

Psychometric Profiling and Structured Career Guidance for Scheduled Tribe Adolescents: A Field Study at Eklavya Model Residential School, Gamnom Sapormeina

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Abstract

In the Indian school system, the academic transition following Class 10 requires students to select an educational stream, Science, Commerce, or Arts/Humanities that largely determines their higher education options and occupational pathways. For Scheduled Tribe (ST) students studying in remote residential settings, this choice is frequently made without objective information regarding their personal capabilities, resulting in high rates of academic mismatch, performance anxiety, and disengagement. This field intervention study investigated the impact of a tripartite psychometric assessment battery combined with one-on-one counseling on the career decision-making of twenty Class 10 students (10 female, 10 male; ages 14–17) at Eklavya Model Residential School (EMRS) Gamnom Sapormeina, Kangpokpi District, Manipur.

The evaluation utilized the TAMANNA aptitude test, the Comprehensive Interest Schedule (CIS), and the Multi-Dimensional Assessment of Personality (MAP). Standardized Sten scores were synthesized during personalized counseling sessions to address underlying academic worries, health-related learning gaps, and familial pressures. Prior to the intervention, 80% of the cohort ($n=16$) displayed significant vocational confusion, with only 20% ($n=4$) expressing clear stream confidence. Following profile-based counseling, all twenty students (100%) achieved clarity and reported high decisional confidence. The assessment identified strong practical, perceptual, and spatial aptitudes alongside widespread math anxiety and helped redirect students from mismatched parental career demands toward sustainable academic tracks. These findings demonstrate the necessity of integrating structured, standardized psychometric profiling into the routine operations of tribal residential schools under the National Education Society for Tribal Students (NESTS).

Keywords: Career Guidance, Psychometric Profiling, Eklavya Model Residential School (EMRS), Scheduled Tribe Adolescents, TAMANNA, Stream Selection, Vocational Decision-Making, Manipur.

1. Introduction

1.1 Background of the Study & Educational Context

The transition from general secondary schooling to specialized senior secondary education at Class 10 is a pivotal juncture in the Indian school curriculum. Adolescents must commit to specific curricular

streams: Science (Medical or Non-Medical), Commerce, or Arts/Humanities. According to developmental career theory, this exploratory stage requires young people to match their emerging sense of self with occupational options. In practice, however, Indian secondary students rarely make these decisions through independent reflection. Stream choice is heavily steered by peer patterns, societal status hierarchies, and family expectations that prioritize medical and engineering professions regardless of a student's actual cognitive strengths.

This systemic issue is magnified in rural and indigenous areas. To provide quality, free residential schooling to Scheduled Tribe (ST) children across India, the Ministry of Tribal Affairs established Eklavya Model Residential Schools (EMRS), overseen by the National Education Society for Tribal Students (NESTS). EMRS Gamnom Sapormeina, located in Kangpokpi District, Manipur, educates tribal youths from diverse rural and socio-economically disadvantaged backgrounds. While these residential settings meet essential boarding and curricular needs, structured psychological and career guidance services are rarely built into the institutional routine. In remote hill regions, students often have limited exposure to fields outside government administration, teaching, or uniform services. Consequently, Class 10 students face stream selection with little objective understanding of their abilities.

1.2 Statement of the Research Problem & Rationale

The core problem in rural residential schools is the absence of early, objective diagnostic tools to guide academic streaming. Students often rely on subjective impressions or surrender their choices entirely to family pressure. When students end up in streams that clash with their real abilities, most visibly when enrolled in advanced science and mathematics tracks without the required quantitative foundation, they face persistent academic failure, stress, and eventual dropout.

While individualized career counseling using standardized psychometrics is established in urban private schools, field-level empirical studies within tribal residential institutions remain scarce. This intervention addressed that gap by introducing an objective testing and counseling protocol at EMRS Gamnom Sapormeina. By reviewing a student's cognitive aptitudes, vocational interests, and personality traits together, the study provided students with concrete evidence about their strengths, helped ease their academic anxieties, and supported realistic stream selection.

1.3 Core Objectives of the Study

1. To assess the cognitive aptitude, vocational interest, and personality profiles of Class 10 students at EMRS Gamnom Sapormeina using standardized Indian psychometric tools (TAMANNA, CIS, and MAP).
2. To provide individualized, profile-grounded counseling sessions that align students' stream choices with their verified psychological strengths, while directly resolving personal, health, and family constraints.
3. To evaluate how structured psychometric feedback affects students' confidence, clarity, and decisional autonomy during the Class 10 academic transition.

2. Review of Literature

2.1 Adolescent Vocational Development & Stream Selection in India

Adolescent career decision-making involves examining one's own capabilities and exploring the world of work (Super, 1990; Porfeli & Lee, 2012). In India, the institutional demand to choose a fixed academic track at age 15 or 16 shortens this exploratory phase. Studies show that when schools lack

career guidance programs, students experience high levels of indecision and stress (Messersmith et al., 2008). The pressure is compounded by the popular belief that the Science stream is inherently superior, while Commerce and Arts are treated as backup options for low-scoring students. This mindset ignores individual differences and leads many students into academic tracks they are ill-equipped to handle.

2.2 Career Guidance Dilemmas in Tribal and Residential Schooling

Indigenous students face specific structural and cultural realities that shape their career development. In residential setups like EMRS, students live away from their families for most of the year. Teachers take on extensive pastoral duties, but lack the clinical training and psychometric tools to provide diagnostic career advice. In regions like Manipur, where socio-political tensions and community displacement add daily emotional strain, adolescents frequently display high anxiety, low assertiveness, and limited career awareness. Without structured guidance, students struggle to identify alternatives beyond a few visible, high-status government jobs.

2.3 Psychometric Instrumentation: Aptitude, Interest, and Personality Dimensions

A single test cannot capture a student's full potential. Valid career guidance requires evaluating what a student can do (aptitude), what they enjoy doing (interest), and how they respond to work environments (personality).

Assessment Battery & Source	Core Dimensions Measured	Administration Format & Design	Diagnostic Utility in Stream Selection	Operational Role in the Study
TAMANNA (CBSE & NCERT, 2019)	7 Cognitive Aptitudes: Language (LA), Abstract (AR), Verbal (VR), Mechanical (MR), Numerical (NA), Spatial (SA), Perceptual (PA).	Paper-and-pencil; standardized on over 17,000 Indian students; raw scores convert to Stens (1–10).	Maps cognitive capacity directly to curriculum demands (e.g., NA for Mathematics/Physics; LA/VR for Humanities; MR/SA for Applied Technical).	Identifies objective intellectual assets and spots specific learning vulnerabilities (e.g., math anxiety vs. high mechanical reasoning).
Comprehensive Interest Schedule (CIS) (S. Vohra, 1992)	8 Broad Career Fields: Influential, Venturous, Artistic, Scientific, Analytical, Social, Nature, Clerical (with subfields).	196 forced-choice paired comparisons within a 14×1414×14 matrix; raw preference scores convert to Stens.	Reveals authentic vocational inclinations, separating genuine intrinsic interest from family or peer expectations.	Highlights discrepancies between student desires and external family demands (e.g., low medical interest despite parental pressure).
Multi-	21 Adolescent	Standardized self-	Identifies emotional	Surfaces

Dimensional Assessment of Personality (MAP) (S. Vohra, 1996)	Personality Dimensions (e.g., Adaptability, Boldness, Tension, Guilt Proneness, Self-Control, Vigilance).	report inventory for teenagers; yields 21 individual Sten metrics.	stability, social confidence, work habits, and stress tolerance required for specific study paths.	underlying psycho-social barriers (e.g., exam anxiety, low self-efficacy, emotional withdrawal, conflict trauma).
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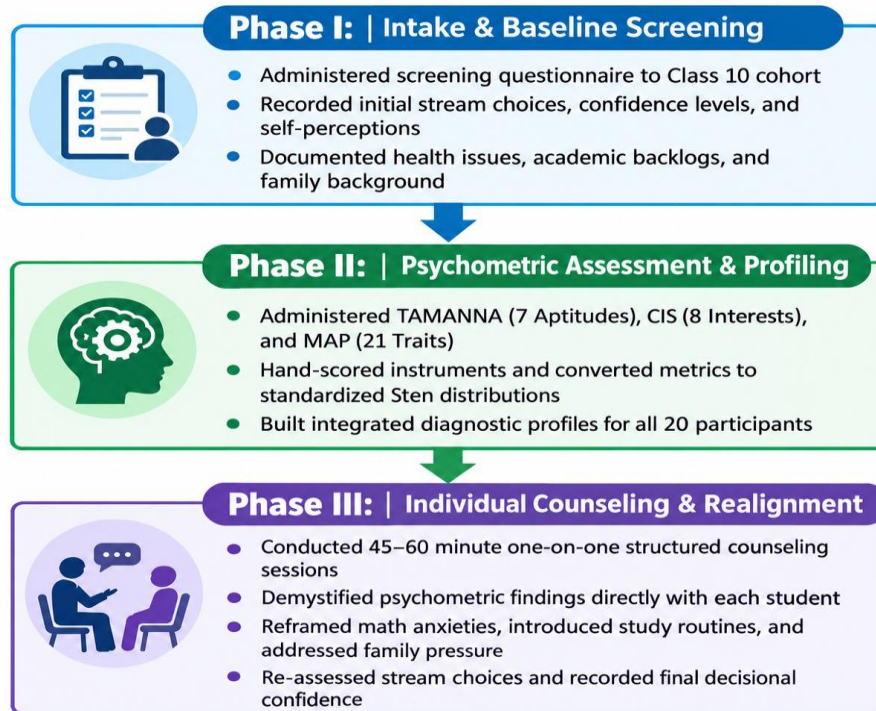
2.4 The Documentation and Guidance Deficit in Remote School Contexts

Despite the availability of standardized tools like TAMANNA, systematic psychometric testing is rarely conducted in rural Indian schools. Several practical barriers explain this gap:

1. **Lack of Specialized Staff:** Most tribal residential schools do not have a dedicated, certified school counselor. Routine guidance is left to academic subject teachers who are already fully scheduled with classroom instruction and boarding supervision.
2. **Paper-Based Record Keeping:** Student academic histories, health checks, and behavioral notes remain scattered across handwritten logbooks rather than organized into cumulative digital records.
3. **Student Reservation and Mistrust:** When external evaluators visit, students often hold back out of shyness, cultural modesty, or fear of being judged. Building trust requires unhurried, culturally sensitive communication.
4. **Logistical and Space Constraints:** Remote residential campuses rarely have dedicated, private spaces for confidential psychological testing and counseling, leaving sessions to take place in noisy, shared staff rooms or empty classrooms.

3. Research Methodology

This field study utilized a diagnostic, mixed-methods intervention design that combined objective psychometric measurement with qualitative counseling interviews. The study ran through three distinct phases:



3.2 Participant Cohort & Inclusion Criteria

The cohort consisted of twenty Class 10 students ($N=20$); 10 female, designated **F1 to F10**; 10 male, designated **M1 to M10**) enrolled at EMRS Gamnom Sapormeina. Participants were chosen to reflect both balanced gender representation and different baseline levels of career certainty:

- Inclusion Criteria:** Regularly enrolled Class 10 students preparing for secondary board examinations, representing diverse academic standing (from below 60% to above 75%), including both confident and undecided students.
- Exclusion Criteria:** Students outside the Class 10 transition cohort or those unable to complete the multi-week assessment and counseling process.

At baseline, 40% ($n=8$) were completely undecided, 30% ($n=6$) were somewhat confident but lacked direction, 10% ($n=2$) reported zero confidence, and 20% ($n=4$) entered the study feeling very confident in a pre-selected stream.

ID	Sex	Age	Baseline Stream Plan	Baseline Certainty	Key Cognitive / Trait Metrics (Stens)	Dominant CIS Interest Fields	Recommended Stream	Post-Counseling Realignment & Notes
F1	F	14	Arts / Humanities	Very Confident	High LA (7), MR (8), PA (8);	Social (Humanitarian: 6)	Arts / Humanities	Stream validated; focused on social work

					High Gp (9), Bo (8), Low Ad (3)			and public policy; supported for health absences.
F2	F	15	Commerce	Somewh at Confide nt	Superior LA (10), AR (10), PA (10), NA (9); High Ld (10), Mo (10)	Artistic (Creative: 9), Enterprising (6)	Science (@)	Shifted to Science to keep options open for Architecture, Design, and Economics at IIT/DU.
F3	F	16	Undecided	Not Confide nt At All	Strong LA (8), AR (7); High Se (10), Gp (9), Tn (8); Low NA (5), PA (3)	Artistic (Creative: 6), Venturous (Defence: 4)	Arts / Humanities	Stream confirmed; targeted Mass Communication and Literature; low math confidence validated.
F4	F	15	Undecided	Somewh at Confide nt	High LA (7), PA (7); High Vi (9), Bo (8), Se (8); Low Ad (1), NA (3)	Venturous (Defence: 9), Enterprising (6)	Arts / Humanities	Guided away from technical science toward communication, public relations, and defense.
F5	F	16	Undecided	Somewh at Confide nt	High SA (10), PA (10), VR (9), AR (9), MR (9); High Sw (9); Low Sc (3)	Artistic (Creative: 9), Computational (7)	Arts / Humanities	Addressed family pressure for Nursing; redirected toward Hospitality and Event Management.

F6	F	15	Science	Somewh at Confide nt	Superior LA (10), AR (10), PA (10); High Bo (9), Gp (8); Low Mh (3)	Generally low expressed interests	Science (PCB focus) (@)	Retained Science; received specific counseling for severe exam anxiety and low self- worth.
F7	F	15	Commerce	Somewh at Confide nt	Superior LA (10), AR (8), PA (8); High Cr (8), Tn (8); Low Ma (1)	Clerical (10), Artistic (7)	Arts / Humanities	Shifted to Arts with Legal Studies focus; strong verbal skills fit advocacy and civil law.
F8	F	14	Science	Very Confide nt	High MR (9), SA (9), LA (8), AR (8); High Ga (8); Low Ss (2)	Enterprising (10), Venturous (Defence: 9, Sports: 8)	Applied Science / Tech (@)	Shifted from pure pre- medical to applied technical, paramedical, or sports science.
F9	F	15	Undecided	Somewh at Confide nt	Superior LA (10), PA (9), AR (8); Balance d traits; IDP trauma	Broad: Creative (10), Sports (10), Social (10)	Arts / Humanities	Supported for displacement trauma; validated in teaching, social welfare, and expressive arts.
F10	F	16	Science	Somewh at Confide nt	High PA (10), LA (8), MR (8), NA (8); High Ex	Artistic (Creative: 10), Scientific (Medical: 8)	Science (Medical)	Confirmed medical interest; introduced stress management

					(8), Ga (8); Low Ad (2)			for competitive exam prep.
M1	M	15	Science	Very Confident	High AR (9), PA (9), MR (8), NA (8); High Ma (9), Mo (8); Low Id (1)	Technical (7)	Science (Engineering) (@)	Confirmed technical track; advised hands-on engineering rather than abstract theory.
M2	M	17	Arts/Humanities	Somewhat Confident	High PA (9), LA (6), SA (6); High Mo (10), Sc (9); Low Vi (3)	Nature (8), Venturous (Defence: 4)	Arts / Physical Education	Kept in school instead of early sports academy; planned formal B.P.Ed. degree pathway.
M3	M	15	Arts/Humanities	Very Confident	Superior MR (10), LA (7), SA (7); Low NA (3), AR (3); High Vi (10)	Venturous (Defence: 8)	Arts / Applied Design	Validated Arts/Vocational focus; gave student objective data to counter family pressure for Science.
M4	M	15	Science	Somewhat Confident	High PA (10), AR (9), MR (9), VR (8), NA (8); High Cr (8), In	Venturous (Defence: 7)	Applied Science / Design	Reframed medical ambition toward engineering design, architecture, and

					(8)			technology trades.
M5	M	15	Commerce	Somewh at Confide nt	High LA (9), PA (9), MR (8); Low NA (3); High Am (9), Ld (9)	Nature (6), Defence (5), Sports (5)	Commerce or Humanities	Approved Commerce without advanced math dependencies ; explored public administratio n and business.
M6	M	16	Commerce	Very Confide nt	High PA (9), LA (8), AR (8); High Ex (9), Sw (8), Tn (8); Low Sc (3)	Broad, undifferentiat ed profile	Commerce (Manageme nt)	Confirmed business path; helped student resist family push toward medicine.
M7	M	15	Science	Somewh at Confide nt	High PA (9), SA (8), LA (7), AR (7), MR (7); High Bo (8); Low Sc (3)	Venturous (Defence: 10), Admin (8)	Technical Science / Defence (@)	Shifted focus from pure academic science to National Defence Academy (NDA) prep and applied tech.
M8	M	15	Arts/Humanit ies	Somewh at Confide nt	High PA (10), SA (10), LA (9), AR (9), NA (8); High Ga (10), Vi	Venturous (Defence: 6)	Science or Humanities (@)	Preserved Civil Services goal; encouraged adding Science/Math electives for

					(10)			NDA eligibility.
M9	M	16	Undecided	Not Confident At All	High MR (8), LA (6); Low PA (2), NA (4); High Vi (10); Low Am (2)	Uniformly flat interest profile	Vocational / Applied Trades	Steered toward hands-on mechanical, physical education, and trade certifications.
M10	M	16	Science	Somewhat Confident	High PA (9), MR (8), AR (7); Low NA (4), SA (4); High Bo (9), Ga (9)	Low expressed; practical IT affinity	Applied Science (IT focus) (@)	Confirmed applied computer science and networking track; avoided heavy theoretical math.

Note: In the Recommended Stream column, the symbol (@) denotes that the student's high, balanced aptitude profile makes them intellectually capable of handling any stream (Science, Commerce, or Arts).

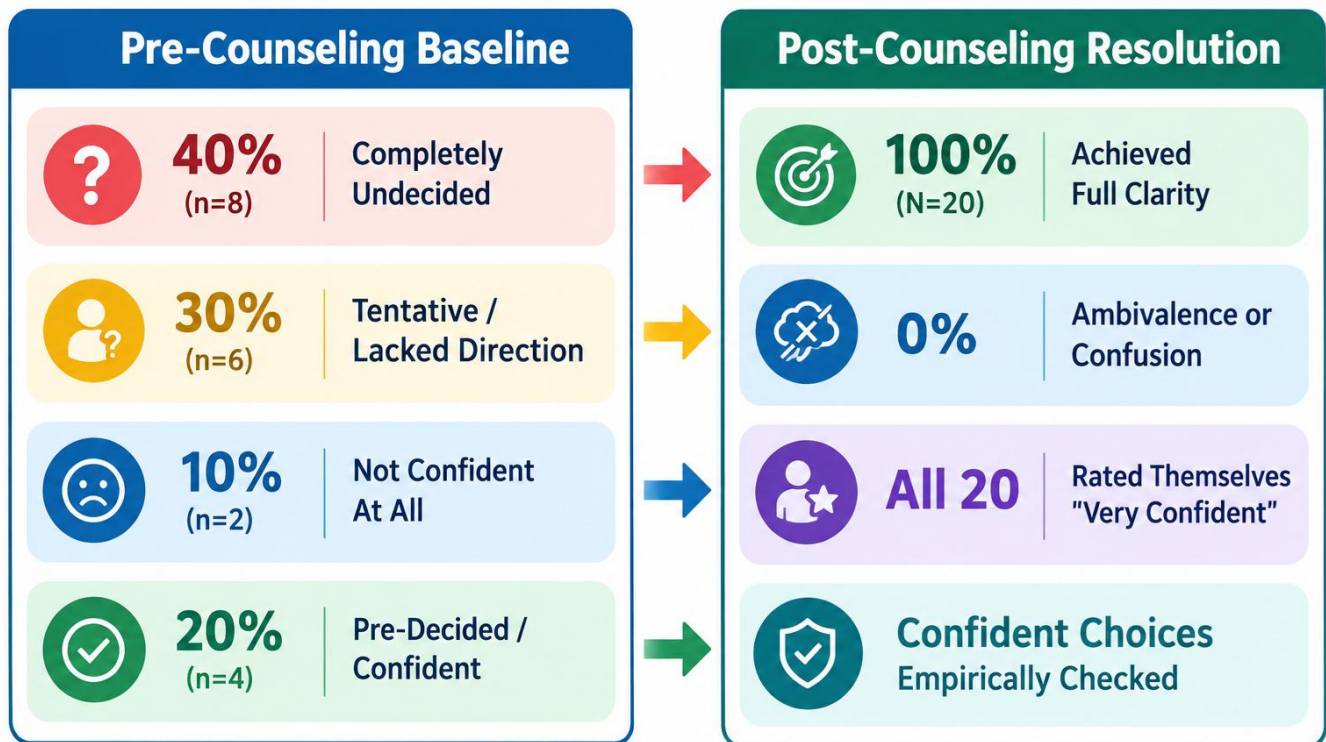
4. Discussion, Findings and Clinical Perspectives

4.1 Synthesis of Findings & Field Realities

The assessment revealed several consistent cognitive patterns across this tribal student cohort. The most striking finding was their elevated perceptual, spatial, and mechanical capabilities. Fully 70% of participants ($n=14$) scored in the highest Sten bracket (Stens 8–10) on Perceptual Aptitude, showing fast, accurate visual scanning. Spatial Aptitude and Mechanical Reasoning were similarly strong, particularly among boys (such as M3 scoring Sten 10 in MR, and M4 scoring Sten 9).

Conversely, Numerical Aptitude was a widespread stumbling block: over half the cohort scored at Sten 3 or 4. When reviewing student records, this weakness was rarely an isolated cognitive gap. Rather, it stemmed from cumulative foundational deficits built up over years of disrupted schooling, joined with intense math anxiety.

The interest profiles were equally revealing. Despite the cultural prestige of medical and engineering jobs in the wider community, genuine interest in pure scientific research or clinical work was almost entirely absent, with only two students (F10 and M1) showing authentic, high-level affinity. The remainder showed strong preferences for expressive arts, social service, physical education, and uniform services (Defense and Police).

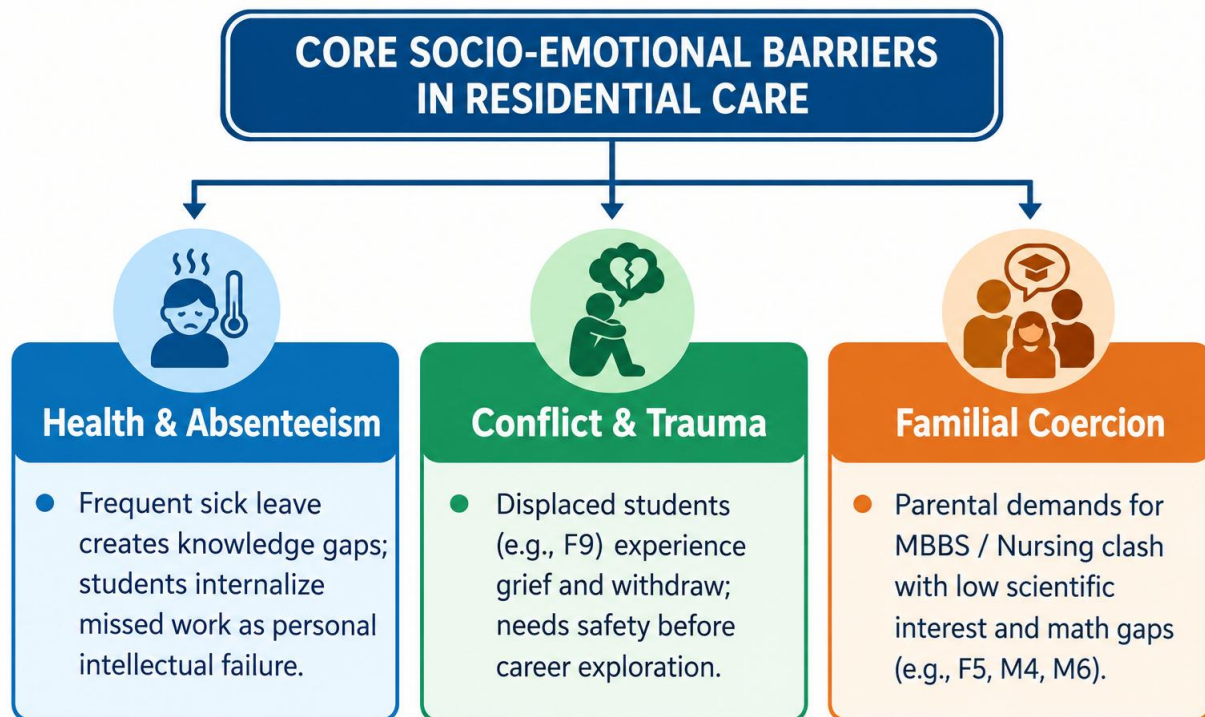


The individual counseling sessions helped bridge the gap between what these students could do and what they thought they ought to do:

- **Resolving Math Frustration:** By examining TAMANNA profiles alongside the students, the counselor showed teenagers like F1, F4, and M5 that their low math scores did not indicate low general intelligence. Their solid performances in Language and Abstract Reasoning showed they had strong analytical capabilities. This helped reduce their sense of inadequacy and allowed them to choose Humanities or business-focused tracks with genuine confidence.
- **Refining the Pre-Decided Group:** The four students who began the study feeling "very confident" (F1, F8, M3, and M6) benefited significantly from testing. For F8, testing revealed that her baseline choice of Science was contradicted by an interest profile centered on business, sports, and defense, with low interest in clinical science. Counseling helped redirect her toward sports science and applied technical fields before she committed to a frustrating pre-medical track. For M3, test data showing superior mechanical ability (MR = 10) alongside low arithmetic ability (NA = 3) gave him objective proof to explain to his parents why an Arts and design path was a far better choice than the theoretical Science stream they wanted for him.

4.2 Socio-Emotional Barriers & Interventions in the Residential Setting

Counseling secondary students in a residential school requires looking beyond raw test numbers. Intake sessions brought several underlying personal and environmental stressors to light:



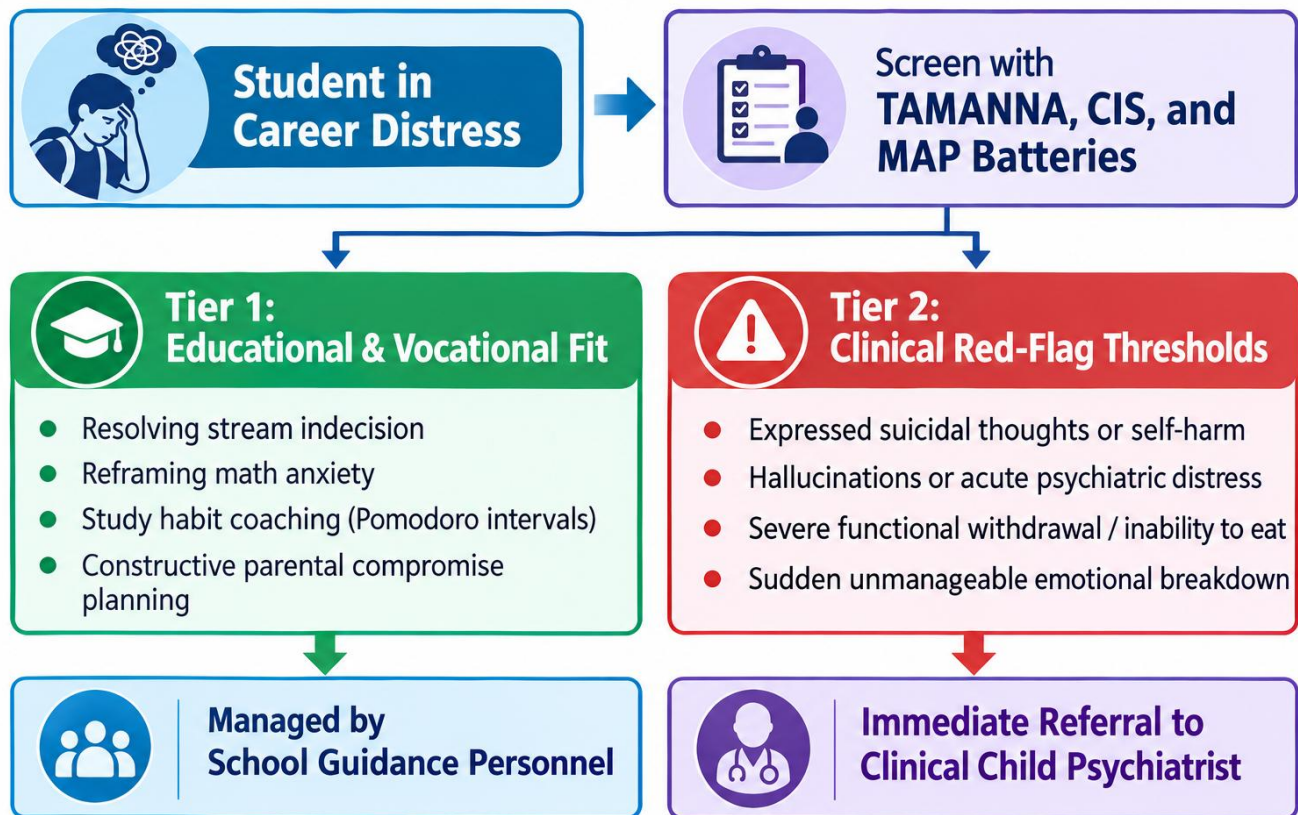
1. **Health Interruptions and Academic Falling-Behind:** Student F1 exemplified how chronic physical illness damages learning. Missing weeks of sequential classroom teaching in mathematics and science left gaps that made regular homework and examinations overwhelming. Counseling helped reframe this issue: instead of viewing herself as unsuited for study, F1 learned practical catch-up strategies, including structured 25-minute study intervals (the Pomodoro technique) and peer note-sharing routines.
2. **Conflict-Related Stress and Displacement:** The regional instability in Manipur directly impacted the emotional lives of several students. Student F9, living as an internally displaced person (IDP), showed notable intellectual potential (Sten 10 in Language Aptitude) but was held back by quiet grief, low confidence, and a fear of speaking in front of peers. For F9, career guidance had to incorporate trauma-informed support, self-worth exercises, and low-pressure communication activities before she could comfortably consider future options in teaching and the expressive arts.
3. **Addressing Unrealistic Parental Ambitions:** A recurring friction across the school was the pressure parents placed on their children to enter medical careers:
 - Student F5's parents expected her to become a nurse, despite her low interest in science (Sten 1) and difficulty with high school chemistry. Her spatial and creative abilities, however, were exceptional (Sten 10 in SA, Sten 9 in Creative Interest). Counseling helped her articulate a practical alternative in hospitality and event coordination.
 - Student M4's parents insisted on pre-medical preparation, overlooking his strong mechanical and innovative strengths (Sten 9 in MR, Sten 8 in In). Counseling helped redirect him toward engineering design and architecture, professions that honor his real problem-solving talents.
 - Student M6 was being pressured into medicine despite high extraversion (Sten 9) and business-oriented interests. He was guided to stay firm with his planned Commerce track, focusing on marketing and organizational management.

4.3 Practical Guidance Protocols & Institutional Safeguards (Proposed Framework)

Career counseling in residential schools requires clear boundaries between routine academic guidance

and specialized mental health care. Because students live on campus away from their families, school staff need clear guidelines to distinguish between ordinary stream indecision and underlying psychological distress.

Based on the fieldwork from this study, the following two-tier triage protocol is suggested for institutional adoption in residential settings like EMRS:



Under this protocol, when a student displays clinical red flags, such as active self-harm, persistent despair, or sudden functional collapse, complementary or educational guidance must pause immediately to ensure prompt medical and psychiatric evaluation. For routine vocational dilemmas, profile-based counseling provides the structured support students need to make balanced decisions.

5. Conclusion and Future Directions

This study demonstrates that structured psychometric profiling, using TAMANNA for cognitive aptitude, the CIS for vocational interest, and the MAP for personality traits, provides a practical and reliable foundation for secondary school guidance. In the residential environment of EMRS Gamnom Sapormeina, this approach surfaced real technical and expressive talents that ordinary school examinations overlooked, while clarifying the reasons behind widespread math anxiety.

The findings point to clear institutional changes needed within the Eklavya Model Residential School network:

- Universal Screening in Class 10:** NESTS should incorporate the TAMANNA battery into the standard Class 10 calendar during the first academic term across all EMRS campuses, ensuring objective data is available before stream applications are finalized.

2. **Hiring Dedicated, Certified Counselors:** The emotional challenges documented here, including regional displacement stress, performance anxiety, and domestic pressure, show that guidance cannot be left to classroom teachers as an informal side duty. EMRS campuses require full-time, professionally qualified counselors.
3. **Dedicated Physical Counseling Spaces:** Every campus needs a private, quiet room reserved for testing and personal discussions, ensuring that students can speak openly about family pressures and personal worries without fear of being overheard.
4. **Culturally Grounded Parent Career Workshops:** Schools should hold regular career orientation meetings for parents, conducted in local languages, to showcase contemporary opportunities beyond conventional medical and engineering fields. Helping parents understand their children's verified aptitudes is the most effective way to reduce counterproductive pressure at home.

Grounding academic stream selection in reliable psychological assessment protects students from mismatched educational choices, respects their individual talents, and provides tribal youth with a stronger foundation for lifelong learning and employment.

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