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BASC- A Multidimensional Approach for Diagnosis of Emotional and Behavioral Problems amongst Adolescents: A Cross Sectional Study

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Abstract

Introduction: 1 in 7 adolescents (16% of the global population) suffer from mental health problem.

Most mental disorders begin between 11–18 years and early corrective actions must be taken for normal development of the individual.

Methods: A school based cross sectional study was conducted on 165 children aged 12-14 years. BASC-3 scale was administered to teacher (TRS- teacher rating scale), parent (PRS-parent rating scale) and student (SRP- self report of personality) which has about 180 questions each.

The test is a comprehensive measure of a child's adaptive and problem behaviours in community and home setting.

Scoring was done in terms of sometimes(S), often(O), almost always(A) and never (N). The scores obtained were used to interpret whether the child was at risk/high risk/clinically significant for a particular parameter.

Further the parameters were subjected to statistical test (Independent T test and ANOVA) to look for interrater reliability.

Results: It was observed that 23.2% had clinically significant depression, 10.4% of students were at high risk for anxiety, 14.6% at risk for social stress and 10.4%at risk for hyperactivity.

Interrater reliability amongst parent, teacher, students was significant, P value (<0.05) for 6 parameters. However certain parameters are found to be positively impactful like interpersonal relationship and to an extent self-esteem.

Conclusion: Our study emphasises the need for early screening amongst adolescents by multiple sources in different settings to pick subtle emotional and behavioural problems among them and proactively design interventions to address the same at an early stage.

Keywords: Adolescent, BASC 3, Behaviour, Cross sectional, Depression, Multidimensional, Self esteem

Introduction

As 1 in 7 adolescents who comprise 16% of the global population suffer from mental health problem, it is gaining importance as the global community looks to achieve the Sustainable Development Goals (SDGs), in particular SDG 3: "Ensure healthy lives and promote well-being for all at all ages" [1]

Emotional and behavioural problems in children are a significant concern for parents, educators, and mental health professionals. These issues can disrupt a child's development, affect their relationships with peers and family and interfere with academic performance. It is important to recognize the signs early and provide appropriate support to help children manage their emotions and behaviours in healthy ways.

In a study done by Abha Mangal et in Gujarat, India among 742 adolescent schoolgirls using the pre-validated instrument, General Health Questionnaire-12 (GHQ-12) and found that 48.78% adolescent girls screened positive for Common Mental Disorders which was alarming [2] Most mental disorders begin before 25 years of age, more often between 11–18 years. [3] Corrective actions that must be taken early in the development of the individual. The awareness of this fact aids in primary prevention which aims to avoid or correct all the factors and elements that can negatively affect mental health.[4] The identification phase is hence based on diagnostic screening in school and are strongly recommended.[5] For an early identification in school age, the most suitable tools are the use of questionnaires that involve parents in asking for information on the emotions and behaviour of their children and self-administered questionnaires to adolescents , which are reliable, within certain limits, for the internalizing disorders. The Behaviour Assessment System for Children, Third Edition (BASC™–3) is a multimethod, multidimensional system used to evaluate the Behaviour and emotional problems in children and young adults ages 2 through 25 years which informs clinical diagnosis as per the Diagnostic and Statistical Manual of Mental Disorders, 5th ed. [DSM-5™; American Psychiatric Association (APA), 2013] BASC-3 allows to collect information in different ways (e.g., rating scales, interview, and direct observation) and from multiple people (e.g., parents, teachers, and children themselves).

Key scales in the SRP (self-report of personality)

- **Internalizing Problems**: Anxiety, Depression, Somatization, Withdrawal
- **Externalizing Problems**: Aggression, Antisocial Behaviour, Attention Problems, Hyperactivity
- **Adaptive Skills**: Social Skills, Leadership, Study Skills, Functional Communication
- **Self-Perception and Attitudes**: Self-Esteem, Locus of Control, Attitude Toward School
- **Behavioural and Emotional Dimensions**: Negative Emotionality, Behavioural Control, Oppositionality, Stress

Key Scales in the PRS (parent reporting scale)

- **Internalizing Problems**: Anxiety, Depression, Somatization, Withdrawal
- **Externalizing Problems**: Aggression, Antisocial Behaviour, Attention Problems, Hyperactivity

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- **Adaptive Skills**: Social Skills, Leadership, Study Skills, Functional Communication
- **Other Behavioural Dimensions:** Self-Esteem, Attitude Toward School, Family Relations and Behavioural Control

Key Scales in the TRS (teacher reporting scale)

- **Internalizing Problems**: Anxiety, Depression, Somatization, Withdrawn
- **Externalizing Problems**: Aggression, Antisocial Behaviour, Attention Problems, Hyperactivity
- **Adaptive Skills**: Social Skills, Leadership, Study Skills, Functional Communication
- **Other Behavioural Dimensions:** Attitude Towards School and classroom behaviour.

Most studies that are available today are limited to either unidimensional or at the most bi dimensional approaches. However, we are attempting to do a 360-degree approach (parent, student self, and teacher) that would closely reflect the internalities and externalities in terms of the subject behavior. (as categories across 18 parameters in the study) This study aims to demystify the same using the BASC-3 adolescent teacher, parent rating and self-reporting scale which is a multidimensional system as per the DSM-5.

Material & Methods

Source of data: Adolescents aged 12-14 years

- Study period: 6 months
- Setting: schools in Bengaluru
- Study design: cross sectional study
- Study population: adolescents aged 12-14 years
- Inclusion criteria: Adolescents aged 12-14 years
- Exclusion criteria: Missing or double answers in the main psychopathological areas, children already diagnosed or on medication for depression, anxiety, ADHD, seizures.

Sample size-165 adolescents

Methodology

After obtaining institutional ethical clearance. Informed consent was taken from school, teachers, parents and assent from the student. Parents/caregivers /adolescents were administered BASC-3 scale at school. Both parents were asked to answer the PRS questionnaires together. However, questionnaires compiled by a single parent were accepted as well. Data was collected from respective Class teachers on the TRS questionnaire and SRP questionnaire from Adolescents independently. The test is a comprehensive measure of a child's adaptive and problem behaviours in community and home setting. Likert scale scoring was done in terms of sometimes(S), often(O), almost always(A) and never (N). Each response has different scoring for every parameter i.e., 0,1,2,3. Raw score was obtained by the responses in the questionnaire for every parameter. Raw score was converted to T score which tells presence or absence of behavioural problems, and gives classification of severity of behavioural problems. The scores obtained were used to interpret whether the child was at risk/high risk/clinically significant for a particular parameter. Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Continuous data was represented as mean and standard deviation. **Independent t test** was used as test of significance to identify the mean difference between two quantitative variables. ANOVA was used as test of significance to identify the mean difference between more than two quantitative variables. **Graphical representation of data:** MS Excel and MS word was used to obtain various types of graphs. **P value** (Probability that the result is true) of <0.05 was

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considered as statistically significant after assuming all the rules of statistical tests. **Statistical software:** MS Excel**,** SPSS version 22 **(**IBM SPSS Statistics, Somers NY, USA) was used to analyse data.

Results

The study was conducted in urban Bengaluru schools.

A total of 165 adolescents aged 12 to 14 years were included.Behavioural profile was assessed in the form of externalising problems, internalizing problems, behavioural symptoms index, adaptability scales using BASC 3 scale.

Table 1: Gender wise distribution of participants

Male	84
Female	81
Total	165

Table 2: Self reporting scale-Clinical and Adaptive scales scores and percentage.

STUDENTS	T-score	N	%
ATTITUDE TO SCHOOL	70&above	1	0.6%
	60-69	1	0.6%
	41-59	111	67.7%
	31-40	51	31.1%
SENSE OF INADEQUECY	70&above	2	1.2%
	60-69	18	11.0%
	41-59	128	78.0%
	31-40	16	9.8%
ATYPICALITY	70&above	21	12.8%
	60-69	25	15.2%
	41-59	107	65.2%
	31-40	11	6.7%
ANXIETY	70&above	3	1.8%
	60-69	17	10.4%
	41-59	117	71.3%
	31-40	27	16.5%
ATTITUDE TO TEACHER	41-59	92	56.1%
	31-40	72	43.9%
SENSATION SEEKING	70&above	16	9.8%
	60-69	23	14.0%
	41-59	103	62.8%
	31-40	15	9.1%
	30&below	7	4.3%
LOCUS OF CONTROL	70&above	1	0.6%
	60-69	23	14.0%
	41-59	129	78.7%
	31-40	11	6.7%
SOCIAL STRESS	70&above	14	8.5%
	60-69	24	14.6%
	41-59	110	67.1%
	31-40	16	9.8%
HYPERACTIVITY	70&above	2	1.2%
	60-69	17	10.4%
	41-59	119	72.6%
	31-40	26	15.9%
SELF ESTEEM	41-59	24	14.6%
	31-40	91	55.5%
	30&below	49	29.9%
SELF RELIANCE	41-59	59	36.0%
	31-40	81	49.4%
	30&below	24	14.6%
ATTENTION PROBLEM	60-69	3	1.8%
	41-59	120	73.2%
	31-40	41	25.0%

Table 3: Teachers rating Scale-Clinical and Adaptive scales scores and percentages

Teachers	T score	N	%
HYPERACTIVITY	60-69	32	18.3%
	41-59	137	78.3%
	≤30	6	3.4%
ANXIETY	41-59	73	41.7%
	31-40	100	57.1%
	≤30	2	1.1%
DEPRESSION	60-69	2	1.1%
	41-59	171	97.7%
	≤30	2	1.1%
AGGRESSION	60-69	4	2.3%
	41-59	166	94.9%
	≤30	5	2.9%
SOMATISATION	41-59	173	98.9%
	≤30	2	1.1%
CONDUCT PROBLEM	≥70	4	2.3%
	60-69	8	4.6%
	41-59	163	93.1%
LEARNING PROBLEM	≥70	2	1.1%
	60-69	14	8.0%
	41-59	134	76.6%
	31-40	21	12.0%
	≤30	4	2.3%
ATYPICALITY	≥70	1	0.6%
	60-69	1	0.6%
	41-59	171	97.7%
	≤30	2	1.1%

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WITHDRAWAL	60-69	2	1.1%
	41-59	31	17.7%
	31-40	142	81.1%
ATTENTION PROBLEM	60-69	6	3.4%
	41-59	131	74.9%
	31-40	30	17.1%
	≤30	8	4.6%
ADAPTABILITY	41-59	166	94.9%
	31-40	6	3.4%
	≤30	3	1.7%
SOCIAL SKILLS	60-69	23	13.1%
	41-59	151	86.3%
	31-40	1	0.6%
LEADERSHIP	60-69	57	32.6%
	41-59	117	66.9%
	31-40	1	0.6%
STUDY SKILLS	60-69	31	17.7%
	41-59	131	74.9%
	31-40	13	7.4%
FUNCTIONAL COMMUNICATION	60-69	100	57.1%
	41-59	72	41.1%
	31-40	2	1.1%
	≤30	1	0.6%

Table 4: Parent rating scale-Clinical and Adaptive scales scores and percentages

Parents	T score	N	%
HYPERACTIVITY	≥70	2	2.3%
	60-69	20	23.0%
	41-59	64	73.6%
	31-40	1	1.1%
ANXIETY	≥70	6	6.9%
	60-69	19	21.8%
	41-59	59	67.8%
	31-40	3	3.4%
AGGRESSION	60-69	16	18.4%
	41-59	71	81.6%
DEPRESSION	≥70	4	4.6%
	60-69	17	19.5%
	41-59	66	75.9%
SOMATISATION	60-69	20	23.0%
	41-59	62	71.3%
	31-40	4	4.6%
	≤30	1	1.1%
ATTENTION PROBLEM	≥70	1	1.1%
	60-69	25	28.7%
	41-59	49	56.3%
	31-40	12	13.8%
ATYPICALITY	≥70	10	11.5%
	60-69	21	24.1%
	41-59	52	59.8%
	≤30	4	4.6%

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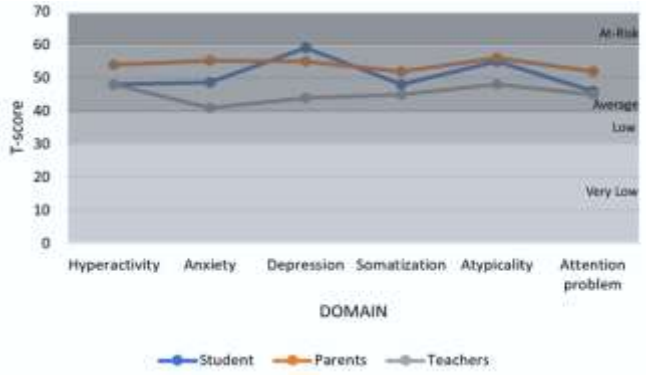
WITHDRAWAL	≥70	4	4.6%
	60-69	14	16.1%
	41-59	61	70.1%
	31-40	8	9.2%
ADAPTABILITY	60-69	7	8.0%
	41-59	65	74.7%
	31-40	14	16.1%
	≤30	1	1.1%
SOCIAL SKILLS	60-69	1	1.1%
	41-59	71	81.6%
	31-40	10	11.5%
	≤30	5	5.7%
LEADERSHIP	60-69	4	4.6%
	41-59	67	77.0%
	31-40	15	17.2%
	≤30	1	1.1%
FUNCTIONAL COMMUNICATION	41-59	24	27.6%
	31-40	50	57.5%
	≤30	13	14.9%

Table 5: comparison of clinical and adaptive scales mean scores between students, parent and teachers

Parameter	Student		Parents		Teachers		P value
	Mean	SD	Mean	SD	Mean	SD	
Hyperactivity	6	4	6	3	5	5	0.004
Anxiety	10	6	14	6	1	1	<0.001
Depression	9	6	9	4	1	2	<0.001
Somatization	2	2	6	3	1	1	<0.001
Atypicality	7	5	7	5	2	2	<0.001
Attention problem	5	3	9	4	7	5	<0.001

Graph 1: Comparison of T scores amongst parent, teacher and student.



It was found that Interrater reliability amongst parent, teacher, students was significant with P value (<0.05) for 6 parameters.

Discussion

It was observed that 23.2% had clinically significant depression, 10.4% of students were at high risk for anxiety, 14.6% at risk for social stress and 10.4%at risk for hyperactivity.

Our study estimated that 23.3% had clinically significant depression which was very similar to a study done by Preethi Alex et al on prevalence and risk factors of depression among adolescent girls studying in government and private schools, it was concluded that the prevalence of depression among adolescent girls was found to be 23.8%.[6]

In another study done by Karande S et al in mumbai it was found that anxiety was present in 10.8 % of the subjects, which is very similar to the results obtained in our study.[7]

However certain parameters are found to be positively impactful like interpersonal relationship and to an extent self-esteem.

Interrater reliability amongst parent, teacher, students was significant, P value (<0.05) for 6 parameters.

These results reinforce the value of **multi-informant approaches** in clinical practice, where understanding the full spectrum of an adolescent's behaviors, across various contexts, is essential for accurate diagnosis and treatment planning, both preventative and corrective interventions.

Our study emphasises the need for early screening amongst adolescents by *multiple sources* in *different settings* to pick subtle emotional and behavioural problems among them and proactively design interventions to address the same at an early stage.

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Early intervention, a supportive environment, and tailored therapeutic approaches can help children manage their emotions and behaviour's, leading to better outcomes both in childhood and later in life. By fostering open communication, understanding the root causes of the issues, and working together with professionals, caregivers can make a significant difference in a child's emotional and psychological development.

While the study's results are promising, there are several limitations to consider. One major limitation is the **cross-sectional design** of the study, which provides a snapshot of interrater reliability at a single point in time. Future research could benefit from a **longitudinal design**, allowing researchers to examine how interrater reliability holds over time and how these ratings correlate with **long-term outcomes**, such as academic achievement, social functioning, and mental health trajectories.

Another limitation is that the study focused on **adolescents** within a specific age range and context, which may not generalize to all adolescent populations. Future studies should consider **cultural, socioeconomic**, and **contextual factors** that might influence the perception and reporting of emotional and behavioral issues. For instance, cultural differences in parenting styles, teacher-student relationships, and adolescent self-awareness could affect the consistency of ratings between different informants.

Our study emphasises the need for early screening amongst adolescents by *multiple sources* in *different settings* to pick subtle emotional and behavioural problems among them and proactively design interventions to address the same at an early stage.

Early intervention, a supportive environment, and tailored therapeutic approaches can help children manage their emotions and behaviour's, leading to better outcomes both in childhood and later in life. By fostering open communication, understanding the root causes of the issues, and working together with professionals, caregivers can make a significant difference in a child's emotional and psychological development.

Future research should aim to extend these findings across different populations and settings, further validating the BASC-3 as a tool for early identification and intervention in adolescent mental health.

References

1. Transforming our world: the 2030 Agenda for Sustainable Development. New York: United Nations; 2015.
2. Mangal A, Thakur A, Nimavat KA, Dabar D, Yadav SB. Screening for common mental health problems and their determinants among school-going adolescent girls in Gujarat, India. J Fam Me
3. Patton G.C., Sawyer S.M., Santelli J.S., Ross D.A., Afifi R., Allen N.B., Arora M., Azzopardi P., Baldwin W., Bonell C., et al. Our future: A Lancet commission on adolescent health and wellbeing. *Lancet.* 2016;387:2423–2478. doi: 10.1016/S0140-6736(16)00579-1.
4. Cianchetti C. Early Detection of Behavioral and Emotional Problems in School-Aged Children and Adolescents: The Parent Questionnaires. Clin Pract Epidemiol Ment Health CP EMH. 2020 Mar 18;16:7–16.
5. 4. Fazel M, Hoagwood K, Stephan S, Ford T. Mental health interventions in schools 1. Lancet Psychiatry. 2014 Oct;1(5):377–87.

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6. Alex P, Cynthia DS, Kanagalakshmi V. A study on prevalence and risk factors of depression among adolescent girls studying in government and private schools-A comparative study. J Family Med Prim Care. 2023 Sep;12(9):1972-1978. doi: 10.4103/jfmpc.jfmpc_402_23. Epub 2023 Sep 30. PMID: 38024927; PMCID: PMC10657068.
7. Karande S, Gogtay NJ, Bala N, Sant H, Thakkar A, Sholapurwala R. Anxiety symptoms in regular school students in Mumbai City, India. J Postgrad Med. 2018 Apr-Jun;64(2):92-97. doi: 10.4103/jpgm.JPGM_445_17. PMID: 29692400; PMCID: PMC5954820.

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