Effectiveness of a Life Skills Programme on Adolescent Mental Health in Coimbatore, India

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Abstract: Adolescent mental health is a critical public health issue in India, characterized by a high prevalence of mental health problems and a lack of rigorously evaluated, culturally tailored school-based interventions. This study evaluated a Life Skills Programme for adolescent mental health. Using a quasi-experimental, time-series design, we assessed an 8-week (4 hours/week) life skills programme based on the World Health Organization's ten life skills among 200 adolescents (aged 12–16 years) in Coimbatore. A validated 80-item scale was administered at pre-test, post-test, and two follow-ups. A statistically significant, very large improvement in overall mental health scores was observed (mean gain = 18.53, 95% CI: 17.98 to 19.08; $F(1,199) = 3872.54$, $p < .001$, Cohen's $d = 6.28$). All five domains improved significantly ($p < .001$), with the familial domain showing the largest effect (η^2 = 0.97). Female adolescents and older adolescents (aged 14–15 years) showed greater improvement. The findings strongly support integrating life skills-based mental health programmes into school curricula in India, along with gender-sensitive adaptations and targeted social skills modules.

Keywords: Adolescent; mental health; life skills education; school-based intervention

Introduction

Adolescence (ages 10–19) is a critical developmental phase marked by profound physical, emotional, and social transformations [1]. Globally, one in seven adolescents experiences a mental disorder, accounting for 13% of the disease burden for this demographic [1,2]. India, home to 253 million adolescents, faces a substantial public health challenge [3]. The National Mental Health Survey (2015–2016) reported that 7.3% of adolescents aged 13–17 suffer from mental health problems, whereas school-based studies indicate a prevalence as high as 23.3% [4,5]. A recent study in South India revealed alarmingly high rates of depression (39.3% in rural areas) and anxiety (50.6% in urban areas) [6]. The Government of India has acknowledged this priority through initiatives such as the Rashtriya Kishor Swasthya Karyakram (RKSK) and the National Education Policy (NEP) 2020 [7,8]. However, implementation is impeded by stigma, a severe workforce shortage, and a lack of standardized, evaluated interventions [5,8]. Life skills education (LSE) has emerged as a promising approach [9,10], but significant research gaps persist in the Indian context, including a dearth of rigorously evaluated, culturally tailored programmes for South Indian adolescents, a lack of holistic multi-domain assessment, and limited evidence on differential effectiveness across demographic groups.

Related Work

Life skills education has been evaluated internationally as a key strategy for promoting adolescent mental health. The WHO has long advocated for integrating ten core life skills into school curricula [12]. Major meta-analyses, such as that by Durlak et al. [15], have reported small to moderate effect sizes (d = 0.22–0.57) for social and emotional learning programmes. A Cochrane review found positive effects on mental health outcomes [9,10] and highlighted the need for culturally adapted interventions in low- and middle-income countries. Studies in India have documented high prevalence rates but noted a lack of standardized, evaluated school-based programmes [5,7]. Recent research provided updated prevalence data from South India [6]. However, none of these prior works employed a rigorous time-series design with multi-domain assessment tailored to South Indian adolescents—a gap that the current study addresses.

Table 1. Comparison of the Present Work with Previous Research

	Cultural tailoring	**Multi-domain assessment**	**Time-series design**	**Large effect size (d>0.8)**
[5]	No	No	No	No
[7]	Partial	No	No	No
[9]	No	No	No	Yes (moderate)
[15]	No	Yes	No	No
This work	Yes	Yes	Yes	Yes (d=6.28)

Key Contributions

This paper makes several original contributions to the existing body of knowledge on adolescent mental health interventions in India. First, it provides the first rigorously evaluated, culturally tailored life skills programme specifically for South Indian adolescents using a multi-domain mental health scale. Second, it offers novel evidence on differential effectiveness across demographic groups (gender, age, family type) and across mental health domains (familial vs. social). Third, it documents an exceptionally large effect size (Cohen's d = 6.28) that far surpasses previously reported benchmarks for school-based psychosocial interventions, demonstrating the potential of targeted, culturally adapted programmes.

Methods, Experiments, and Results

Methods: A quantitative, quasi-experimental time-series design (O1 → X → O2 → O3 → O4) was employed, which is suitable for educational settings where random assignment is not feasible [11]. A non-probability purposive sample of 200 adolescents aged 12–16 years was recruited (50% female, 50% male; 81.5% from nuclear families). The "Global Mental Health Programme" was an 8-week (4 hours/week) intervention based on the WHO's ten core life skills [12]: self-awareness, empathy, critical thinking, creative thinking, decision-making,

problem-solving, interpersonal relationships, communication, coping with emotions, and coping with stress. The primary instrument was the modified 80-item Mental Health Status Scale [13], covering five domains (Physical, Intellectual, Psychological, Familial, and Social), with excellent internal reliability (Cronbach's $\alpha = .87$). Data were collected at pre-test (Week 0), immediate post-test (Week 8), first follow-up (Week 12), and second follow-up (Week 16). Statistical analysis used paired t-tests, repeated measures ANOVA (RM-ANOVA), repeated measures MANOVA, and one-way ANOVA with Bonferroni post-hoc corrections. Effect sizes (partial η^2, Cohen's d) were calculated, with significance set at $p < .05$.

Fig. 1. Percentage distribution of pre-test and post-test levels of mental health characteristics.

Results: Figure 1 shows that after the 8-week intervention, the proportion of adolescents with adequate mental health increased from 0–11% at pre-test to 86–92% at post-test across all five domains, with the social domain showing the largest improvement (from 90% inadequate to 92% adequate). The intervention led to a statistically significant and very large improvement in overall mental health scores (Table 2). Repeated measures MANOVA confirmed a significant multivariate effect of time (Pillai's Trace = 0.98, $F(5,195) = 2104.72$, $p < .001$). A one-way ANOVA of post-test domain scores showed significant differences between domains ($F(4,796) = 305.41$, $p < .001$, $\eta^2 = 0.86$). Bonferroni post-hoc tests revealed that the social domain mean score ($M = 4.77$) was significantly lower than all other domains ($p < .001$), indicating a relative area of challenge. One-way ANOVA revealed significant associations between improvement scores and demographic variables: female gender (mean improvement = 20.12 vs. 17.45 for males; $F(1,198) = 19.87$, $p < .001$, $\eta^2 = 0.09$), older age (15 years: 21.05 vs. 12 years: 17.25; $F(3,196) = 10.42$, $p < .001$, $\eta^2 = 0.14$), and being from a widowed household (mean improvement = 20.85 vs. separated: 15.75;

F(2,197) = 6.15, p = .002, η^2 = 0.06) were associated with significantly greater improvement.

Table 2. Comparison of Pre-test and Post-test Scores (Repeated Measures ANOVA)

Domain	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Difference [95% CI]	F(1,199)	p	Cohen's d
Physical	2.18 (1.26)	6.00 (0.22)	3.82 [3.65, 3.99]	1785.32	<.001	4.22
Intellectual	1.87 (0.51)	5.26 (0.82)	3.39 [3.28, 3.50]	2340.67	<.001	5.08
Psychological	1.14 (1.23)	5.26 (0.82)	4.12 [3.91, 4.33]	1510.45	<.001	3.88
Familial	1.98 (0.37)	5.51 (0.50)	3.53 [3.45, 3.61]	6841.09	<.001	8.26
Social	1.17 (0.44)	4.77 (2.14)	3.60 [3.27, 3.93]	520.38	<.001	2.29
Overall	8.35 (3.02)	26.88 (2.95)	18.53 [17.98, 19.08]	3872.54	<.001	**6.28**

Discussion

This study provides compelling evidence that a culturally adapted, 8-week life skills programme is highly effective in improving adolescent mental health in Coimbatore, India. The exceptionally large overall effect size (Cohen's d = 6.28) far surpasses benchmarks for social science interventions [14] and effects reported in major meta-analyses (e.g., d = 0.22–0.57 in [15]). A key novel finding is the differential effectiveness across domains. The familial domain's remarkable response (d = 8.26) suggests that components focused on family communication were particularly potent. In contrast, the social domain showed the lowest post-test scores (M = 4.77), corroborating evidence that peer-related skills may be more resistant to change due to entrenched social hierarchies [16]; this finding suggests that social skills may require more sustained, intensive intervention. The greater improvement observed in females aligns with studies showing higher receptivity to psychoeducational interventions [17], possibly because the programme's emphasis on relational skills is more congruent with female socialisation patterns. The finding that adolescents from widowed households showed the highest gains, whereas those from separated families showed the lowest, highlights that interparental conflict may undermine intervention benefits [18].

Conclusions

1. **Problem statement addressed:** This study addressed the critical lack of rigorously evaluated, culturally tailored, school-based mental health interventions for adolescents in South India.
2. **Method used:** A quasi-experimental, time-series design evaluated an 8-week life skills programme among 200 adolescents using a validated five-domain scale.
3. **Key findings:** The intervention produced a very large overall improvement (Cohen's d = 6.28). The familial domain showed the most benefit; the social domain showed relative weakness. Female gender, older age (14–15 years), and widowed household status were associated with greater improvement.
4. **Limitations and future work:** Limitations include non-probability sampling from a single school, lack of a control group, use of self-report measures, and short-term follow-up (only 16 weeks). Future work should include multi-site randomised controlled trials, long-term follow-up (6–12 months), development of gender-sensitive and social skills booster modules, and implementation science studies across diverse Indian school systems.

References

1. World Health Organization, "Mental health of adolescents," WHO, Geneva, 2025.
2. S. M. Sawyer et al., "Adolescence: a foundation for future health," *Lancet*, vol. 379, no. 9826, pp. 1630-1640, 2012.
3. United Nations, "State of world population 2006," UN, New York, 2006.
4. R. S. Murthy, "National Mental Health Survey of India 2015-2016," *Indian J. Psychiatry*, vol. 59, no. 1, pp. 21-26, 2017.
5. S. Malhotra and B. N. Patra, "Prevalence of child and adolescent psychiatric disorders in India: a systematic review and meta-analysis," *Child Adolesc. Psychiatry Ment. Health*, vol. 8, p. 22, 2014.
6. G. S. Nagananda et al., "Mental health issues among adolescents in South India," *J. Family Med. Prim. Care*, vol. 13, no. 8, pp. 2979-2985, 2024.
7. T. Shah et al., "Rashtriya Kishor Swasthya Karyakram (RKSK): a review," *Indian J. Community Med.*, vol. 47, no. 4, pp. 543-548, 2022.
8. S. Ray et al., "National Education Policy 2020 and adolescent mental health," *Asian J. Psychiatr.*, vol. 100, p. 200444, 2025.
9. F. Faggiano et al., "School-based prevention for illicit drugs use: A Cochrane systematic review," *Cochrane Database Syst. Rev.*, vol. 12, p. CD003020, 2014.
10. S. Skeen et al., "Mental health of children and adolescents in low-income and middle-income countries," *Pediatrics*, vol. 144, no. 2, p. e20183488, 2019.

11. E. Weyant, "Research design: Quasi-experimental designs," *J. Electron. Resour. Med. Libr.*, vol. 19, no. 1-2, pp. 1-2, 2022.

12. M. Omura et al., "Effectiveness of WHO life skills education," *PLoS One*, vol. 20, no. 7, p. e0327325, 2025.

13. J. Abraham and K. Prasanna, *Mental Health Status Scale*. Kerala, India: Univ. of Kerala, 1978.

14. K. Muller, "Statistical power analysis for the behavioral sciences," *Technometrics*, vol. 31, no. 4, pp. 499-500, 1989.

15. J. A. Durlak et al., "The impact of enhancing students' social and emotional learning," *Child Dev.*, vol. 82, no. 1, pp. 405-432, 2011.

16. D. S. Yeager, "Social and emotional learning programs for adolescents," *Future Child.*, vol. 27, no. 1, pp. 73-94, 2017.

17. S. Nolen-Hoeksema, "Gender differences in depression," *Curr. Dir. Psychol. Sci.*, vol. 10, no. 5, pp. 173-176, 2001.

18. P. R. Amato, "The consequences of divorce for adults and children," *Društvena Istraživanja*, vol. 23, no. 1, pp. 5-24, 2014.