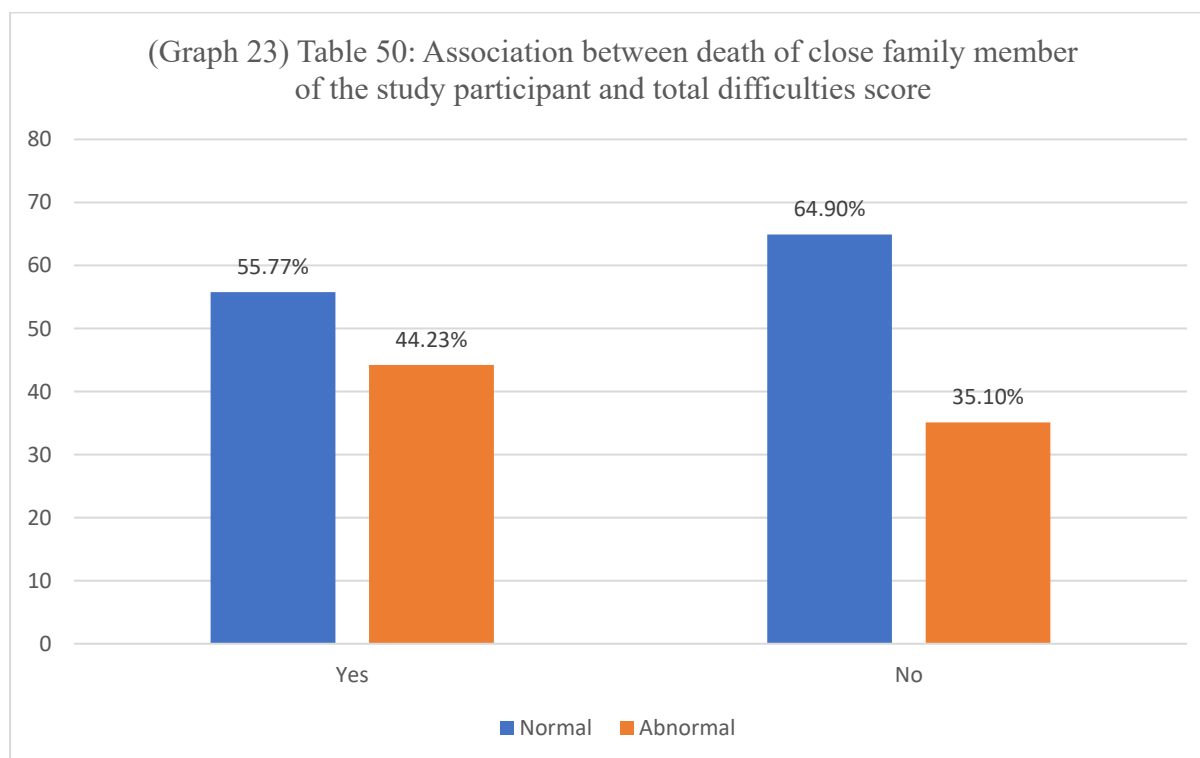
**Table 49: Association between socio-economic status of the study participant and total difficulties score**

Socio-economic status	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
I	212 (65.23)	113 (34.77)	325 (100)
II	225 (62.15)	137 (37.85)	362 (100)
III	90 (58.44)	64 (41.56)	154 (100)
IV	36 (69.23)	16 (30.77)	52 (100)
V	3 (42.85)	4 (57.15)	7 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2=4.25$			$p=0.37$
			df=4

In the present study, among 325 students who belonged to SES I, 113 (34.77%) had substantial risk of clinically significant mental health problems and 137 (37.85%) students who belonged to SES II had substantial risk of clinically significant mental health problems. Among those who belonged to SES III, 64 (41.56%) had substantial risk of clinically significant mental health problems and 16 (30.77%) students who belonged to SES IV had substantial risk of clinically significant mental health problems. Among the 7 students who belonged to SES V, 3 (42.85%) were unlikely to have mental health problems and 4 (57.15%) had substantial risk of clinically significant mental health problems. Although the students belonging to lower socioeconomic status had higher substantial risk of clinically significant mental health problems, the association was not statistically significant. ( $\chi^2 = 4.25$ ,  $p = 0.37$ )

**Table 50: Association between death of close family member of the study participant and total difficulties score**

Death of close family member	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Yes	111 (55.77)	88 (44.23)	199 (100)
No	455 (64.90)	246 (35.10)	701 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 5.53$		<b>df = 1</b>	<b>p = 0.02</b>

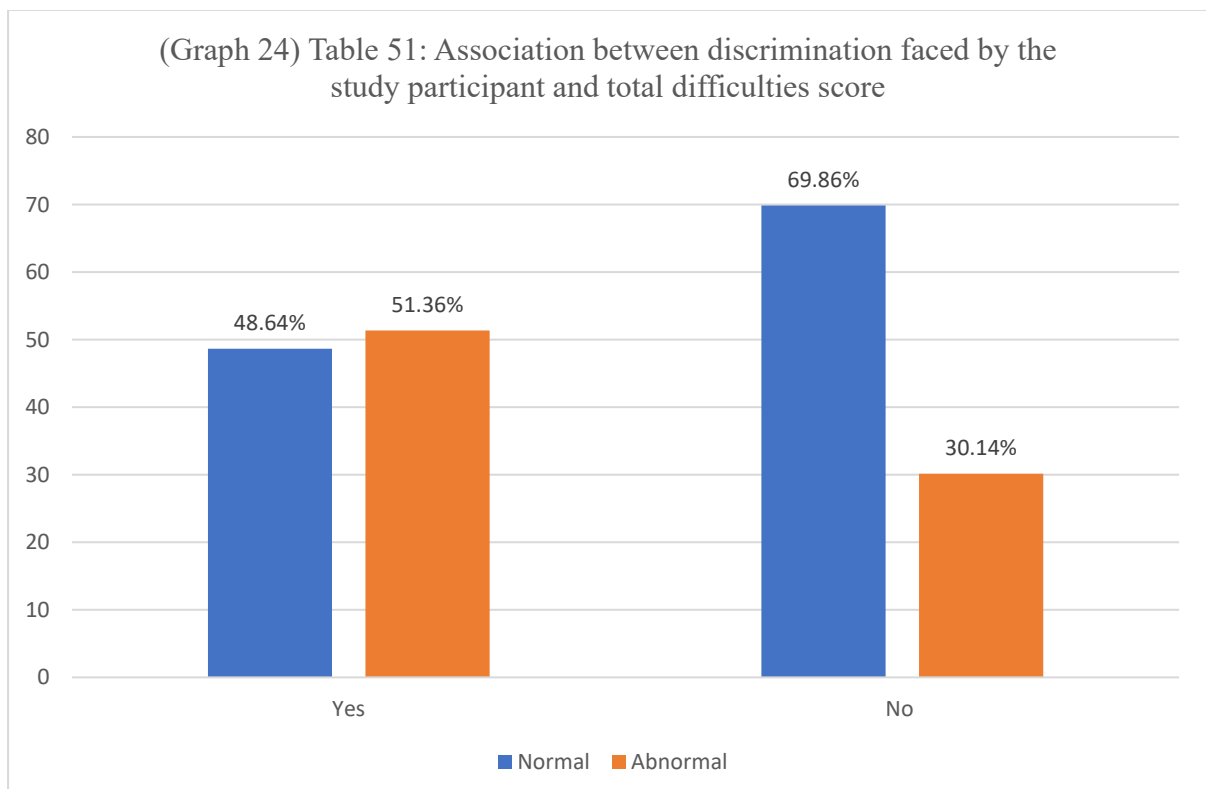


In the present study, among 199 school children who had death of a close family member, 88 (44.23%) had substantial risk of clinically significant mental health problems. Among the students who did not have any death in their family, 246 (35.10%) had substantial risk of clinically significant mental health problems. So, death of close family member has substantial

risk of clinically significant mental health problems and this association was found to be statistically significant. ( $\chi^2 = 5.53, p = 0.02$ )

**Table 51: Association between discrimination faced by the study participant and total difficulties score**

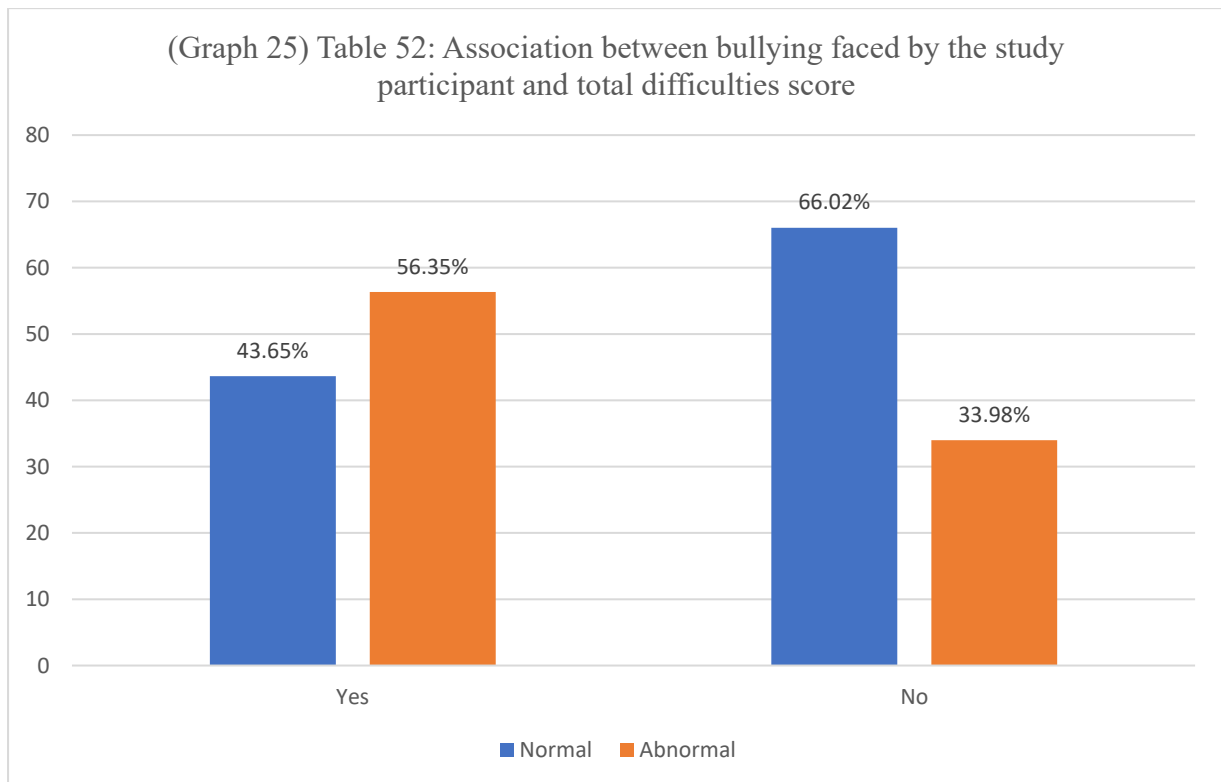
Faced discrimination	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Yes	144 (48.64)	152 (51.36)	296 (100)
No	422 (69.86)	182 (30.14)	604 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 38.32$		<b>df = 1</b>	<b>p = 0.00</b>



In our study, among the students who faced discrimination, 152 (51.36%) had substantial risk of clinically significant mental health problems and 144 (48.64%) were unlikely to have mental health problems. Among 604 students who had not faced discrimination, 182 (30.14%) had substantial risk of clinically significant mental health problems and 422 (69.86%) were unlikely to have mental health problems. So, being discriminated can lead to substantial risk of clinically significant mental health problems and this association was statistically significant. ( $\chi^2 = 38.32$  p = 0.00)

**Table 52: Association between bullying faced by the study participant and total difficulties score**

<b>Bullying Faced</b>	<b>Total Difficulties Score</b>		<b>Total n (%)</b>
	<b>Normal n (%)</b>	<b>Abnormal n (%)</b>	
Yes	55 (43.65)	71 (56.35)	126 (100)
No	511 (66.02)	263 (33.98)	774 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
<b><math>\chi^2 = 23.23</math></b>			<b>df = 1</b>
			<b>p = 0.00</b>

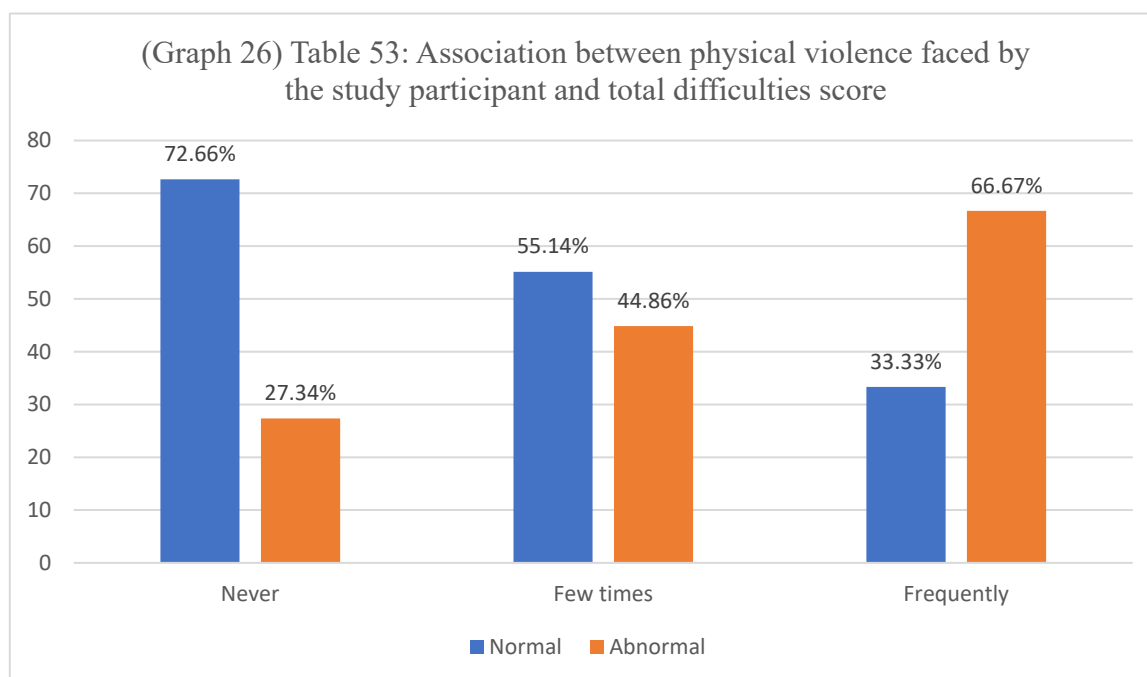


In the present study, among the participants who had faced bullying, 71 (56.35%) had substantial risk of clinically significant mental health problems and 55 (43.65%) were unlikely to have mental health problems whereas, among those who did not face bullying, 511 (66.02%) were unlikely to have mental health problems and 263 (33.98%) had substantial risk of clinically significant mental health problems. So, facing bullying can lead to substantial risk of clinically significant mental health problems and this association was statistically significant. ( $\chi^2 = 23.23$ ,  $p = 0.00$ )

**Table 53: Association between physical violence faced by the study participant and total difficulties score**

Physical violence	Total Difficulties Score		Total n (%)
	Normal n (%)	Abnormal n (%)	
Never	319 (72.66)	120 (27.34)	439 (100)

Few times	236 (55.14)	192 (44.86)	428 (100)
Frequently	11 (33.33)	22 (66.67)	33 (100)
<b>Total</b>	<b>566 (62.88)</b>	<b>334 (37.12)</b>	<b>900 (100)</b>
$\chi^2 = 41.34$		<b>df = 2</b>	<b>p = 0.00</b>



In the present study, among the children who had faced physical violence frequently, 22 (66.67%) had substantial risk of clinically significant mental health problems and 11 (33.33%) were unlikely to have mental health problems. Among 428 participants who had faced physical violence few times, 192 (44.86%) had substantial risk of clinically significant mental health problems & 236 (55.14%) were unlikely to have mental health problems. Out of 439 students who had never faced physical violence, 120 (27.34%) had substantial risk of clinically significant mental health problems and 319 (72.66%) were unlikely to have mental health problems. So, facing physical violence had substantial risk of clinically significant mental health problems & it increased substantially as the physical violence increased from few times to frequently. This association was statistically significant. ( $\chi^2 = 41.34$ ,  $p = 0.00$ )

**TABLE 54: Univariate & multivariate analysis**

<b>Variable</b>	<b>Odd's Ratio (OR) &amp; Confidence Interval (CI)</b>	<b>p Value</b>	<b>Adjusted Odd's Ratio (AOR) &amp; Confidence Interval (CI)</b>	<b>p Value</b>
<b>Death of close family member</b>				
Yes	1.47 (1.07 – 2.02)	0.02	1.27 (0.90 – 1.79)	0.17
No	1		1	
<b>Faced Discrimination</b>				
Yes	2.45 (1.84 - 3.26)	<0.001	2.00 (1.46 – 2.73)	<0.001
No	1		1	
<b>Bullying Faced</b>				
Yes	2.51 (1.72 - 3.68)	<0.001	1.40 (0.91 – 2.73)	0.12
No	1		1	
<b>Physical Violence</b>				
Never	1		1	
Few Times	2.16 (1.63 - 2.88)	<0.001	1.93 (1.44 – 2.58)	<0.001
Frequently	5.32 (2.51 - 11.30)	<0.001	4.61 (2.12 – 10.04)	<0.001

On further analysis, it was noted that the study participants who had lost a close family member in the recent past had 1.47 times (CI = 1.07 to 2.02, p = 0.02) higher substantial risk of clinically

significant mental health problems when compared to children who had not experienced the loss. Participants who faced discrimination had 2.45 times (CI=1.84 to 3.26,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems when compared to children who had not experienced discrimination. Similarly, when the participants faced bullying the substantial risk of developing clinically significant mental health problems was 2.51 times (CI = 1.72 to 3.68,  $p < 0.001$ ) higher compared to those who did not faced bullying. Among the study participants who had faced physical violence for few times & frequently had 2.16 times (CI = 1.63 to 2.88,  $p < 0.001$ ) & 5.32 times (CI = 2.51 to 11.30,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems respectively when compared to children who had never faced physical violence. On multivariate analysis, it was found that children facing discrimination {AOR = 2.00 (CI = 1.46 to 2.73),  $p < 0.001$ }, children experiencing physical violence few times {AOR = 1.93 (CI = 1.44 to 2.58),  $p < 0.001$ } & children experiencing physical violence frequently {AOR = 4.61 (CI = 2.12 to 10.04),  $p < 0.001$ } emerged as significant risk factors for higher substantial risk of clinically significant mental health problems.

## DISCUSSION

The present study was a cross-sectional study conducted during the period of 1<sup>st</sup> April 2023 to 31<sup>st</sup> March 2024 among school students of Belagavi city

### **Table 1: Age & sex distribution of study participant**

Among the 900 school children in our study, the age distribution was as follows: 54.89% were 14 to 15 years old, 34.67% were 16 to 17 years old and only 9.44% were 12- 13 years old. The mean age of the participants was  $14.91 \pm 1.03$  years, with a range of 12 to 17 years and a median age of 15 years. A study conducted in Kashmir reported that 40.7% of students were in the 8 to 10-year age group, 42.10% were between 11 to 12 years and 17.20% were aged 13 to 14 years.<sup>25</sup> Similarly, a study from Jaipur had 25.50% of students in the 11 to 12-year age group, 29.4% in 13 to 14 years and 45.20% in the 15 to 17-year range.<sup>14</sup> In Mangalore study, 62.70% were aged 15-16 years, 37.30% were 17-18 years.<sup>32</sup> A study conducted in Mumbai, students who were much younger, 5 – 8 years (30.35%), 8 -11 years (36.96%) & 11 -14 years (32.68%) were included.<sup>33</sup> In a study conducted in Gujarat, the mean of the participants was similar ( $14.2 \pm 1.46$  years) to our study.<sup>24</sup> The variation in age distribution is due to different selection criteria for study population and study area also. Regarding sex distribution, 54.22% of the participants in our study were male and 45.78% were female. Comparatively, a study from Pondicherry observed a higher proportion of males (57.80%) compared to females (42.20%).<sup>19</sup> Another study conducted in Jaipur reported a nearly equal distribution, with 48.80% males and 51.20% females.<sup>14</sup> Also, in Mumbai study similar findings were seen, female (46.30%) & males (53.70%).<sup>33</sup>

### **Table 2: Distribution of study participant according to religion**

In our study, the majority of participants (63.78%) followed Hinduism, followed by 28.67% adhering to Islam, 4.78% to Jainism, 2.44% to Christianity and 0.33% practicing other

religions. A study conducted in Pondicherry reported a significantly higher proportion of Hindus (98.20%), with only 1.80% belonging to other religious groups.<sup>19</sup> Similarly, findings from a study in Gujarat showed a comparable distribution, with 64.20% identifying them as Hindus, 33.60% as Muslims and 1.10% as Christians.<sup>24</sup> Also, in Mumbai study, 54.86% were Hindus, 30.35% were Muslims and 14.7 % belonged to other religions.<sup>33</sup> These variations in religious demographics reflect regional differences and the diverse composition of student populations across different study settings.

**Table 3: Distribution of study participant according to type of family**

In our study, 62.33% of the children belonged to nuclear family, 35.78% were from joint family and 1.89% were from broken family. A study conducted in Mangalore reported a higher proportion of nuclear family (80.10%), with 19.90% belonging to other family structures.<sup>32</sup> Another study conducted in Mumbai, had 66.14% from nuclear family, 33.86% from joint family.<sup>33</sup> In contrast, findings from Gujarat study revealed a different distribution, where only 35.60% of children were from nuclear family, while a majority (59.60%) belonged to joint family and 4.5% were from broken family.<sup>24</sup> These variations highlight the influence of regional and cultural factors on family structures, with nuclear families being more prevalent in certain urban settings, while joint families remain common in northern part of the country.

**Table 4 & 5: Distribution of study participant according to father's & mothers' literacy status**

In our study, the vast majority of participants' fathers were literate (99.66%). Among them, 31.58% had completed high school, 25.96% had pursued pre-university education (PUC), 18.88% held a degree, 11.24% had completed a diploma, 9.10% had primary education and 2.90% had a postgraduate degree. Similarly, 98.44% of the participants' mothers were literate. Among the literate mothers, 40.54% had completed high school, 26.73% had PUC education,

14.81% held a degree, 6.90% had completed a diploma, 7.68% had primary education and 1.78% had a postgraduate degree. A study from Kashmir showed that 32.90% of students' fathers had completed primary education, 15.70% had attended middle school, 37.40% had secondary education and 14.00% had an undergraduate or postgraduate degree. Among the mothers, 58.20% had primary education, 16.10% had middle school education, 20.40% had secondary education and only 5.30% held an undergraduate or postgraduate degree.<sup>25</sup> Another study conducted in Japan, 33.30% mothers had completed high school, 43.50% had gone to junior college, 21.80% graduate school and 0.60% others, while 36.60% fathers had completed high school, 21.80% junior college, 40.40% high school & 0.40% others.<sup>4</sup> In contrast, a study conducted in Pondicherry reported a lower literacy rate among parents, with 49.40% being illiterate and 50.60% being literate.<sup>19</sup> These findings emphasize notable regional disparities in parental literacy and educational attainment. Additionally, the study conducted in Pondicherry focused on a rural population, where education is often given less priority.

#### **Table 6 & 7: Distribution of study participant according to father's & mothers' occupation**

In our study, more than half (54.71%) of the students' fathers were self-employed, while 17.98% were employed in the government sector, 17.76% in the private sector, 5.28% worked as laborers and 3.48% were farmers. A small proportion (0.79%) were unemployed. Regarding mothers, the majority (73.96%) were homemakers, while 26.04% were engaged in various occupations. Among the employed mothers, 10.80% were self-employed, 7.68% worked in the private sector, 4.67% were in government jobs, 2.22% were laborers and 0.67% were farmers. A study from Pondicherry found that 72.30% of parents were engaged in skilled work, while 27.70% were involved in unskilled labor.<sup>19</sup> Another study conducted in Biratnagar had 28.00% of students' mothers employed while 72.00% were unemployed and 93.00% fathers employed while 7.00% of them unemployed.<sup>13</sup> In a study conducted in Gujarat, they had assessed only

mothers occupational status and which showed 19.50% of them as employed & 80.50% were unemployed.<sup>34</sup> Similarly, these findings indicate regional variations in parental employment patterns and also the differences reflect socio-economic and cultural influences on employment trends in different regions of the country.

**Table 8: Distribution of study participant according to socio economic status**

In our study, based on the modified B.G. Prasad's classification, 40.22% of participants belonged to Class II socio-economic status, followed by 36.11% in Class I, 17.11% in Class III, 5.78% in Class IV and 0.78% in Class V. A study conducted in Mangalore reported that 79.10% of participants were from the upper middle or higher socio-economic class, while 20.90% belonged to the lower middle or lower socio-economic group.<sup>32</sup> Similarly, a study from Kozhikode district in Kerala found that 59.00% of the population lived above the poverty line, while 41.00% belonged to below poverty line.<sup>35</sup> In a study conducted in Kolkata, 36.95% belonged to high socioeconomic group, 45.65% to medium & 17.40% to low socioeconomic group.<sup>36</sup> These findings highlight socio-economic variations across different regions. Also, the variations could be due to different socio economic classification methods being used in various studies.

**Table 9, 10 & 11: Distribution of study participant according to whom do they live with**

In our study, out of 898 participants who lived at home, 81.51% resided with both parents, 4.23% stayed only with their mother and 3.67% lived with both parents and grandparents. Additionally, 3.23% stayed with distant relatives, while 1.67% lived with close relatives such as an uncle and aunt. A small proportion of students (1.56%) lived either with both grandparents or with both parents and their grandmother. Only 0.67% stayed solely with their father or only with their grandmother. Furthermore, 0.56% lived with both parents, grandparents and other relatives, 0.34% with both parents and their grandfather, 0.22% with both parents and other

relatives and just 0.11% stayed only with their grandfather. A study conducted in Gujarat found that 88.70% of students lived with their family, while 11.30% resided in hostels.<sup>26</sup>

Regarding time spent with family, 34.29% of students spent five or more hours with family members daily, while 18.82% spent three hours, 17.82% spent one hour, 15.48% spent two hours and 13.03% spent four hours. Notably, 0.56% of students did not spend any time with their family. The mean time spent with family was  $3.29 \pm 1.52$  hours, with a median of 3 hours. A study from Kolkata reported that 79.80% of fathers and 93.40% of mothers spent time with their children.<sup>36</sup> Additionally, 90.86% of students had at least one meal with their family daily, whereas 9.14% did not share any meals with their family. The same study also found that 67.90% of students received quality time from their father and 78.70% from their mother.<sup>36</sup>

#### **Table 12 & 13: Distribution of study participant according to death of close family member & how it affected them**

In the present study, 199 participants (22.11%) reported experiencing the loss of a close family member or friend within the past year. Among them, the most commonly lost relatives were grandfathers (47.74%) and grandmothers (23.62%), followed by uncles (11.05%) and aunts (7.03%). Additionally, 5.03% had lost their father, 1.01% their mother, 4.02% a sibling and 0.50% had lost a close friend. Among those who experienced such a loss, 75.87% reported being affected by the death, while 24.13% stated it had not impacted them. When asked to rate their emotional pain on a scale, 13.91% reported a score of 2 ("hurts little bit"), 49.67% a score of 4 ("hurts little more"), 17.22% a score of 6 ("hurts even more"), 1.98% a score of 8 ("hurts whole lot") and 17.22% a score of 10 ("hurts worst"). The reported pain scores ranged from 2 to 10, with a mean  $\pm$  standard deviation of  $5.18 \pm 2.53$  and a median score of 4. Previous studies have shown that adolescents who have experienced such a loss exhibit increased internalizing problems within two years compared to their peers who have not faced a similar event. Notably,

22% of those who had lost a family member developed new cases of psychological distress, in contrast to only 5.5% among those who had not.<sup>37</sup> Additionally, data from the National Epidemiologic Survey on Alcohol and Related Conditions indicate that the sudden loss of a loved one significantly raises the risk of major depression, alcohol misuse and various anxiety disorders, including panic disorder, post-traumatic stress disorder (PTSD) and phobias. The most pronounced effect was on PTSD, with an increased risk as high as 30-fold across all age groups.<sup>38</sup> These findings indicate a significant emotional burden among adolescents and also the lasting impact of losing a loved one on mental health.

**Table 14 & 15: Distribution of study participant according to hobby & time spent on it**

In the present study, a significant proportion of participants (90.22%) reported having at least one hobby. Among these, sports (49.38%) were the most common, followed by cultural activities (25.74%), art-based hobbies (14.41%), reading (5.42%) and skill development activities (5.05%). Sports participation was diverse, with students engaging in cricket (39.15%), football (18.71%), badminton (14.98%), carrom (11.73%), karate (5.49%) and kabaddi (9.94%). Cultural hobbies included dancing (51.68%), singing (30.63%) and learning musical instruments (17.69%). Artistic hobbies were primarily drawing (69.24%), painting (20.52%) and crafting (10.24%). Additionally, students engaged in skill-based hobbies such as cooking (41.47%), cycling (26.83%), swimming (21.96%), yoga (4.87%) and financial management (4.87%). In a study conducted in Coimbatore, students had similar hobbies compared to our study such as watching TV, reading books, sports, music, dance and using mobiles.<sup>39</sup> A study conducted among Senior High School students in Bataan reported similar engagement trends, with 91.1% participating in enrichment hobbies, 44.4% in sports, 43.3% in creative hobbies, 70.0% in social activities, 27.8% in collecting and 31.1% in outdoor hobbies.<sup>40</sup> Regarding time allocation, nearly half (47.41%) of the students dedicated 1 hour to their hobbies daily, while 37.69% spent 2 hours and fewer students devoted 3 hours (8.86%),

4 hours (4.31%), or 5 hours (1.73%). The mean time spent on hobbies was  $1.75 \pm 0.90$  hours, with a median of 2 hours. In the same Bataan study, 45.40% of students had spent between 11 and 30 hours per week on their hobbies.<sup>40</sup> In our study, the students spent between 7 – 35 hours per week on hobbies. Engaging in hobbies contributes to students' holistic development, providing opportunities for skill enhancement, stress reduction and social interaction.

**Table 16: Distribution of study participant according to attending extracurricular classes**

In the present study, 216 out of 900 participants (24.00%) were engaged in extracurricular activities, while 684 (76.00%) did not participate in any such classes. Among those who attended, 54.17% students were enrolled in educational-based classes, followed by 20.83% in life skill development, 17.13% in sports and 7.87% in cultural events-based classes. The time spent in these activities varied, with 39.35% students dedicating 1 hour, 0.92% students spending 1.5 hours, 49.07% students engaging for 2 hours and 10.66% students participating for 3 hours. The average time spent on extracurricular activities was  $1.71 \pm 0.65$  hours, with a median of 2 hours. A study conducted in Colombia reported that students took part in team sports, individual sports, music, arts, educational programs and youth activities, with 53.72% spending less than 2 hours and 46.28% spending more than 2 hours daily in extracurricular activities.<sup>41</sup> Similarly, research in the USA indicated that shifting from nonparticipation to some level of engagement in extracurricular activities was linked to improved mental health outcomes ( $\beta = 2.6$ , 95% CI (0.3, 4.9),  $p = 0.04$ ).<sup>42</sup> These findings highlight the significance of extracurricular participation in students' personal growth, skill enhancement and overall mental well-being.

**Table 17: Distribution of study participant according to owning a mobile**

In our study, out of 900 participants, 26.56% owned a mobile phone, while the majority (73.44%) did not. Among the students who owned a mobile phone, 2.93% acquired it at the

age of 10 years, 3.76% at 11 years, 18.83% each at 12 and 13 years, 29.29% at 14 years, 20.50% at 15 years and 5.86% at 16 years. The mean age at which students obtained their first mobile phone was  $13.54 \pm 1.40$  years, with a median age of 14 years. In comparison, a study conducted in Gujarat found that a higher proportion (47.30%) of participants owned a mobile phone, while 52.70% did not have their own device.<sup>26</sup> The relatively lower rate of mobile phone ownership in our study compared to the Gujarat study could be influenced by factors such as parental control, socio-economic status and educational policies.

**Table 18: Distribution of study participant according to time spent on social media**

In our study, 98.00% of students engaged with social media, either using their own mobile phones or those belonging to family members. The average time spent on social media was  $1.53 \pm 0.87$  hours, with a median of 1 hour. Among the 882 students who reported mobile usage, 62.11% spent 1 hour per day on social media, 26.33% spent 2 hours, 4.56% spent 3 hours, 3.33% spent 4 hours and 1.67% spent 5 hours daily. A 2020 survey conducted by Pew Research found that students typically spent more than 2 hours per day on social media, which was almost similar to our findings.<sup>43</sup>

**Table 19 & 20: Distribution of study participant according to mobile usage**

The present study revealed that mobile phones were primarily used for academic purposes by 40.45% of participants, while 38.30% engaged in mobile gaming. Additionally, 14.40% used their phones for communication, 5.58% for web browsing and 1.27% for online shopping. Among those who played mobile games (391 students), the distribution of game genres was as follows: 47.31% preferred action/adventure games, 18.28% played brain games, 12.69% enjoyed racing games, 7.96% engaged in simulation games, 4.30% played card games and 9.46% participated in other games, including puzzles, board games, cooking games and casual games like Candy Crush and coloring apps. A study conducted in Turkey highlighted similar

trends in smartphone usage among students, showing that 65.5% used their devices for accessing academic resources, while 63.3% read news, 60.1% engaged in social media, 40.8% followed sports news, 37.9% used them for entertainment and 37.6% listened to music. Academic applications of smartphone use included reading full-text articles (74.9%), watching educational videos (56.5%), recording class notes (45.4%), preparing study materials (36.2%) and referencing library materials (23.2%).<sup>44</sup> These findings emphasize the dual role of mobile devices as both educational tools and sources of entertainment.

#### **Table 21: Distribution of study participant according to last academic performance**

Among the 900 students included in our study, 26.33% achieved distinction in their last academic year, 45.45% secured first-class results and 28.22% obtained second-class results. In comparison, a study conducted in Kolkata found that 29.80% of students had very good academic performance, 53.20% had moderate scores and 17.00% had lower scores.<sup>45</sup> Similarly, a study from Gujarat reported that 89.86% of students passed their last academic exams, while 10.14% failed.<sup>27</sup> The academic performance can be influenced by multiple factors, including socioeconomic background, access to educational resources, parental support and study habits.

#### **Table 22 to 24 Distribution of study participant according to discrimination faced**

In this study, out of 900 participants, 32.78% reported experiencing discrimination from at least one person, while 67.22% had not faced any discrimination. The mean age  $\pm$  standard deviation of those who experienced discrimination was  $12.81 \pm 1.78$  years, with a median age of 13 years. Among the 295 students who encountered discrimination, the distribution by age was as follows: 0.33% each at age 6 and 7 years, 1.36% at 9 years, 11.53% at 10 years, 4.07% at 11 years, 28.81% at 12 years, 15.60% at 13 years, 18.64% at 14 years, 14.58% at 15 years and 4.75% at 16 years. Additionally, 90.50% of those facing discrimination reported being targeted by a single individual, 6.78% by two individuals and 2.72% by three or more individuals. The

sources of discrimination included 30.74% from classmates, 20.90% from friends, 17.01% from relatives, 10.15% from mothers, 8.36% from brothers, 6.26% from sisters, 4.78% from fathers and 0.90% each from grandfathers and grandmothers. The most common reason for discrimination was personality-based discrimination (68.81%), followed by academic performance (20.68%), gender (6.11%), socioeconomic status (4.06%) and health-related issues (0.34%). Findings from previous studies align with these results. A study in China reported an overall mean Perceived Social Class Discrimination (PSCD) score of 2.57 (SD = 0.77), with females perceiving slightly lower social class discrimination (M = 2.54, SD = 0.78) compared to males (M = 2.59, SD = 0.76).<sup>46</sup> Similarly, a study conducted in California found that Latino participants reported higher levels of racial discrimination (M = 2.48, SD = 1.04) compared to Asian participants (M = 2.10, SD = 0.65) or individuals from other racial backgrounds (M = 2.06, SD = 0.91)  $p < .001$ .<sup>47</sup> These studies highlight the global prevalence of discrimination, showing how it varies based on personal attributes, social class and racial background, all of which can have significant implications on psychological well-being.

### **Table 25: Distribution of study participant according to bullying faced**

In our study, 14.00% of the 900 participants reported experiencing bullying in some form, while the majority (86.00%) did not face any bullying. Among the 126 students who had encountered bullying, 47.62% experienced mental bullying, 32.54% faced physical bullying and 19.84% were subjected to verbal bullying. Comparatively, a global school-based student health survey found that 32.03% of students had experienced bullying. Among them, 24.02% faced physical bullying, 66.36% encountered verbal bullying and 9.62% reported being neglected by others.<sup>48</sup> Additionally, a study conducted in Stockholm schools revealed that 16.90% of girls and 8.00% of boys had been bullied.<sup>49</sup> These findings suggest that the prevalence of bullying in our study is lower than the global reports. The distribution of bullying types also differs, with our study indicating a higher proportion of mental bullying, whereas the global survey found verbal

bullying to be the most common. Bullying can have long-term psychological and emotional effects on students, impacting their mental health, academic performance and social interactions.

**Table 26: Distribution of study participant according to physical violence faced**

In our study, out of 900 participants, 3.67% reported experiencing physical violence frequently, 47.56% had encountered it a few times, while the majority (48.77%) had never faced physical violence. Similarly, in a meta-analysis conducted on study population aged 2 – 17 years, involving 96 countries data, it was found that 50.0% of children in Asia, Africa and North America faced physical violence in past one year and globally over half of the children had faced physical violence.<sup>50</sup> Experiencing physical violence, even occasionally, can have significant psychological and emotional consequences, affecting students' self-esteem, mental health and overall well-being.

**Table 27 to 32: Distribution of study participants according to domain of hyperactivity, emotion, conduct, peer problems and pro social**

In the present study, the Strengths & Difficulties Questionnaire (SDQ) was used to assess various behavioral and emotional domains among participants. The findings are as follows: Hyperactivity Domain: 87.33% of students had normal scores, with a mean  $\pm$  standard deviation (SD) of  $2.88 \pm 1.50$ . Borderline scores were observed in 6.45%, while 6.22% had abnormal scores, with a mean  $\pm$  SD of  $7.37 \pm 0.70$ . Emotional Problems: 75.89% had normal scores (mean  $\pm$  SD:  $2.80 \pm 1.48$ ), 10.22% were borderline and 13.89% had abnormal scores (mean  $\pm$  SD:  $7.81 \pm 0.96$ ). Conduct Problems: 61.56% had normal scores (mean  $\pm$  SD:  $2.04 \pm 0.89$ ), while 18.22% had borderline scores and 20.22% had abnormal scores (mean  $\pm$  SD:  $5.98 \pm 1.01$ ). Peer Problems: 59.67% of students scored within the normal range (mean  $\pm$  SD:  $2.03 \pm 0.89$ ), 28.33% had borderline scores (mean  $\pm$  SD:  $4.40 \pm 0.49$ ) and 12.00% had abnormal

scores (mean  $\pm$  SD:  $6.61 \pm 0.83$ ). Pro-Social Behavior: 88.67% had normal scores (mean  $\pm$  SD:  $8.52 \pm 1.32$ ), 6.11% had borderline scores and 5.22% had abnormal scores (mean  $\pm$  SD:  $3.34 \pm 0.73$ ).

A study conducted in Uttara Kannada found similar trends, with 73.90% of students scoring normal in the emotional domain, 65.80% in conduct problems and 81.10% in hyperactivity. However, a higher percentage (74.30%) had normal scores in the peer problems domain compared to our study (59.67%). The pro-social behavior scores were also comparable, with 86.20% normal scores in the Uttara Kannada study.<sup>15</sup> In Tamil Nadu, the study revealed slightly lower normal scores in the emotional domain (60.00%) and higher rates of borderline (19.00%) and abnormal scores (21.00%) compared to our findings. Conduct problems were also less prevalent, with 79.00% having normal scores. Hyperactivity scores were similar, with 82.00% showing normal scores and the peer problems domain reflected different results (74.00% v/s 59.67% normal scores). Interestingly, in the pro-social domain, Tamil Nadu had a significantly higher percentage of students with normal scores (98.00%) than our study (88.67%).<sup>20</sup> The variations observed between different studies could be attributed to differences in socioeconomic backgrounds, cultural influences, school & home environments, influence of social media, coping mechanism and levels of parental involvement.

**Table 33: Distribution of study participant according to SDQ Total Difficulties score**

In the present study, among 900 school children, 62.89% had normal difficulty scores, with a mean  $\pm$  standard deviation (SD) of  $10.45 \pm 3.12$ . Nearly, 22.78% of participants had borderline scores, with a mean  $\pm$  SD of  $17.27 \pm 1.05$ , while 14.33% had abnormal scores, with a mean  $\pm$  SD of  $22.36 \pm 2.32$ . Similarly, in a study conducted in Uttara Kannada it was found 14.1% of the participants had abnormal SDQ scores, 18.4% had borderline scores and 67.3% had normal scores.<sup>15</sup> In an another study conducted in Nagaland, it was found that 17.2% of the participants

had abnormal scores whereas 28.8% had borderline scores and 54.0% had normal scores.<sup>23</sup> A study conducted in Jaipur reported a higher percentage (77.46%) of students with normal difficulty scores, while 14.19% had borderline scores and 8.35% had abnormal scores.<sup>14</sup> Similarly, a cross-sectional study in Gujarat showed 85.00% of students had normal scores, 9.00% had borderline scores and 6.00% had abnormal scores.<sup>27</sup> The findings suggest that mental health difficulties among school children vary across different regions and it has shown an increasing trend over the years. Several factors could contribute to these differences and increasing trend like changes in socioeconomic status, family environment, academic pressure, social influences and cultural differences.

**Table 34 to 37: Distribution of study participant according to difficulties in emotions, concentration and behavior**

In the present study, among 900 participants, 48.32% reported that they did not experience any difficulties related to emotions, concentration, or behavior, while 51.68% felt they had challenges in one or more of these areas. Among the 465 students who acknowledged such difficulties, 33.78% described them as minor, 12.67% as definite and 5.23% as severe. Regarding the duration of these difficulties: 52.04% had experienced them for less than a month, 14.19% for 1 to 5 months, 14.85% for 6 to 12 months and 18.92% for more than a year. When evaluating distress levels, 17.46% reported no distress, 53.88% experienced mild distress, 22.84% felt significant distress and 5.82% reported severe distress due to their difficulties. The impact on daily life varied: At home, 8.17% were greatly affected, 14.62% quite a lot, 36.56% a little and 40.65% not at all. In friendships, 4.30% had great difficulty, 17.20% quite a lot, 37.21% a little and 41.29% had no issues. In the classroom, 6.02% had great difficulty, 22.58% quite a lot, 39.14% a little and 32.26% faced no issues. During leisure time & activities, 4.73% experienced great difficulty, 14.84% quite a lot, 34.19% a little and 46.24% had no difficulty at all.

Compared to a study conducted in Patna, 589 participants responded to an assessment of daily life difficulties. Among them, 20.4% of children reported definite difficulties in daily life, while 11.4% experienced severe difficulties. The remaining adolescents had minor or no difficulties in their daily activities. Regarding the duration of these challenges, 22.2% reported that the difficulties had persisted for more than a year, whereas 69.9% had been facing them for less than five months. Additionally, 15.8% of children reported feeling distressed while coping with these difficulties, with a notable 7.8% experiencing significant distress. These difficulties were found to interfere with various aspects of life, including home life, friendships, classroom learning and leisure activities. In another study conducted in Bangalore, regarding the overall impact of the difficulties, 19.2% of students reported definite to severe difficulties in daily life, with only 2.0% experiencing severe difficulty. Of the total sample, 25% reported that their difficulties had lasted for over a year, while 47.7% stated that the problems had persisted for less than a month. A significant proportion (26.1%,  $n = 92$ ) reported feeling distressed when trying to manage these difficulties, with 7.7% ( $n = 27$ ) experiencing a high level of distress. The reported difficulties interfered with different aspects of daily life: 19.5% experienced difficulties in classroom learning, 19.2% in friendships, 18.4% in home life and 12.4% in leisure activities. A smaller percentage of students reported that these difficulties affected them "a great deal" in specific areas—5.9% in classroom learning, 5.4% in home life, 4.5% in leisure activities and 4.2% in friendships.<sup>17</sup> The way individuals perceive and report difficulties can be influenced by various factors such as personal coping mechanisms, social support, cultural norms and awareness of mental health issues.

**Table 38 & 39: Association between the impact score of the study participant and total difficulties score**

Among the 465 students who reported difficulties, 37.85% had an abnormal score (mean  $\pm$  SD:  $3.47 \pm 1.75$ , median: 3), 19.78% had borderline scores and 42.37% had normal scores.

Additionally, 7.94% reported that their difficulties greatly affected others, 16.78% quite a lot, 30.54% a little and 44.74% said their challenges did not impact others. A study conducted in Tamil Nadu found that 53.00% of participants had normal impact scores, 9.00% had borderline scores and 38.00% had abnormal scores, with a mean  $\pm$  SD of  $1.26 \pm 1.68$ .<sup>20</sup> Similarly, a study from Iran reported that 48.97% had normal impact scores, 16.83% had borderline scores and 34.20% had abnormal scores.<sup>51</sup> The Bangalore study, revealed that the difficulties created strain for family members, friends and teachers in 39.5% of cases, with 30.5% reporting a minor effect, 5.9% reporting a significant impact and 3.1% reporting a severe effect on others.<sup>17</sup> The higher impact score in all these studies maybe due to, the participants are more aware of the effect of their difficulties on themselves and others or may have experienced greater psychosocial stressors in their environment.

**Table 40 to 49: Association between socio-demographic profile of the study participant and total difficulties score**

In the present study, a higher prevalence of substantial risk of clinically significant mental health problems was observed among students aged 14 to 15 years (38.87%,  $p = 0.17$ ), female participants (39.57%,  $p = 0.16$ ), those studying in 10th standard (40.34%,  $p = 0.22$ ), students from broken families (47.06%,  $p = 0.58$ ), those whose fathers & mothers were illiterate or completed primary education/ high school (39.73%,  $p = 0.31$ ) & (40.94%,  $p = 0.06$ ) respectively. Furthermore, students whose fathers were unemployed (85.72%,  $p = 0.07$ ) and whose mothers were working (42.31%,  $p = 0.06$ ) also had substantial risk of clinically significant mental health problems, along with those from the lower socio-economic status (57.15%,  $p = 0.37$ ). Similar findings have been reported in previous studies. In Mangalore study, students aged 17–18 years had higher odds of mental health problems (OR = 1.13, 95% C.I = 0.63–2.02) and those from broken families were more likely to experience mental health issues (OR = 1.41, 95% C.I = 0.70–2.83).<sup>32</sup> A study conducted in Jaipur found a significant

association between low maternal education and higher abnormal scores ( $\chi^2 = 28.43, p < 0.001$ )<sup>14</sup>. In Biratnagar study, students in 10th standard had a higher prevalence of abnormal scores, aligning with our study and females also exhibited higher abnormal scores.<sup>13</sup> Similarly, a study in Mumbai found that non-Hindu students had higher rates of mental health problems ( $\chi^2 = 1.76, p > 0.05$ ).<sup>33</sup> Additionally, the Mangalore study also indicated that students from lower-middle socio-economic backgrounds had higher odds of experiencing mental health issues.<sup>32</sup> The findings suggest that multiple socio-demographic factors contribute to substantial risk of clinically significant mental health problems among students. The higher prevalence among females aligns with previous research indicating that adolescent girls often face greater emotional distress due to societal pressures, academic expectations and biological factors. The association with religious background, as seen in Mumbai study, could be influenced by cultural differences, social dynamics or varying access to support systems. Additionally, the impact of family structure, parental education and employment status reinforces the role of socio-economic conditions in shaping mental health outcomes.

**Table 50: Association between death of close family member of the study participant and total difficulties score**

In the present study, students who had experienced the loss of a close family member exhibited a significantly higher prevalence of substantial risk of clinically significant mental health problems ( $\chi^2 = 5.53, p = 0.02$ ). This aligns with findings from a study conducted in the USA, which reported an association between the loss of a loved one and the development of mental health issues ( $r(86) = 0.21, p = 0.05$ ).<sup>52</sup> Losing a close family member can be an emotionally distressing experience for adolescents, often leading to grief, emotional instability and potential long-term psychological effects. Such a loss may contribute to conditions like depression and anxiety, while also affecting concentration, academic performance and social interactions.

**Table 51 to 53: Association between predictors of mental health problems of the study participant and total difficulties score**

In the present study, participants who experienced discrimination ( $\chi^2 = 38.32, p = 0.00$ ), bullying ( $\chi^2 = 23.23, p = 0.00$ ) and frequent physical violence ( $\chi^2 = 41.34, p = 0.00$ ) had significantly higher substantial risk of clinically significant mental health problems. These findings align with global research emphasizing the adverse effects of such experiences on adolescent mental health. A worldwide survey found that frequent bullying had a substantial negative impact on adolescent mental well-being ( $p < 0.001$ ).<sup>48</sup> Similarly, a study conducted at a Midwestern research university reported that an increase in discrimination by 1 standard deviation (SD) led to a 0.46 times increase in mental health problems among students.<sup>53</sup> Additionally, the Tromsø study, which analyzed data from 65 countries, highlighted that psychological violence, including threatening and tormenting behaviors, was linked to poorer mental health outcomes.<sup>54</sup> These findings highlights the severe psychological distress caused by discrimination, bullying and physical violence, which can contribute to anxiety, depression, low self-esteem and social withdrawal among adolescents.

**Table 54: Univariate and Multivariate analysis.**

In our study, it was noted that the study participants who had lost a close family member in the recent past had 1.47 times (CI = 1.07 to 2.02,  $p = 0.02$ ) higher substantial risk of clinically significant mental health problems when compared to children who had not experienced the loss. Participants who faced discrimination had 2.45 times (CI=1.84 to 3.26,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems when compared to children who had not experienced discrimination. Similarly, when the participants faced bullying the substantial risk of developing clinically significant mental health problems was 2.51 times (CI = 1.72 to 3.68,  $p < 0.001$ ) higher compared to those who did not faced bullying. Among the

study participants who had faced physical violence for few times & frequently had 2.16 times (CI = 1.63 to 2.88,  $p < 0.001$ ) & 5.32 times (CI = 2.51 to 11.30,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems respectively when compared to children who had never faced physical violence. On multivariate analysis, it was found that children facing discrimination {AOR = 2.00 (CI = 1.46 to 2.73),  $p < 0.001$ }, children experiencing physical violence few times {AOR = 1.93 (CI = 1.44 to 2.58),  $p < 0.001$ } & children experiencing physical violence frequently {AOR = 4.61 (CI = 2.12 to 10.04),  $p < 0.001$ } emerged as significant risk factors for higher substantial risk of clinically significant mental health problems. Similarly, in a study conducted at Lithuania it was found students who faced bullying had 1.09 times higher risk of developing mental health problems (CI 0.98 – 1.22,  $p = 0.10$ )<sup>55</sup>.

## CONCLUSION

The present study provides valuable insights into the mental health status of high school students in an urban area. The findings indicate that 37.11% of students exhibited borderline to abnormal mental health scores on the Strengths and Difficulties Questionnaire (SDQ), highlighting a significant concern. Several factors, including experiences of discrimination, bullying and physical violence, were found to have a considerable impact on students' mental well-being. Additionally, students from broken family, lower socioeconomic backgrounds and those with unemployed parents showed a higher prevalence of mental health issues compared to their peers from nuclear or joint families, upper and middle socioeconomic status and employed parents with good qualifications. Gender differences were also observed, with female students experiencing more mental health challenges than males.

Furthermore, all domains of the SDQ—hyperactivity, emotional difficulties, conduct issues, and peer problems—contributed directly to the total SDQ score, emphasizing the need for targeted interventions across these areas. Although 37.11% of students demonstrated some level of mental health concerns, 14.33% had abnormal scores, primarily on the milder side. Early identification of these students and timely intervention through proper counselling can play a crucial role in addressing their concerns, helping them express their problems and guiding them toward better mental well-being. Strengthening mental health support systems in schools, promoting awareness and creating a safe environment for students can significantly contribute to improving their overall psychological health.

## RECOMMENDATIONS

Based on the present study findings the following recommendations are given

- **Early Identification and Intervention:**
  - Implement regular mental health screening programs in schools using validated tools like SDQ.
  - Identify students at risk and provide early interventions, including counselling and psychological support.
- **School-Based Mental Health Programs:**
  - Introduce mental health awareness campaigns to reduce stigma and encourage students to seek help.
  - Train teachers and school staff to recognize early signs of mental distress and provide initial support.
- **Strengthening Support Systems:**
  - Establish peer support groups where students can discuss their concerns in a safe and supportive environment.
  - Encourage family involvement in students' mental well-being through parental education and counselling programs.
- **Addressing Risk Factors:**
  - Implement strict anti-bullying policies and promote a safe and inclusive school environment.
  - Provide targeted support for students from broken families and those facing socioeconomic challenges.
- **Gender-Sensitive Mental Health Strategies:**
  - Develop gender-specific interventions, as female students were found to have higher mental health concerns.

- Create safe spaces where both boys and girls can express their emotions without stigma.
- **Improving Coping Skills and Resilience:**
  - Incorporate life skills training, stress management workshops and emotional intelligence programs into the school curriculum.
  - Promote extracurricular activities, mindfulness exercises and relaxation techniques to improve overall well-being.
- **Strengthening Collaboration with Mental Health Professionals:**
  - Schools should collaborate with psychologists, counsellors and child mental health experts to provide professional support.
  - Referral systems should be established for students requiring specialized care.

By implementing these recommendations, schools, parents and communities can work together to create a supportive environment that fosters the mental well-being of students and prevents the development of severe mental health issues.

## **STRENGTHS AND LIMITATIONS**

Strengths and Limitations noted in the study were:

### **Strengths:**

- The study utilized the standardized and validated Strengths and Difficulties Questionnaire (SDQ) for reliable mental health assessment
- Students' perception of their difficulties was also assessed using the impact score, thus providing insight into how these difficulties were affecting their daily activities and life.
- Adequate sample size
- Majority of the risk factors influencing the mental health were assessed

### **Limitations:**

- The cross-sectional study design limits the ability to establish causal relationships between risk factors and mental health outcomes.
- Reliance on self-reported data may introduce recall bias and social desirability bias.
- The study was confined to urban schools in Belagavi, which may limit the generalizability of findings to rural areas or other regions.

## **SCOPE FOR FURTHER RESEARCH**

Since our study was quantitative, it limited our ability to capture students' feelings and deeper insights about their mental health challenges.

➤ So, scope for further research would be:

- Integrate a qualitative component to explore students' feelings & experiences.
- Adopt a mixed-methods approach to combine objective data with personal insights.
- Design and implement targeted interventions based on our study findings and conduct a longitudinal study to evaluate their short & long-term effectiveness.

## SUMMARY

This cross-sectional study was conducted among 900 school students of Belagavi from April 1, 2023 to March 31, 2024, with the objectives to assess the mental health status among high school students of an urban area and factors influencing the mental health status. A total of four schools were randomly selected from each zone of Belagavi city.

The mean age of the study participants was  $14.91 \pm 1.03$  years, with 324 (36.00%) students studying in 8th standard, 214 (23.78%) in 9th standard and 362 (40.22%) in 10th standard. Among them, 488 (54.22%) were male and 412 (45.78%) were female. The majority of the participants were Hindus (574, 63.78%), belonged to nuclear family (561, 62.33%) and were from socioeconomic status (SES- II) (362, 40.22%). Most of the students' fathers (887, 99.66%) and mothers (884, 98.44%) were literate. Regarding parental occupations, 487 (54.71%) of fathers were self-employed, while 664 (73.96%) of mothers were homemakers.

Most of the students (898, 99.78%) stayed at home, with 732 (81.51%) staying with both parents. A total of 308 (34.29%) spent more than five hours with their parents and 816 (90.86%) shared at least one meal with family members. Around one-fourth of the participants (199, 22.11%) had lost a close family member in the past year, with the most common loss being a grandfather (47.74%). The death significantly affected 151 (75.87%) students, with a mean pain scale score of  $5.18 \pm 2.53$  and a median of 4.

Regarding leisure activities, the majority of participants (812, 90.22%) had hobbies, with sports being the most common (401, 49.38%) and 385 (47.41%) spent about an hour on their hobbies. Additionally, 216 (24.00%) students participated in extracurricular classes, including educational programs (117, 54.17%) and life skills training (45, 20.83%), with an average duration of  $1.71 \pm 0.65$  hours. When it came to mobile phone ownership, 239 (26.56%) students owned a mobile phone, with most receiving it at the age of 14 years (mean:  $13.54 \pm$

1.40 years). Among them, 559 (62.11%) spent an hour daily on social media, primarily for studying (413, 40.45%) and gaming (391, 38.30%), with action/adventure games being the most popular (47.31%).

Academically, nearly half of the students (45.45%) secured first-class marks in their last examination and 212 (23.56%) held leadership positions in school, such as house captains, discipline ministers, etc. Experiences of discrimination were reported by 295 (32.78%) students, most commonly at the age of 12 years (28.81%), with a mean age of  $12.81 \pm 1.78$  years and a median of 13 years. Discrimination was primarily inflicted by a single individual (267, 90.50%), often classmates (103, 30.74%) and friends (70, 20.90%) were the perpetrators. The reasons for discrimination were personality traits (203, 68.81%) and academics (61, 20.68%). Bullying was reported by 126 (14.00%) students, with 47.62% experiencing mental bullying, 32.54% physical bullying and 19.84% verbal bullying. Physical violence was frequently encountered by 3.67% and occasionally by 47.46% of students.

In terms of mental health domains, abnormal scores were observed in 6.22% for hyperactivity (mean:  $7.37 \pm 0.70$ ), 13.89% for emotional issues ( $7.81 \pm 0.96$ ), 20.22% for conduct problems ( $5.98 \pm 1.01$ ), 12.00% for peer problems ( $6.61 \pm 0.83$ ) and 5.22% for prosocial behaviour ( $3.34 \pm 0.73$ ). Regarding total difficulty scores, 566 (62.89%) students had normal scores (mean:  $10.45 \pm 3.12$ ), 205 (22.78%) had borderline scores ( $17.27 \pm 1.05$ ) and 129 (14.33%) had abnormal scores ( $22.36 \pm 2.32$ ). Additionally, 51.68% of participants reported experiencing difficulties in areas such as emotions, concentration and behaviour. Among them, 5.23% rated their difficulties as severe, with 52.04% experiencing them for less than a month and 5.82% experiencing severe distress by these issues. The total impact score was abnormal in 176 (37.85%) students, with a mean of  $3.47 \pm 1.75$ .

When analysing associations, a higher prevalence of substantial risk of clinically significant mental health problems was observed among students aged 14 to 15 years (38.87%,  $p = 0.17$ ), female participants (39.57%,  $p = 0.16$ ), those studying in 10th standard (40.34%,  $p = 0.22$ ), students from broken families (47.06%,  $p = 0.58$ ), those whose fathers & mothers were illiterate or completed primary education/ high school (39.73%,  $p = 0.31$ ) & (40.94%,  $p = 0.06$ ) respectively. Furthermore, students whose fathers were unemployed (85.72%,  $p = 0.07$ ) and whose mothers were working (42.31%,  $p = 0.06$ ) also had substantial risk of clinically significant mental health problems, along with those from the lower socio-economic status (57.15%,  $p = 0.37$ ). In the present study, students who had experienced the loss of a close family member exhibited a significantly higher prevalence of substantial risk of clinically significant mental health problems ( $\chi^2 = 5.53$ ,  $p = 0.02$ ). The participants who experienced discrimination ( $\chi^2 = 38.32$ ,  $p = 0.00$ ), bullying ( $\chi^2 = 23.23$ ,  $p = 0.00$ ) and frequent physical violence ( $\chi^2 = 41.34$ ,  $p = 0.00$ ) had significantly higher substantial risk of clinically significant mental health problems.

It was noted that the study participants who had lost a close family member in the recent past had 1.47 times (CI = 1.07 to 2.02,  $p = 0.02$ ), participants who faced discrimination had 2.45 times (CI=1.84 to 3.26,  $p < 0.001$ ) and when the participants faced bullying was 2.51 times (CI = 1.72 to 3.68,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems. Among the study participants who had faced physical violence for few times & frequently had 2.16 times (CI = 1.63 to 2.88,  $p < 0.001$ ) & 5.32 times (CI = 2.51 to 11.30,  $p < 0.001$ ) higher substantial risk of clinically significant mental health problems respectively. On multivariate analysis, it was found that children facing discrimination {AOR = 2.00 (CI = 1.46 to 2.73),  $p < 0.001$ }, children experiencing physical violence few times {AOR = 1.93 (CI = 1.44 to 2.58),  $p < 0.001$ } & children experiencing physical violence frequently {AOR = 4.61

(CI = 2.12 to 10.04),  $p < 0.001$  } emerged as significant risk factors for higher substantial risk of clinically significant mental health problems.

## LIST OF REFERENCES

1. Park K. Park's Textbook of Preventive and Social Medicine. 26th ed. Banarsidas Bhanot Publishers; 2021: 14 – 15.
2. Mental disorders. World Health Organisation. Available at : <https://www.who.int/news-room/fact-sheets/detail/mental-disorders> (Accessed on 8.4.25)
3. Lunkenheimer E, Ram N, Skowron EA, Yin P. Harsh Parenting. Child Behavior Problems, and the Dynamic Coupling of Parents' and Children's Positive Behaviors. J Fam Psycho. 2017;31(6):689 - 698.
4. Kizuki M, Ochi M, Isumi A, Kato T, Fujiwara T. Parental Time of Returning Home From Work and Child Mental Health Among First-Year Primary School Students in Japan: Result From A-CHILD Study. Front Pediatr. 2018; 2(6): 1 -10.
5. Adolescents. UNICEF DATA. Available at <https://data.unicef.org/topic/adolescents/overview/>. (Accessed on 28.2.25)
6. Adolescent mental health. World Health Organisation. Available at: <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>. (Accessed on 28.2.25)
7. Ministry of Health, Family Welfare-Government of India. Adolescent Health: National Health Mission. Available at <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=818&lid=221>. (Accessed on 28.2.25)
8. Nebhinani N, Jain S. Adolescent mental health: Issues, challenges, and solutions. Ann Indian Psychiatry 2019; 3(1): 4 - 7.

9. Vankerckhoven L, Raemen L, Claes L, Eggermont S, Palmeroni N, Luyckx K. Identity Formation, Body Image, and Body-Related Symptoms: Developmental Trajectories and Associations Throughout Adolescence. *J Youth Adolesc.* 2023;52(3):651–69.
10. Luo D, Dashti SG, Sawyer SM, Vijayakumar N. Pubertal hormones and mental health problems in children and adolescents: a systematic review of population-based studies. *eClinicalMedicine.* 2024; 76(10): 1 - 17.
11. Muzammil K, Kishore S, Semwal J. Prevalence of psychosocial problems among adolescents in district Dehradun, Uttarakhand. *Indian Journal of Public Health.* 2009; 53(1): 18 - 21.
12. Kumar P, Ranjan A, Nirala S, Pandey S, Singh C, Agrawal N. Assessment of mental health among adolescents studying in Government Schools of Patna District. *Indian J Community Fam Med.* 2016; 2(1): 39 - 43.
13. Rimal HS, Pokharel A. Assessment of Mental Health Problems of School Children Aged 11-17 Years Using Self Report Strength and Difficulty Questionnaire (SDQ). *J Nepal Paediatr Soc.* 2013; 33(3): 172–6.
14. Sharma N. Mental Health Assessment of School going Adolescents (11-17 years) in Relation to Mother Education and Employment in Jaipur, Rajasthan. *J Med Sci Clin Res.* 2019; 7(8): 88 - 93.
15. Havale N, Vidyashri, Abhishek P, Girish H, Manjula M. Prevalence of Behavioural Disorders and its Correlates Among Adolescents in Uttara Kannada, Karnataka –A Cross Sectional Study. *Natl J Community Med.* 2022;13(7): 430–4

16. Bhola P, Sathyanarayanan V, Rekha D, Daniel S, Thomas T. Assessment of self-reported emotional and behavioral difficulties among pre-university college students in Bangalore, India. *Indian J Community Med.* 2016;41(2):146 - 150.
17. Reddy BK, Biswas A, Rao HR. Assessment of mental health of indian adolescents studying in urban schools. *Malays J Paediatr Child Health.* 2011; 17(2); 1 - 10.
18. Dheeshan N, Venkatesh R, Lavanya R. Assessment of adolescent behavioral and psychological problems using Strength and Difficulties Questionnaire (SDQ) in select schools of Bengaluru. *Natl J Public Health.* 2020; 5(1): 18 - 23.
19. Gunasekaran K, Vasudevan K, Srimadhi M. Assessment of mental health status among adolescents in Puducherry, India – A mixed method study. *J Fam Med Prim Care.* 2022; 11(6): 3089–94.
20. Aiswarya R, Kumaravel K, Ramya S, Manoj K, Anurekha V, Sampathkumar P. A Cross-sectional Study of Mental Health Status of Rural School Going Students in Late Adolescence Period in Southern India. *INDIAN J NEONATAL Med Res.* 2021; 9(3): 29 - 34.
21. Kollabathula M, Bhimarasetty DM. Mental health assessment of adolescent girls in an observational home in North coastal Andhra Pradesh: a cross sectional study. *Int J Community Med Public Health.* 2019; 6(5): 2103 - 2107.
22. Harikrishnan U, Arif A, Sobhana H . Assessment of mental health status among school going adolescents in North East India: A cross sectional school based survey. *Asian J Psychiatry.* 2017; 30:114–7.
23. Keyho K, Gujar N, Ali A. Prevalence of mental health status in adolescent school children of Kohima District, Nagaland. *Ann Indian Psychiatry.* 2019; 3(1): 39 - 42.

24. Kharod N, Kumar D. Mental Health Status of School Going Adolescents in Rural Areas of Gujarat. *Ind. J. Youth Adol. Health* 2015; 2(3): 17 - 21.
25. Paul MA, Khan W. Prevalence of Childhood Mental Disorders Among School Children of Kashmir Valley. *Community Ment Health J.* 2019; 55(6): 1031 – 7.
26. Puwar T, Yasobant S, Saxena D. Are school-going adolescents mentally healthy? Case study from Sabarkantha, Gujarat, India. *Indian J Community Med.* 2018; 43(5): 23 - 27.
27. Nair S, Ganjiwale J, Kharod N, Varma J, Nimbalkar SM. Epidemiological survey of mental health in adolescent school children of Gujarat, India. *BMJ Paediatr Open.* 2017; 1(1): 1 - 7.
28. Dangi K, Joseph J. Emotional and behavioural problems among adolescents attending selected schools of Rohtak, Haryana: A cross-sectional study. *J. Indian Assoc. Child Adolesc. Ment. Health.* 2021; 17(1): 60-7.
29. Arman S. Epidemiological study of youth mental health using strengths and difficulties questionnaire (SDQ). *Neuropsychiatr Enfance Adolesc.* 2012; 14(6): 371 - 375..
30. Decke S, Hamacher K, Lang M, Laub O, Schwettmann L, Strobl R, et al. Longitudinal changes of mental health problems in children and adolescents treated in a primary care-based health-coaching programme – results of the PrimA-QuO cohort study. *BMC Prim Care.* 2022; 23(1): 211 - 224.
31. Vries PJ, Davids EL, Mathews C, Aarø LE. Measuring adolescent mental health around the globe: psychometric properties of the self-report Strengths and Difficulties Questionnaire in South Africa, and comparison with UK, Australian and Chinese data. *Epidemiol Psychiatr Sci.* 2018; 27(4): 369–80.

32. Jayashree K, Mithra PP, Nair M, Unnikrishnan B, Pai K. Depression and anxiety disorders among schoolgoing adolescents in an urban area of South India. *Indian J Community Med.* 2018; 43(5): 28 - 32.
33. Patil R, Nagaonkar S, Shah N, Bhat T. A Cross-sectional study of common psychiatric morbidity in children aged 5 to 14 years in an Urban Slum. *J Fam Med Prim Care.* 2013; 2(2): 164 - 168.
34. Mangal A, Thakur A, Nimavat K, Dabar D, Yadav S. Screening for common mental health problems and their determinants among school-going adolescent girls in Gujarat, India. *J Fam Med Prim Care.* 2020; 9(1): 264 - 270.
35. Cholakottil A, Kazhungil F, Koyamu A. Prevalence and Pattern of Psychiatric Disorders in School Going Adolescents. *The International Journal of Indian Psychology.* 2017; 4(3): 37-42.
36. Deb S, Chatterjee P, Walsh K. Anxiety among high school students in India : comparisons across gender, school type, social strata, and perceptions of quality time with parents. *Australian Journal of Educational and Developmental Psychology.* 2010; 10(1):18-31.
37. Stikkelbroek Y, Bodden DHM, Reitz E, Vollebergh WAM, Van Baar AL. Mental health of adolescents before and after the death of a parent or sibling. *Eur Child Adolesc Psychiatry.* 2016; 25(1): 49–59.
38. “Unexpected Death of a Loved One Linked to Psychiatric Disorders.” Columbia University Mailman School of Public Health. Available at <https://www.publichealth.columbia.edu/news/unexpected-death-loved-one-linked-psychiatric-disorders>. (Accessed on 8.3.25).

39. Suresh B, Suresh S. The Influence of Hobbies on Self-Efficacy and Resilience among School Students. *Shanlax International Journal of Arts, Science and Humanities*. 2017; 5(4): 174 -180.
40. Arangel REA, Celeste JAG, Quindoy VNC, Soriano HM, Cabal C. Examining the role of hobbies in reducing academic burnout of the senior high school stem (science, technology, engineering, and mathematics) students. *Linang Journal*. 2021;3(1): 44 - 65.
41. Oberle E, Ji XR, Kerai S, Guhn M, Schonert KA, Gadermann AM. Screen time and extracurricular activities as risk and protective factors for mental health in adolescence: A population-level study. *Prev Med*. 2020; 141(1): 1 - 17.
42. Yao B, Takata SC, Mack WJ, Roll SC. Modeling extracurricular activity participation with physical and mental health in college students over time. *J Am Coll Health*. 2023; 71(4): 1232–40.
43. PEW RESEARCH. Available at <https://www.pewresearch.org/internet/2021/04/07/social-media-use-in-2021/>. (Accessed on 10.3.25)
44. Atas AH, Çelik B. Smartphone Use of University Students: Patterns, Purposes, and Situations. *Malays Online J Educ Technol*. 2019; 7(2): 54–70.
45. Deb S, Strodl E, Sun J. Academic Stress, Parental Pressure, Anxiety and Mental Health among Indian High School Students. *International Journal of Psychology and Behavioral Sciences*. 2015; 5(1): 26-34.
46. Wu J, Li Q, Wu Q, Li Q. Social Class-Based Discrimination and Psychological Symptoms Among Socioeconomically Disadvantaged College Students: The Moderated Mediation Role of Stress Mindset and Rumination. *Front Psychiatry*. 2022; 13(1): 1 - 9.

47. Rahal D, Singh AG. Racial discrimination moderates associations between sociopolitical discussions and internalizing problems among racially minoritized college students. *Cultur Divers Ethnic Minor Psychol.* 2023; 29(4): 540–50.
48. Man X, Liu J, Xue Z. Effects of Bullying Forms on Adolescent Mental Health and Protective Factors: A Global Cross-Regional Research Based on 65 Countries. *Int J Environ Res Public Health.* 2022; 19(4): 1 - 17.
49. Källmén H, Hallgren M. Bullying at school and mental health problems among adolescents: a repeated cross-sectional study. *Child Adolesc Psychiatry Ment Health.* 2021; 15(1): 74 - 81.
50. Hillis S, Mercy J, Amobi A, Kress H. Global Prevalence of Past-year Violence Against Children: A Systematic Review and Minimum Estimates. *Pediatrics.* 2016; 137(3): 1 - 22.
51. Arman S. Epidemiological study of youth mental health using strengths and difficulties questionnaire (SDQ). *Neuropsychiatr Enfance Adolesc.* 2012; 60(5): 371 - 375.
52. Weisskirch RS, Crossman KA. The Impact of Death and Dying Education for Undergraduate Students During the COVID-19 Pandemic. *OMEGA - J Death Dying.* 2024; 89(3): 998–1009.
53. Jochman JC, Cheadle JE, Goosby BJ, Tomaso C, Kozikowski C, Nelson T. Mental Health Outcomes of Discrimination among College Students on a Predominately White Campus: A Prospective Study. *Socius Sociol Res Dyn World.* 2019; 5(1): 1 - 25.
54. Friberg O, Emaus N, Rosenvinge JH, Bilden U, Olsen JA, Pettersen G. Violence Affects Physical and Mental Health Differently: The General Population Based Tromsø Study. Elhai JD, editor. *PLOS ONE.* 2015; 10(8): 1 - 15.

55. Šambaras R, Butvilaitė A, Andruškevič J, Istomina N, Lesinskienė S. How to Link Assessment and Suitable Interventions for Adolescents: Relationships among Mental Health, Friendships, Demographic Indicators and Well-Being at School. *Children*. 2024; 11(8): 939 - 956.

**ANNEXURE 1**  
**ETHICAL CLEARANCE LETTER**



K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH  
(Deemed – to- be- University)

Accredited 'A+' Grade by NAAC in (3<sup>rd</sup> Cycle) Placed in Category 'A' by MHRD (GoI)

**JNMC INSTITUTIONAL ETHICS COMMITTEE**  
**JAWAHARLAL NEHRU MEDICAL COLLEGE,**  
**NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)**

Website: <http://www.jnmc.edu>  
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Principal: 2471701  
Fax No. +91 (0)831 – 2470759

Ref No.MDC/JNMCIEC/46.

Date: 31/03/2023

To,

PG Student in Community Medicine  
J. N. Medical College,  
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled "ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA – A CROSS SECTIONAL STUDY", is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

**(Dr. Smita Sonoli)**  
Member Secretary  
JNMC Institutional Ethics Committee  
J.N.Medical College, Belagavi.

**(Dr. Harsha Hegde)**  
Chairman,  
JNMC Institutional Ethics Committee  
J.N.Medical College, Belagav

## ANNEXURE 2

### INFORMED CONSENT FORM

#### **“ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA- A CROSS-SECTIONAL STUDY”**

##### **Introduction:**

Mental health is not mere absence of mental illness. Good mental health is the ability to respond to the many varied experiences of life with flexibility and sense of purpose. Mental health being one of the most important aspects for leading a healthy and peaceful life but less importance is given to that aspect of health compared to physical health. Mental health problems are commonly begun during the childhood and adolescence period leading to serious mental illness in adult age. So, in this study we would like to assess the mental health of high school students.

##### **Explanation of procedure:**

After obtaining informed consent from the parents and assent from study participants data will be collected using a pre-designed and pre-tested questionnaire by interview. The assessment of mental health status will be carried out by SDQ, which has 25 questions covering 5 domains of mental health. The whole process of data collection will take around 20 minutes for each student.

##### **Withdrawal from participation in the study:**

Participation in this study is voluntary. You will be free to decide whether to participate in this study or continue participation once enrolled. In case you decide to withdraw your participation, you are free to do so. However, please convey the decision to the principal investigator.

**Possible benefits from participating in the study:**

You will not get any benefits by participating in this study. The data gathered will help population at large.

**Possible risks from participating in the study:**

There are no risks involved in participating in this study.

**Privacy and confidentiality:**

The information collected from you will be coded, to prevent any person to identify you. Your identity will never be revealed. The data collected from you will be kept confidential and only processed or aggregated data will be used for publication.

**Financial incentives:**

You will not receive any payment for participating in this study.

**Authorization for publication of aggregated data:**

Results obtained after processing of the aggregated data will be published for scientific purpose and or presented to scientific groups. However, your identity will never be revealed.

**Questions:**

In case of any questions with regard to this study, you are free to contact: BD0122010.

If you have any question or complaints with regard to your right as study participant you may contact Dr Harsha Hegde, Chairperson, Ethical committee of JNMC, 0831-2473777 Extension 4052.

**Legal rights:**

By signing this consent form, we are not waving any of your legal rights

## CONSENT FORM

I am making a voluntary decision to allow my child to participate in the study **“ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA- A CROSS-SECTIONAL STUDY”**. My signature below indicates that I have decided to allow my child to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the parent:

Signature or left thumb impression of the parent:

Name of the witness:

Signature or left thumb impression of the witness:

Name of the investigator:

Signature of the investigator:

## ASSENT STATEMENT

I am making a voluntary decision to participate in the study “**ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA- A CROSS-SECTIONAL STUDY**”. My signature below indicates that I have decided to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the participant:

Signature of the participant:

Name of the witness:

Signature or left thumb impression of the witness:

Name of the investigator:

Signature of the investigator:

### ANNEXURE 3

#### PROFORMA

**TITLE: ASSESSMENT OF MENTAL HEALTH STATUS AMONG HIGH SCHOOL STUDENTS IN AN URBAN AREA - A CROSS - SECTIONAL STUDY”.**

SCHOOL NAME:

#### **A. Socio demographic details:**

- 1] Name : \_\_\_\_\_
- 2] Age : \_\_\_\_\_ years
- 3] Standard i) 8<sup>th</sup> ii) 9<sup>th</sup> iii) 10<sup>th</sup>
- 4] Sex i) Male ii) Female
- 5] Religion i) Hindu ii) Muslim iii) Christian iv) Jain  
v) others, specify \_\_\_\_\_
- 6] Type of the family i) Nuclear ii) Joint iii) Broken
- 7] Educational qualification of Father i) Illiterate ii) Primary (1<sup>st</sup> to 7<sup>th</sup>) iii) High School  
(8<sup>th</sup> to 10<sup>th</sup>) iv) PUC v) Diploma vi) Degree  
vii) Post graduate
- 8] Educational qualification of Mother i) Illiterate ii) Primary (1<sup>st</sup> to 7<sup>th</sup>) iii) High School  
(8<sup>th</sup> to 10<sup>th</sup>) iv) PUC v) Diploma vi) Degree  
vii) Post graduate
- 10] Occupation of Father i) Farmer ii) Labourer iii) Self-employed  
iv) Govt. employee v) Pvt. Employee vi) Unemployed
- 11] Occupation of Mother i) Farmer ii) Labourer iii) Self-employed  
iv) Govt. employee v) Pvt. Employee vi) Home maker

- 12] Total monthly income : Rs \_\_\_\_\_
- 13] Number of family members : \_\_\_\_\_
- 14] Per capita income : Rs \_\_\_\_\_ / month

**B. Personal information:**

1. Academic performance of last final examination:
2. Death of close family member in last one year 1. Yes 2. No

If yes, who \_\_\_\_\_

If yes, has the death affected you 1. Yes 2. No

If yes, Rate on scale of 5, your grief for deceased person



3. Where do you live 1. Home 2. Hostel
4. If home, whom do you live with a. only Mother b. only Father c. Both Parents  
d. only Grandfather e. only Grandmother  
f. Both grandparents g. Relatives h. \_\_\_\_\_

5. Have you ever faced discrimination 1. Yes 2. No
- If yes, by whom a. Mother b. Father c. Brother  
d. Sister e. Classmates f. Friends  
g. Relatives h. Grandfather i. Grandmother

If yes, at what age \_\_\_\_\_

If yes, what kind of discrimination \_\_\_\_\_

6. Do you have hobby 1. Yes 2. No

If yes, What \_\_\_\_\_

- How many hours do you spend on hobby \_\_\_\_\_ hrs/day  
(Apart from social media)
7. Do you go for any extracurricular classes 1. Yes 2. No  
If yes, which class \_\_\_\_\_  
If yes, how many hours \_\_\_\_\_
8. Do you have an own mobile 1. Yes 2. No  
If yes, at what age \_\_\_\_\_
9. Hours spent on social media \_\_\_\_\_ hrs/day
10. Mobile is mostly used for a. Studying b. Gaming c. Surfing  
d. Communication e. online shopping
11. If gaming, what type of games a. Racing b. Action/ adventure c. Brain games  
d. simulation e. card games f. Others
12. Hours spent with your parents \_\_\_\_\_ hrs/day
13. Do you have one meal with your family members daily 1. Yes 2. No  
If no, why \_\_\_\_\_
14. Have you been given any post in your school \_\_\_\_\_
15. Have you faced bullying 1. Yes 2. No  
If yes, what kind of bullying \_\_\_\_\_
16. How often you face physical violence ( beating ) a. Never b. A few times c. More frequently

## Strengths and Difficulties Questionnaire

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am restless, I cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get a lot of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually share with others (food, games, pens etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get very angry and often lose my temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am usually on my own. I generally play alone or keep to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually do as I am told	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I worry a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have one good friend or more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I fight a lot. I can make other people do what I want	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other people my age generally like me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am easily distracted, I find it difficult to concentrate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am nervous in new situations. I easily lose confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am often accused of lying or cheating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other children or young people pick on me or bully me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I often volunteer to help others (parents, teachers, children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think before I do things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take things that are not mine from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get on better with adults than with people my own age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have many fears, I am easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I finish the work I'm doing. My attention is good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Overall, do you think that you have difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

	No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress you?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with your everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties make it harder for those around you (family, friends, teachers, etc.)?

Not  
at all

Only a  
little

Quite  
a lot

A great  
deal

