

Mental Health Status Assessment for Early Detection of Problems through Art Activity

Dr. Oshee Gupta^{1}, Prof. Rajarshi Smart², Prof. Naishadh Jani³, Dr. Pradeep H. Umrigar⁴,
Dr. C. B. Patel⁵, Dr. Vikas K. Desai⁶*

¹ Project In charge, UHCRCE

² Assistant Professor, Sarvajanic School of Fine Arts, Sarvajanic University

³ Assistant Professor, Sarvajanic School of Fine Arts, Sarvajanic University

⁴ Medical Officer of Health, SMC

⁵ RCHO, SMC

⁶ Honorary Technical Director, UHCRCE

Abstract

Early identification of adolescent mental health problems is crucial but often hampered by stigma, limited screening tools, and reduced help-seeking. This study by UHCRCE evaluated a combined art-based and questionnaire screening method for early detection of psychosocial concerns among ninth-grade students. A cross-sectional sample of 606 students from nine schools in Surat participated in a self-designed questionnaire and a guided line-drawing activity. Drawings were analysed using a structured rubric covering line quality, spatial use, and symbolic content, and results were triangulated with questionnaire responses. Approximately 22% of students produced drawings indicating potential concern (classified as 'Weak' or 'Medium'), while the remainder showed 'Healthy' presentation. Students who reported limited emotional sharing at home exhibited higher rates of sleep disturbance, bullying, and safety concerns. The art-based task revealed emotional indicators not always captured by self-report alone. The findings support the feasibility and utility of integrating simple art activities into school health screening to identify at-risk adolescents and refer them for further assessment.

Keywords: Mental Health; Adolescents; Art Therapy; Screening; Line Drawing

Introduction

Adolescence is a critical developmental period during which many psychiatric disorders first emerge. Early detection and intervention can prevent long-term functional impairment, yet schools and health systems frequently lack child-friendly screening approaches. Projective and art-based tasks provide a non-verbal avenue for adolescents to convey internal states, complementing self-report measures that may be limited by stigma or low disclosure. This paper reports on an applied screening protocol combining a brief questionnaire with a guided line-drawing task, administered to 606 Class IX students across nine Surat schools, representing diverse socio-economic strata. The research aims to test the feasibility and explore whether drawing features correspond with psychosocial risk indicators captured in surveys.

Literature Review

Research indicates a substantial prevalence of mental disorders among children and adolescents globally and in India, where access to mental health care remains limited. Art therapy and projective drawing tests have empirical support as both therapeutic interventions and assessment tools. Meta-analyses of drawing-based methods report associations between formal drawing features (e.g., line pressure, organisation) and psychopathology. However, studies in Indian school populations remain few, particularly those pairing creative assessment with brief surveys for large-scale screening. This study addresses that gap by piloting a scalable, teacher-facilitated drawing protocol in conjunction with a short questionnaire.

Objectives

1. Assess the feasibility of integrating a guided line-drawing activity into school screening.
2. Evaluate emotional well-being using combined drawing and questionnaire data.
3. Identify and characterize students with potential psychosocial concerns.
4. Examine socio-emotional correlates such as family structure and emotional sharing.
5. Test whether specific drawing features correlate with questionnaire indicators of distress.

Research Methodology

Study design: Cross-sectional screening study conducted November 2024–March 2025 in Surat.

Sample: Nine schools (3 low-income, 4 middle-income, 2 high-income); one Class IX section per school; total sample size=606 students.

Instruments: A self-designed questionnaire by UHCRCE covering home environment, social relations, emotional sharing, and daily mood, and a guided line-drawing activity allowing free visual expression. Teachers received orientation on facilitation.

Procedure: Parental consent and student assent were secured. Students completed the questionnaire, followed by the drawing activity under supervision. Drawings were anonymized and coded by two trained raters using a rubric assessing line pressure, continuity, spatial organisation, and symbolic content. Discrepancies in coding were resolved by consensus.

Analysis: Questionnaire data were entered into Excel for linking socio-emotional variables to drawing categories. Drawing features were tallied and qualitatively integrated with survey responses.

Research Problem / Hypotheses

Research problem: Can a guided line-drawing activity, alongside a brief questionnaire, serve as an effective early screening method for mental health concerns in urban adolescents?

Hypotheses:

- H1: A substantial subset of students will produce drawings with features indicative of emotional distress.
- H2: Drawing-based indicators will correlate with psychosocial risk factors reported in the questionnaire.
- H3: Socio-economic school context will influence the prevalence of drawing-based concern indicators.

Analysis and Interpretation / Findings

Participant profile: The sample comprised 606 adolescents (age 14–15) from nine schools spanning diverse socio-economic contexts. Questionnaire findings revealed academic stressors, variable emotional sharing patterns, and indicators such as sleep disturbance and peer conflict among subgroups. Five percent (n=29) reported discomfort staying at home; many in this subgroup lacked co-residing grandparents and had working mothers.

Drawing analysis:131 drawings (~22%) were classified as 'Weak' or 'Medium' (potential concern) and 475 (~78%) as 'Healthy.' Common concerns included tentative line quality, fragmented composition, heavy, jagged strokes, and constrained page use. Severity gradation indicated most flagged cases were moderate, with ~5% showing severe imagery requiring immediate attention.

Integration: Students who seldom shared emotions at home had higher rates of reported sleep problems, bullying, and safety concerns. Several students who denied major issues on the questionnaire nevertheless produced drawings with worrying features, illustrating the added value of non-verbal screening.

Socio-demographic patterns: Low-income schools showed a slightly higher proportion of concerning drawings (~25%) compared with high-income schools (~18%), though the method functioned across contexts.

Figures and Tables

Figure 1. Percentage of students reporting risk issues (sleep disturbance, bullying, safety concerns) stratified by emotional-sharing status.

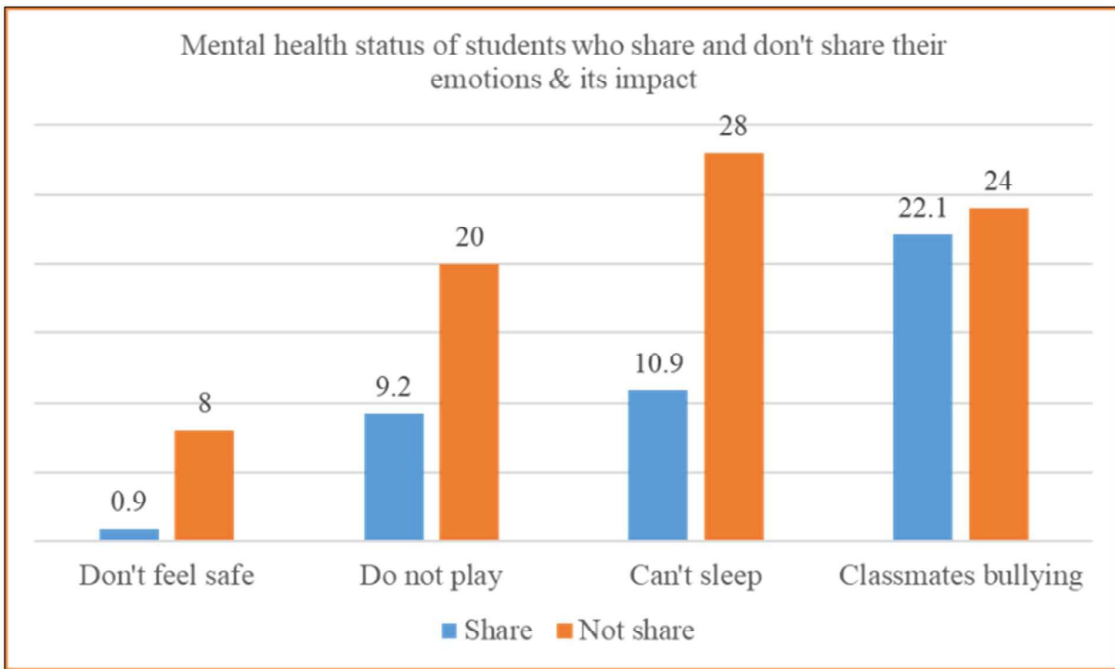


Table 1. Distribution of drawing-based mental health status (Healthy, Medium, Weak) among participants (n=606).




Mental Health Level	Drawing Characteristics	Psychological Indicators	Example/ Pictures of the drawings
Weak Case	<ul style="list-style-type: none"> • No symbolic or Representational imagery • Lacks scene, figure, or abstract composition <p>Faint and light line work</p>	<ul style="list-style-type: none"> • Suggests limited symbolic thinking • May indicate mild emotional detachment or disinterest • Reflects low energy, caution, or hesitancy typical of withdrawal individuals 	
Medium Case	<ul style="list-style-type: none"> • Thick, dark, jagged lines disrupting calmer flowing lines • Contrast between soft curves (top) and chaotic elements (bottom) <p>Mix of organic and geometric forms (soft curves vs. hard "X" marks)</p>	<ul style="list-style-type: none"> • Suggests emotional tension, conflict, or mood fluctuations • Implies inner tension or unstable emotional balance <p>Often seen in anxiety, mild depression, or emotional overload states</p>	
Healthy Case	<ul style="list-style-type: none"> • Structured with distinct sections, shapes, and patterns • Thoughtful use of space and boundaries <p>Includes symbolic elements (eye motif, stars, swirls, geometric divisions)</p>	<ul style="list-style-type: none"> • Indicates internal organization and clarity of thought • Shows ability to process emotions symbolically • Demonstrates good spatial awareness, focus, and creative engagement • Eye motif symbolizes awareness, observation, or self-reflection 	

Figure 2. Frequency of key drawing features across categories.

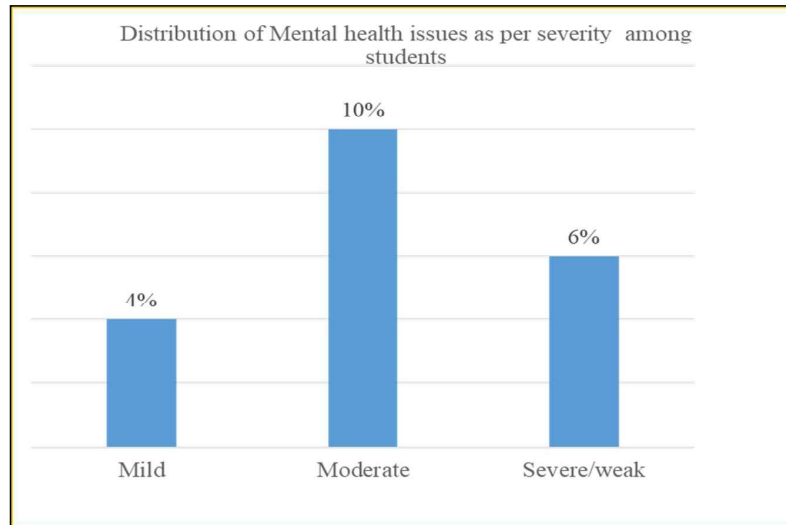


Table 2. Demographic correlates of drawing categories (e.g., family structure, working mother, grandparents present).

Students Loneliness Profile/Mental Health Contributing Factors

Mother goes out for work every day	70%
Grandparents not living with the family of the participants	41%
Friends are not visiting the home	24%
Not having a friendly relationship with neighbours	9%

Limitations: Subjectivity in drawing interpretation was mitigated through dual raters; absence of clinical interviews limits diagnostic conclusions; and the self-designed questionnaire was piloted but not psychometrically validated.

Conclusion

The combined use of a guided line-drawing activity with a brief questionnaire offers a feasible, acceptable, and low-cost approach for early mental health screening in school settings. The method uncovers non-verbal indicators of distress that may not be reported through surveys, enabling graded triage and targeted referral. Wider adoption within school health programs can support early intervention, particularly in resource-limited contexts.

Recommendations:

- Integrate annual art-based screening within school health check-ups.
- Train teachers and counsellors to identify concerning features and refer appropriately.
- Establish referral pathways to school counsellors, PHCs, and mental health NGOs.

- Conduct larger validation studies comparing the drawing against clinical diagnostic interviews.
- Explore digital tools for standardized scoring of drawings in future research.

References

1. Dong, Z., Feng, H., Ma, L., Zhang, Y., Fan, Y., Dong, L., Chen, T., & Gong, Q. (2023). Analysis of the screening and predicting characteristics of the House-Tree Person drawing test for mental disorders: A systematic review and meta-analysis. *Frontiers in Psychiatry*, 14, Article 1220521. <https://doi.org/10.3389/fpsy.2023.1220521>
2. Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*, 56(3), 345–365. <https://doi.org/10.1111/jcpp.12381>
3. Sharma, S., Kumar, M., Khurana, N., & Mehra, D. (2022). Mental health interventions among adolescents in India: A scoping review. *International Journal of Environmental Research and Public Health*, 19(3), 1851. <https://doi.org/10.3390/ijerph19031851>
4. World Health Organization. (2021). Adolescent mental health. <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
5. Starbuck, H., & Hendrickson, P. (2024). Art therapy: A systematic review of randomized controlled trials for pediatric depression and anxiety. *Children and Youth Services Review*, 143, 106684. <https://doi.org/10.1016/j.chilyouth.2023.106684>
6. American Art Therapy Association. (2023). Art therapy definitions. American Art Therapy Association. <https://arttherapy.org>
7. Malchiodi, C. A. (2013). **Handbook of art therapy** (2nd ed.). Guilford Press.
8. Kramer, E. (1971). **Art as therapy with children**. Schocken B