Journal of Pioneering Medical Sciences
Received: February 20, 2026 | Accepted: March 27, 2026 | Published: May 05, 2026
Volume 15, Issue 04, Pages 120-125

DOI https://doi.org/10.47310/jpms2026150418

Prevalence and Predictors of Emotional and Behavioural Problems Among Adolescents - A Cross-Sectional Study

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Abstract: Objective: Adolescence is a critical developmental period marked by the formation of healthy habits, decision-making abilities, emotional regulation, and coping skills. Mental health during this stage is influenced by multiple interacting factors, including the home environment, peer relationships, and socio-personal conditions. **Methods:** A cross-sectional study was conducted among 804 adolescents was conducted among 804 adolescents aged 13–16 years in Thiruvananthapuram district, Kerala, using a multi-stage cluster sampling technique. Socio-demographic data were collected through a structured questionnaire, and EBPs were assessed using the Strengths and Difficulties Questionnaire (SDQ) via self-report. Data were analysed using descriptive statistics, univariate analysis, and binary logistic regression. **Results:** Of the participants, 50.1% were boys and 49.9% were girls. Based on SDQ scores, 10.4% of adolescents had abnormal scores and 19.9% had borderline scores, yielding an overall EBP prevalence of 30.3%. Conduct problems were the most common (31.1%), with 17.4% in the clinically significant range. Other problems included hyperactivity (8.0%), emotional problems (7.1%), and peer problems (11.3%). Prosocial behaviour was normal in 82.1% of participants. Significant predictors of EBPs included low maternal education, parental dispute-related distress, long-term illness, lack of physical activity, excessive mobile phone use, and poor prosocial behaviour ($p \leq 0.05$). **Conclusion:** A considerable proportion of adolescents experience EBPs, influenced by familial, behavioural, and lifestyle factors. Improving maternal education, promoting healthy home environments, physical activity, and prosocial behaviour, along with reducing excessive mobile use, are essential for better adolescent mental health outcomes.

Key Words: Prosocial Behaviour, Physical Activitiy, Mobile Use, Behavioural Problem

INTRODUCTION

Mental health in adolescents is important because of its impact on the journey to adulthood. It's a time of rapid physical, social and emotional development, during which adolescents are susceptible to all forms of abuse, violence and stress. The period between 10-19 years is a critical time and experiences during this time can have lifelong implications, with many mental health disorders originating in adolescence [1]. An estimated 13% of adolescents worldwide suffer from a mental disorder, many of which go unrecognised [2]. Depression, anxiety and disruptive behavioural disorders are major causes of illness and disability of adolescents, and can lead to social isolation and exclusion, poor academic performance, risky behaviour and poor physical health [3]. Rates of mental health issues rise from around 2% in childhood to 10-20% in late adolescence, and then to adult levels [4].

Prevalence of psychiatric disorders is estimated to be 20% among adolescents, with anxiety and depression most prevalent [5]. Rates of anxiety disorders, depression, and coexisting anxiety and depression in older adolescents are approximately 5.5%, 3.5% and 2.5% respectively, which can lead to academic difficulties, social isolation and suicidal thoughts [9,10]. Suicide is a major cause of death among people aged 15-29 years, with India having one of the highest rates of youth suicide in the world [3,6,7]. Other common co-morbid disorders include substance abuse and conduct disorders [8].

Disruptive behaviour disorders (such as attention deficit hyperactivity disorder and conduct disorder) are more prevalent in early adolescence (10-14 years), and include inattention, impulsivity and aggression affecting learning and

peer interactions. In India, which has a high number of adolescents (around 253 million), 7.3% of the 13-17-year-olds suffer from psychiatric disorders [9,10,11]. A meta-analysis shows higher rates in school samples than in the community [12,13].

Adolescent mental health issues are influenced by several factors, including poor family and home environments, punitive parenting, bullying, socioeconomic hardships, stigma and lack of access to services. These factors along with biological, psychological and social factors such as family, peer, school factors, substance use and unmet expectations play a role [10,14,15]. Research conducted after the COVID-19 pandemic also shows the impact of parents' mental health, physical activity and health complications on adolescents' behavioural problems [16].

The high burden and the complexity of emotional and behavioural problems (EBP) in adolescents make it necessary to conduct targeted research to estimate the prevalence and predict the factors associated with EBP in school-going adolescents. Earlier diagnosis is important for non-pharmacological interventions, preventing further complications and ensuring the well-being and human rights of adolescents.

METHODS

The current study was an analytical study and carried out in November, 2022 with school going adolescents aged 13-16 years in selected schools in Thiruvananthapuram district, urban and rural, Kerala, India. Multi-level cluster sampling was used. The Thiruvananthapuram district has three educational districts, and of them, two were chosen at random. Out of these, schools were selected in a proportional manner in Government, Government-aided and unaided sectors. The study comprised adolescents aged between 13 and 16 years who were pursuing their studies in selected schools and gave assent, including the informed consent of their parents. The adolescents who had mental sub-normality or physical disability and those who were already on medication or under psychological treatment of any mental issues were not to be included in the study.

Sample Selection and Sampling Technique

The sample size was estimated based on the formula 4pq/d 2 since a previous prevalence study in Kollam district (20172021) indicated a prevalence of 24.5% of emotional and behavioural problems. The lowest possible sample size was 680 considering the design effect. Eight hundred and forty-four teens were sampled through cluster-selection. Each sector had two schools. Random selection of one or two divisions of each standard was done to select adolescents aged 13 to 16 years who study in classes 8th, 9th, and 10th.

Data Collection Methods and Instruments

Data were collected using a structured set of tools through a pen-and-paper self-report method. Socio-demographic information was obtained using a socio-demographic data sheet that included age, gender, class, and family-related details. Emotional and behavioural problems were assessed using the Strengths and Difficulties Questionnaire (SDQ 11–17) self-report version developed by Robert Goodman [17], and the validated Malayalam version was used [18]. Smartphone addiction was assessed using the Smartphone Addiction Scale–Short Version (SAS-SV) developed by Kwon M [19].

Ethical Considerations

The study was reviewed and approved by the Institutional Review Board and the Government-approved Institutional Ethics Committee (No. 005/05/2022/IEC/SMCH) on 05/01/2022. Administrative approval was obtained from the Deputy Director of Education, Thiruvananthapuram District, and the school authorities. Parents gave written informed consent and students gave their assent before the data collection. The students were briefed about the study, and confidentiality was ensured. We then screened 804 students for emotional and behavioural difficulties by using the Strengths and Difficulties Questionnaire (SDQ).

StatisticalAanalysis

Data were entered and coded using the Statistical Package for the Social Sciences (SPSS) version 20. Descriptive statistics were used to determine the prevalence of emotional and behavioural problems (EBP). Univariate analysis and binary logistic regression were applied to identify predictors of EBP. A p-value≤0.05 was considered statistically significant.

RESULTS

According to Table 1, the average age of the participants was 14.04 +1.2. Boys and girls were almost equal (50.1% and 49.9%). Most of the adolescents belonged to nuclear family (68.3%), and rural area (54.4%). The mother of the adolescent was of collegiate education over half of it (55.2%). Most of the adolescents (83.5%) reported to have social support; 85% have involvement in extracurricular activities and 71.1% used to spend 0-2 hours on mobile phone. Participation from Government and Government - aided schools were 49.6% and 40.4% respectively.

Figure1 indicates that on the basis of SDQ (11-17) Score, 10.4% of adolescents had clinically significant EBP (abnormal score 20-40), and 19.9% had slightly elevated score that indicate significant problem (borderline score 16-19) and sum of them 30.3 was the prevalence of EBP among adolescents.

The Table 2 shows the prevalence of diverse emotional and behavioural problems (EBP) in adolescents as per SDQ scores. Most common were conduct problems, which were present in 31.1% of adolescents, 17.4% with clinically significant problems (abnormal), and 13.7% with slightly elevated problems (borderline), and indicates possible concern. Adolescents had hyperactivity (16.6) with 8.0% with abnormal score and 8.6% with borderline score. Embodiment issues existed in 12.9, 7.1 were abnormal and 5.8 were borderline. The clinical significance of peer

Table 1: Socio-Demographic Characteristics of Adolescents (n = 804)

S.No.	Variable	Category	Frequency	Percentage
1	Age in years	13.0	228	28.4
		14.0	344	42.8
		15.0	200	24.8
		16.0	32	4.0
2	Gender	Male	403	50.1
		Female	401	49.9
3	Area of residence	Urban	367	45.6
		Rural	437	54.4
4	Type of family	Nuclear	549	68.3
		Joint	255	31.7
5	Father's education	School	470	58.5
		College	334	41.5
6	Mother's education	School	360	44.8
		College	444	55.2
7	Monthly family income in Rupees	< 25000	627	78.0
		25001-40000	98	12.2
		> 40000	79	9.8
8	Marital status of parents	Married staying together	649	80.7
		Single parent	155	19.3
9	Parental separation in childhood	Yes	121	15.0
		No	683	85.0
10	Family history of psychiatric illness	Yes	30	3.7
		No	774	96.3
11	Distress due to parental dispute	Yes	290	36.0
		No	514	64.0
12	Substance abuse in the family	Present	230	28.6
		Absent	574	71.4
13	An illness that needs regular treatment	Present	76	9.5
		Absent	728	90.5
14	History of psychoactive substances	Present	44	5.5
		Absent	760	94.5
15	Engagement in hobbies	Present	553	68.8
		Absent	251	31.2
16	Social support	Present	671	83.5
		Absent	133	16.5
17	Physical exercise	Yes	229	28.5
		No	575	71.5
18	Involvement in extracurricular activities	Present	684	85.0
		Absent	120	15.0
19	Time spent on mobile	0-2 hrs	572	71.1
		3-5 hrs	140	17.4
		6 hrs or more	92	11.5
20	The sector of schools	Government	399	49.6
		Govt-aided	325	40.4
		Unaided	80	10.0

Table 2: Prevalence of Emotional-Behavioural Problems among Adolescents based on Scores of Different Domains of SDQ (n = 804)

Sl. No	Emotional-behavioural problems (EBP)	Grading of EBP score	Frequency	Percentage
1.	Emotional problems	Abnormal (7-10)	57	7.1
		Borderline (6)	47	5.8
		Normal (0-5)	700	87.1
2.	Hyperactivity	Abnormal (7-10)	64	8.0
		Borderline (6)	69	8.6
		Normal (0-5)	671	83.4
3.	Conduct problems	Abnormal (5-10)	140	17.4
		Borderline (4)	110	13.7
		Normal (0-3)	554	68.9
4.	Peer problems	Abnormal (6-10)	91	11.3
		Borderline (4-5)	431	53.6
		Normal (0-3)	282	35.1
5.	Pro-social behaviour	Abnormal (0-4)	66	8.2
		Borderline (5)	78	9.7
		Normal (6-10)	660	82.1

Table 3: Univariate Analysis of Socio-Personal Factors of Emotional and Behavioural Problems

Socio-personal Variables	Category	SDQ Score: Borderline and Abnormal No (%)	SDQ Score: Normal No (%)	Total No	χ^2	P	OR	95%CI
Gender	Male	117 (29.0)	286 (71.0)	403	0.66	0.416	0.9	0.65-1.2
	Female	127 (31.7)	274 (68.3)	401				
Place of residence	Urban	121 (33.0)	246 (67.0)	367	2.2	0.138	1.3	0.93-1.69
	Rural	123 (28.1)	314 (71.9)	437				
Type of family	Nuclear	185 (33.7)	364 (66.3)	549	9.2	0.002	1.7	1.2-2.4
	Joint/extended	59 (23.0)	196 (76.9)	255				
Mother Education	Primary	32 (71.1)	13 (28.9)	45	37.5	0.001	6.4	3.3-12.3
	High school and above	212 (27.9)	547 (72.1)	759				
Parental separation during childhood	Yes	46 (38.0)	75 (62.0)	121	3.9	0.047	1.5	1.0-2.2
	No	198 (29.0)	485 (71.0)	683				
Distress due to parental dispute	Yes	108 (37.2)	182 (62.8)	290	10.2	0.001	1.7	1.2-2.2
	No	136 (26.5)	378 (73.5)	514				
Substance abuse in family	Yes	94 (40.9)	136 (59.1)	230	16.9	0.001	1.9	1.4-2.7
	No	150 (26.1)	424 (73.9)	574				
Prolonged treatment for illness	Yes	35 (46.1)	41 (53.9)	76	9.8	0.002	2.1	1.3-3.4
	No	209 (28.7)	519 (71.3)	728				
Use of psycho active substance	Yes	20 (45.5)	24 (54.5)	44	5	0.025	1.9	1.1-3.7
	No	224 (29.5)	536 (70.5)	760				
Hobbies	No hobbies	89(35.5)	162 (64.5)	251	4.5	0.034	1.4	1.0-1.9
	Hobbies	155 (28.0)	398 (72.0)	553				
Social support	No support	55 (41.4)	78 (58.6)	133	9.1	0.003	1.8	1.2-2.6
	Yes	189 (28.2)	482 (71.8)	671				
Physical exercise	No	193 (33.6)	382 (66.4)	575	9.8	0.002	1.8	1.2-2.5
	Yes	51 (22.3)	178 (77.7)	229				
Time spent on mobile	Long-term use	88 (37.9)	144 (62.1)	232	8.8	0.003	1.6	1.2-2.3
	Mild or no use	156 (27.3)	416 (72.7)	572				
Prosocial behaviour	Abnormal	85 (59.0)	59 (41.0)	144	68.3	0.001	4.5	3.1-6.6
	Normal	159 (24.1)	501 (75.9)	660				
Smart phone addiction (SAS)	Yes	110 (67.1)	54 (32.9)	164	132	0.001	7.7	6.3-11.2
	No	134 (20.9)	506 (79.1)	640				

Table 4: Binary Logistic Regression Analysis of Predictors of Emotional and Behavioural Problems

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. Lower	95% C.I. Upper
Gender	-0.545	0.194	7.911	1	0.005	0.580	0.397	0.848
Type of family	0.295	0.198	2.229	1	0.135	1.343	0.912	1.978
Mother Education	1.268	0.409	9.631	1	0.002	3.555	1.596	7.922
Separation from Parents	0.322	0.244	1.745	1	0.187	1.379	0.856	2.223
Distress due to Parental Dispute	0.547	0.185	8.755	1	0.003	1.727	1.203	2.481
Substance Abuse	0.389	0.200	3.778	1	0.052	1.475	0.997	2.183
Prolonged Treatment for Illness	0.864	0.277	9.752	1	0.002	2.372	1.379	4.079
Use of Psychoactive Substance	0.493	0.383	1.655	1	0.198	1.638	0.772	3.472
Hobbies	0.029	0.192	0.023	1	0.880	1.029	0.707	1.499
Social Support	0.213	0.243	0.762	1	0.383	1.237	0.767	1.993
Physical Exercise	0.470	0.213	4.872	1	0.027	1.601	1.054	2.430
Times pent on mobile	-0.045	0.208	0.047	1	0.829	0.956	0.636	1.438
SAS	1.741	0.230	57.040	1	0.000	5.700	3.629	8.955
Prosocial	0.964	0.231	17.457	1	0.000	2.623	1.668	4.123
Constant	-4.657	0.699	44.428	1	0.000	0.009	-	-

problems was 11.3 and 53.6% of the adolescents scored borderline. In terms of prosocial behaviour which indicates strengths, only 8.2% scored in the abnormal range and majority (82.1) had demonstrated normal prosocial behaviour.

Table 3 presents the univariate analysis of socio-personal variables associated with SDQ scores indicating emotional and behavioural problems (EBP). There was no significant association between EBP and gender and place of residence. There were significant correlations with family type, maternal education, childhood parental separation, distress because of parental quarrels, family substance abuse, extended illness treatment, teenage substance abuse, absence of hobbies, inadequate social support, physical inactivity, excessive cell phone use, and abnormal prosocial behaviour. On the whole, EBP was significantly linked to familial, psychosocial and behavioural factors, and maternal education and prosocial behaviour became significant predictors.

Table 4 showed the binary logistic regression analysis was conducted to determine independent predictors of emotional and behavioural problems (EBP) in adolescents given the variables that are significant in the univariate

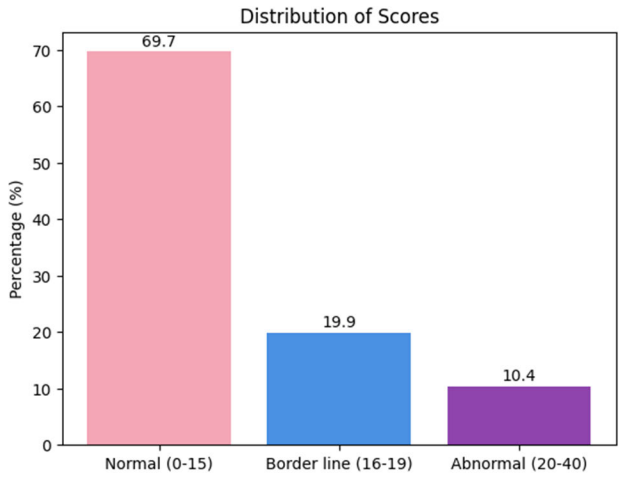

Figure 1: Prevalence of Emotional and Behavioural Problems among Adolescents based on TDS

analysis. Primary maternal education or lower, distress in parental conflicts, chronic physical illness, physical inactivity, and abnormal prosocial behaviour were found to be important independent predictors of EBP. The regression model did not show any statistically significant variables like family type, parental separation, adolescent substance use, hobbies, social support and mobile phone use. These results demonstrate that adolescent EBP is affected by various factors, especially maternal education, family environment, physical health, lifestyle behaviours and prosocial functioning.

DISCUSSION

In the current research, the proportion of adolescents with abnormal scores according to the total difficulties score (TDS) of the SDQ was 10.4%, indicating a clinically significant level of emotional and behavioural problems. The abnormal scores of emotional problems, conduct problems, hyperactivity, and peer problems were 7.1%, 17.4%, 8.0%, and 11.3%, respectively. Although a significant association between gender and TDS was observed ($\chi^2 = 9.0$, $p = 0.011$), binary logistic regression did not identify gender as a significant predictor of EBP. Univariate analysis revealed predictors such as type of family, maternal educational status, parental separation, parental conflict, substance abuse in family members, long-term physical illness, psychoactive substance use among adolescents, lack of leisure activities, poor social support, physical inactivity, excessive mobile use, and abnormal prosocial behaviour. Logistic regression further identified maternal education, parental conflict, long-term illness, physical inactivity, and abnormal social behaviour as key predictors.

A pre-university study in Bangalore reported similar findings, with abnormal TDS scores in 10.1% and subscale abnormalities of 9%, 13%, 12.6%, and 9.4% for emotional, conduct, hyperactivity, and peer problems, respectively. Predictors included gender, maternal education, parental discord, and substance abuse [20]. A cross-sectional study also identified intrafamilial communication and parental mental health disorders as predictors [21]. The present study supports parental conflict as a predictor but not family psychiatric history.

An Egyptian rural adolescent study reported an abnormal impact score of 13.7%, comparable to the present findings [22]. However, parental loss was a predictor in that study but not in the current one. A Turkish orphanage-based study also showed no association between parental psychiatric illness and EBP, aligning with present findings [23]. Regression analyses from similar studies highlighted family environment and maternal education as major determinants.

The prevalence of EBP in Thiruvananthapuram was 30.3% (borderline + abnormal), comparable to Kollam (24.5%) and Chandigarh (30%) studies [24]. Conduct problems were the most prevalent behavioural issue (31.1%), consistent with school-based surveys reporting 36.4% conduct disorders [25]. A meta-analysis across India also identified emotional, conduct, hyperactivity, and peer problems as major domains influenced by socioeconomic, environmental, and lifestyle factors [26]. Additional supporting evidence indicates that parental absence, alcoholism, and adverse family environments significantly predict behavioural issues [27,28].

CONCLUSION

Emotional and behavioural problems among children and adolescents result from the interplay of personal attributes, family dynamics, and environmental stressors, including parental mental health, family conflict, socioeconomic factors, and school-related pressures. The findings highlight the importance of implementing school-based screening to facilitate early identification and enable timely, targeted interventions to address these risk factors effectively.

Limitations

The study is limited by its cross-sectional design, which restricts causal interpretation of the identified associations. Reliance on self-reported data may introduce reporting bias. The use of a single geographic setting and specific school population limits generalizability. Potential confounding variables, such as detailed family psychiatric history and environmental factors, were not fully controlled.

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