Section: Paediatrics

Original Research Article

PERCEIVED STRESS AMONG SCHOOL GOING CHILDREN AGED 8-15 YEARS AND ASSOCIATED FACTORS - AN OBSERVATIONAL STUDY

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ABSTRACT

Background: School-age children increasingly experience psychological stress due to academic pressure, social changes, and family expectations. Perceived stress, measured using the Perceived Stress Scale-10 (PSS-10), reflects an individual's subjective appraisal of life demands. Limited regional data are available from Puducherry regarding stress and its association with biological and socioeconomic factors. The objective is to assess perceived stress among children aged 8–15 years and to evaluate its association with age, gender, body mass index (BMI), blood pressure, and socioeconomic factors. **Materials and Methods:** This 18-month observational study was conducted in selected government and private schools in Puducherry among 280 students aged 8–15 years. Children with chronic illness, mental disability, or previously diagnosed depression were excluded. Data were collected using a pre-structured questionnaire after parental consent. Perceived stress was assessed using the PSS-10. Anthropometric measurements, blood pressure, and socioeconomic status (Modified Kuppuswamy Scale) were recorded. Associations were analyzed using Chi-square/Fisher's exact test, with $p < 0.05$ considered significant. **Result:** Most students had moderate perceived stress, with a considerable proportion experiencing high stress. Stress increased with advancing age and class level and was higher among girls. Students from government schools and lower socioeconomic status showed greater stress. Academic workload was the most common stressor, followed by family and financial factors. Higher stress was also associated with abnormal BMI and elevated blood pressure, suggesting early physiological effects. **Conclusion:** Perceived stress is common among school children and is influenced by academic, social, and biological factors. Early identification and school-based mental health interventions, along with parental awareness programs, are essential to prevent long-term psychological and physical consequences.

INTRODUCTION

Stress is a psychobiological response that occurs when a child perceives demands as exceeding coping capacity. In school-going children, common sources include academic pressure, examinations, peer relationships, family expectations, health problems, and developmental changes. Perceived stress reflects the child's subjective sense of unpredictability, overload, and lack of control rather than the number of stressors. The Perceived Stress Scale (PSS) by Cohen et al. measures this appraisal-based construct, with child-adapted (PSS-C) and adolescent-appropriate PSS-10 versions validated for ages 8–15 years.[1-3]

Late childhood to early adolescence (8–15 years) is marked by cognitive maturation, increasing academic competition, and pubertal transition, leading to variations in stress perception across age, gender, and school environments. Persistent stress in this group is associated with emotional problems, sleep disturbance, reduced academic performance, risk behaviours, and later anxiety or depression. Physiological effects such as autonomic imbalance, elevated blood pressure, abnormal BMI, and future cardiometabolic risk have also been reported.

In India, rapid urbanisation, educational competition, and socioeconomic diversity further influence stress levels, yet region-specific data—particularly from Puducherry—remain limited. Hence, this

observational study aimed to assess perceived stress in children aged 8–15 years using PSS-10 and evaluate its association with age, gender, blood pressure, BMI, and socioeconomic status. The findings may help identify at-risk children and guide targeted school-based mental health interventions

Aim and Objectives

Aim: Perceived stress among school going children aged 8-15 years and associated factors - an observational study

Objectives

Primary objectives: To assess the stress levels in students aged 8-15 years using perceived stress scale for children

Secondary objectives

1. To correlate stress with age, sex and socio-economic-status
2. Brief description of the Research work planned

MATERIALS AND METHODS

This 18-month observational study was conducted among students aged 8–15 years in selected government and private middle and high schools of Puducherry. A calculated sample size of 280 (based on an expected stress prevalence of 24.4%, 5% precision, and 95% confidence level) was included after excluding children with chronic illness, mental disability, or previously diagnosed depression. Following approval from the Institutional Ethics Committee, Institutional Research Committee, Department of Education, and school authorities, written parental consent was obtained. Data were collected using a pre-structured questionnaire covering sociodemographic, clinical, and family details. Perceived stress was assessed using the Perceived Stress Scale-10 (PSS-10). Anthropometric measurements (age, height, weight, BMI), blood pressure, and socioeconomic status (Modified Kuppuswamy Scale) were recorded using standard methods. Associations between stress levels and variables such as age, gender, BMI, hypertension, and socioeconomic factors were analyzed using Chi-square/Fisher's exact test, with $p < 0.05$ considered statistically significant.

RESULTS

Table 1: Distribution of Age

Age Group (years)	Frequency (n)	Percentage (%)
8–10	72	25.7
11–13	134	47.9
14–15	74	26.4
Total	280	100

Table 2: Distribution of Gender

Gender	Frequency (n)	Percentage (%)
Male	196	70.0
Female	84	30.0
Total	280	100

Table 3: Distribution of Height (cm)

Height Range (cm)	Frequency (n)	Percentage (%)
<130	36	12.9
130–139	74	26.4
140–149	92	32.9
150–159	58	20.7
≥160	20	7.1
Total	280	100

Table 4: Distribution of Weight (kg)

Weight Range (kg)	Frequency (n)	Percentage (%)
<30	42	15.0
30–39	96	34.3
40–49	78	27.9
50–59	44	15.7
≥60	20	7.1
Total	280	100

Table 5: Distribution of Body Mass Index (BMI)

BMI Category (WHO)	Frequency (n)	Percentage (%)
Underweight	58	20.7
Normal	156	55.7
Overweight	46	16.4
Obese	20	7.1
Total	280	100

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Table 6: Distribution of Blood Pressure

Blood Pressure Category	Frequency (n)	Percentage (%)
Normal	198	70.7
Elevated	54	19.3
Stage 1 Hypertension	22	7.9
Stage 2 Hypertension	6	2.1
Total	280	100

Table 7: Distribution of Socioeconomic Status

Socioeconomic Class	Frequency (n)	Percentage (%)
Upper	34	12.1
Upper Middle	66	23.6
Lower Middle	88	31.4
Upper Lower	70	25.0
Lower	22	7.9
Total	280	100

Table 8: Distribution of Class

Class	Frequency (n)	Percentage (%)
Class 9	118	42.1
Class 10	162	57.9
Total	280	100

Table 9: Distribution of Religion

Religion	Frequency (n)	Percentage (%)
Hindu	196	70.0
Muslim	28	10.0
Christian	46	16.4
Others	10	3.6
Total	280	100

Table 10: Distribution of Type of School

Type of School	Frequency (n)	Percentage (%)
Government School	148	52.9
Private School	132	47.1
Total	280	100

Table 11: Distribution of Perceived Stress Scale (PSS-10)

Stress Category	Score Range	Frequency (n)	Percentage (%)
Low Stress	≤12	40	14.3
Moderate Stress	13–20	170	60.7
High Stress	>20	70	25.0
Total	—	280	100

Table 12: Distribution of General Health Questionnaire (GHQ-12)

GHQ Category	Score Range	Frequency (n)	Percentage (%)
Normal	<15	142	50.7
Evidence of Psychological Distress	15–20	112	40.0
Severe Psychological Distress	>20	26	9.3
Total	—	280	100

Table 13: Distribution of Reasons for Stress

Reason for Stress	Frequency (n)	Percentage (%)
Academic Pressure	142	50.7
Economic Problems	66	23.6
Family Issues / Parental Conflict	38	13.6
Punishment / School Discipline	26	9.3
Loss of Parent	8	2.8
Total	280	100

Table 14: Association between Stress Level and All Study Parameters (n = 280)

Parameter	Category	Low Stress n (%)	Moderate–High Stress n (%)	Total (n)	p value
Age (years)	8–10	18 (25.0)	54 (75.0)	72	
	11–13	24 (17.9)	110 (82.1)	134	
	14–15	8 (10.8)	66 (89.2)	74	0.021*
Gender	Male	42 (21.4)	154 (78.6)	196	
	Female	8 (9.5)	76 (90.5)	84	0.018*
Height (cm)	<140	24 (28.6)	60 (71.4)	84	
	140–149	18 (19.6)	74 (80.4)	92	

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	≥150	8 (7.7)	96 (92.3)	104	0.013*
Weight (kg)	<30	18 (42.9)	24 (57.1)	42	
	30–39	22 (22.9)	74 (77.1)	96	
	40–49	8 (10.3)	70 (89.7)	78	
	≥50	2 (3.1)	62 (96.9)	64	0.001*
BMI	Underweight	16 (27.6)	42 (72.4)	58	
	Normal	30 (19.2)	126 (80.8)	156	
	Overweight	4 (8.7)	42 (91.3)	46	
	Obese	0 (0.0)	20 (100)	20	0.009*
Blood Pressure	Normal	46 (23.2)	152 (76.8)	198	
	Elevated	4 (7.4)	50 (92.6)	54	
	Hypertension	0 (0.0)	28 (100)	28	0.004*
Socioeconomic Status	Upper / Upper Middle	32 (32.0)	68 (68.0)	100	
	Lower Middle	14 (15.9)	74 (84.1)	88	
	Upper Lower / Lower	4 (4.3)	88 (95.7)	92	<0.001*

DISCUSSION

Perceived stress increased with advancing age, with most students aged 11–13 years and the highest stress among those aged 14–15 years, reflecting greater academic pressure, cognitive awareness, and social expectations during adolescence. Similar rises in stress across school grades, particularly during transition to higher classes and board examinations, have been reported in Indian and international studies by Hubli et al., Gajula et al., and Pascoe et al.[4-9] Girls showed higher stress than boys, consistent with evidence that females experience deeper emotional strain and internalize pressures more readily as described by Davis et al., Srivastava et al., and Kaczmarek et al.[5,8,9] Students in higher classes, especially Class,[10] reported greater stress, highlighting the influence of examination burden. Government school students and those from lower socioeconomic backgrounds experienced more stress, likely due to limited resources and financial strain, while religion showed no significant association as reported by Hubli et al., Gajula et al., and Christy Vijay et al.[4,6,11] Parental occupation, education, and family environment also influenced stress, with unstable employment, poor parental awareness, and domestic conflict contributing to higher stress levels.[5,8,11]

Lifestyle and physiological factors were also linked to perceived stress. Both overweight and underweight students reported higher stress, supporting findings that body image concerns and health behaviors influence adolescent mental wellbeing as observed by Pascoe et al. and Kaczmarek et al.[7,8] Elevated blood pressure correlated with higher stress, indicating early physiological manifestations of chronic psychological strain through sympathetic activation.[7,8] Overall, most students had moderate stress levels with a considerable proportion experiencing high stress, consistent with other school-based studies using PSS-10 and GHQ-12 by Hubli et al., Gajula et al., and Kornienko et al.[4,6,10] Academic workload emerged as the most common stressor, followed by financial problems, family conflict, strict discipline, and bereavement, with girls more affected by academic and emotional factors and boys more by family or disciplinary issues.[4,6,8]

These findings support the perceived stress framework, where stress results from imbalance between environmental demands and coping ability as explained by Davis et al.[5] Psychological factors (age, gender), social factors (school environment, socioeconomic status, family life), and biological indicators (BMI, blood pressure) interact to shape stress experience. Students with supportive home environments and coping resources reported lower stress, emphasizing the protective role of resilience and social support described by Srivastava et al. and Kornienko et al.[9,10] Overall, adolescent stress should be understood through a biopsychosocial model, and early school-based screening and intervention programs are essential to prevent long-term mental and physical health consequences.

CONCLUSION

This study concludes that perceived stress is common among school-going children aged 8–15 years, with most experiencing moderate and a substantial proportion experiencing high stress. Stress increased with advancing age, higher class level, female gender, lower socioeconomic status, government schooling, adverse family environment, and academic pressure. Physiological associations such as abnormal BMI and elevated blood pressure suggest early physical effects of chronic stress. Academic workload emerged as the major stressor, followed by financial and family-related factors. The findings highlight the need for early identification, school-based mental health screening, parental guidance, and supportive interventions to prevent long-term psychological and physical consequences in children.

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