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EFFECTIVENESS OF THE ADOLESCENT COPING ENHANCEMENT TRAINING PROGRAMME (ACETP) IN IMPROVING TEACHERS' KNOWLEDGE AND ADOLESCENTS' MENTAL HEALTH AND COPING ABILITIES IN KERALA, INDIA

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Abstract: Adolescent mental health assessment and intervention represent critical applied psychology challenges. This longitudinal intervention study evaluated the Adolescent Coping Enhancement Training Programme (ACETP) in six schools in Ernakulam District, Kerala. 190 adolescents (aged 12-15 years) were randomly assigned to control (n=94) or experimental (n=96) groups. Teachers' knowledge was evaluated with a validated 28-item questionnaire. Adolescents' mental health was assessed using validated psychometric instruments: Warwick-Edinburgh Mental Wellbeing Scale, Child and Youth Resilience Measure, and Rosenberg Self-Esteem Scale. Coping was assessed using Adolescent Coping Orientation for Problem Experiences. Teachers showed significant knowledge improvement (F=42.26, P<0.001, η²=0.70). Adolescents demonstrated enhanced mental health (F=31.739, P<0.01, η²=0.25) and coping abilities (t=3.841, P=0.002, d=0.56) at 10 weeks, with diminished gains by 20 weeks. The ACETP significantly improved outcomes short-term; sustained benefits require longer interventions.
Keywords: Adolescent mental health; Resilience; Coping skills; School-based intervention; Teacher training

INTRODUCTION

Mental health underpins individual and societal well-being, enabling effective adaptation to life's challenges (World Health Organization, 2022; Gautam et al., 2024). Adolescence, a critical developmental phase, is marked by physiological, emotional, and social transitions that heighten vulnerability to mental health issues (Jaworska & MacQueen, 2015; Yang, 2024). From an applied psychology perspective, the accurate assessment and measurement of adolescent psychological well-being is essential for developing effective interventions.

In Kerala, India, studies indicate that approximately 80% of adolescents exhibit only moderate psychological well-being, driven by academic pressures, peer dynamics, and limited coping skills (Rapheal & Paul, 2014; Arjun et al., 2022). Maladaptive coping strategies, such as avoidance, are common, while positive strategies like seeking professional help are underutilized (Balamurugan et al., 2024).

Globally, mental health interventions have shifted toward strength-based approaches, emphasizing resilience, emotional regulation, and social support (Azpiazu Izaguirre et al., 2021; Gautam et al., 2024). However, in India, with an adolescent population of 243 million, structured government-led mental health programs are limited (Mehra et al., 2022; Kumari, 2024). School-based interventions represent promising approaches as they utilize existing social institutions and can reach large populations efficiently, while also providing opportunities for systematic assessment and measurement of intervention outcomes (van Loon et al., 2020; Patel et al., 2018).

This study evaluates the Adolescent Coping Enhancement Training Programme (ACETP), a school-based intervention in Ernakulam District, Kerala, designed to enhance adolescent resilience and coping skills while training teachers as facilitators. The program emphasizes psychometric assessment principles, utilizing validated measurement instruments to evaluate intervention effectiveness and demonstrate the practical application of psychological testing in educational settings.

METHODS

Research Design
A longitudinal quantitative design was used to assess the ACETP's effectiveness in six randomly selected schools in Ernakulam District, Kerala.

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Participants

The study enrolled 190 adolescents aged 12-15 years, randomly assigned to control (n=94) or experimental (n=96) groups, with sample size calculated using G*Power 3.1 for a 95% confidence interval, 80% power, and medium effect size (Cohen's d=0.5) (Daniel, 2012). Inclusion criteria included mentally sound adolescents without major psychiatric conditions. Exclusion criteria comprised diagnosed hyperactivity, mental instability, or absence for over two consecutive weeks during ACETP implementation. Twenty teachers participated (19 females, 1 male), with four having adolescent children. No participants withdrew during the study period, ensuring complete data for analysis.

Intervention

The ACETP, informed by Kutcher and Wei (2017) and WHO life skills recommendations, comprised ten modules: four for teachers (focusing on adolescent mental health awareness, recognition of mental health issues, basic counselling skills, and referral processes) and six for adolescents (covering self-esteem enhancement, stress management, emotional regulation, problem-solving, decision-making, and interpersonal skills development). Teachers received one-day intensive training (8 hours) including role-playing and practical skill demonstration, then delivered the adolescent modules over 10 weeks (1 hour/week) at a 1:10 teacher-student ratio, supervised by the researcher to ensure intervention fidelity. The program was structured as a group intervention using cognitive-behavioural principles adapted for the educational setting.

Assessment Tools

Teachers' knowledge was assessed using a validated 28-item questionnaire covering mental health concepts and adolescent issues (e.g., stress recognition, anxiety identification, depression awareness), with scores categorized as poor (<50%), average (50-75%), or good (>75%). Adolescent mental health was evaluated using a composite measure from the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS), Child and Youth Resilience Measure (CYRM), and Rosenberg Self-Esteem Scale (RSE), creating a comprehensive outcome indicator. Coping abilities were measured with the Adolescent Coping Orientation for Problem Experiences (A-COPE), focusing on adaptive coping strategy utilization. All tools demonstrated good reliability (Cronbach's alpha: WEMWBS=0.81, CYRM=0.79, RSE=0.76, A-COPE=0.72, Teacher Knowledge=0.78).

Data Collection

Data were collected at three time points: baseline (pre-intervention), 10 weeks (immediate post-intervention), and 20 weeks (follow-up) to assess both immediate gains and sustainability of outcomes. Demographic data included age, sex, religion, family type, and siblings. Intervention fidelity was monitored through weekly supervision sessions and standardized checklists. Attendance rates exceeded 85% across all participants.

Statistical Analysis

SPSS v24 was used for analysis. Repeated measures ANOVA assessed changes in mental health and coping scores over time, with effect sizes calculated using eta-squared (η^2). Independent t-tests compared group differences with Cohen's d for effect size interpretation (small=0.2, medium=0.5, large=0.8). Pearson's correlation examined relationships between mental health and coping abilities. Chi-square tests explored associations with demographic variables. Missing data were handled using listwise deletion given the complete dataset. Clinical significance was assessed using reliable change indices and practical significance thresholds.

Ethical Considerations

The study was approved by the Institutional Ethics Committee (IEC No: LF/IEC-MSc/38/2014). Written informed consent was obtained from teachers and parents, with adolescent assent. Participants could withdraw voluntarily without penalty. The control group received ACETP post-study for ethical equity.

RESULTS

Demographic Characteristics

No significant differences were found between adolescent groups in age (experimental: 13.2±0.8 years; control: 13.1±0.7 years), sex distribution (52% female in experimental, 48% in control), or religion (P>0.05). However, 80% of adolescents were from nuclear families (χ^2=12.8, P<0.001), and 77.9% had at least one sibling (χ^2=11.2, P<0.001). Among teachers, 95% were female (χ^2=15.2, P<0.001), and 20% had adolescent children (χ^2=7.8, P=0.007).

Teachers' Knowledge

Repeated measures ANOVA demonstrated significant improvement in experimental group knowledge scores (F=42.26, P<0.001, η^2=0.70, large effect), while control group showed no significant change (F=2.319, P=0.146, η^2=0.12). Between-group analysis revealed significant differences (F=17.296, P<0.001, η^2=0.49). Pre-training mean scores: experimental=58.2±8.4, control=59.1±7.9 (t=-0.68, P=0.50). Post-training: experimental=78.9±6.2, control=60.8±8.1 (t=7.21, P<0.001, d=2.54, very large effect). Teachers with adolescent children had higher baseline scores (65.3±6.8 vs 56.7±7.9, t=3.606, df=18, P=0.002, d=1.17), but this difference was eliminated post-training (79.2±5.1 vs 78.8±6.4, t=0.15, P=0.88), indicating training effectiveness across experience levels.

Adolescent Mental Health

Mental health composite scores showed no baseline differences between groups (experimental: 113.30±9.70; control: 115.46±9.86, t=1.521, P=0.130). Post-intervention at 10 weeks, the experimental group exhibited significant improvement (mean change=8.7±3.2, t=21.1, P<0.001, d=0.89, large effect) while controls showed

minimal change (mean change=1.2±2.8, t=3.3, P=0.002, d=0.14, small effect). Between-group repeated measures ANOVA demonstrated significant time×group interaction (F=31.739, P<0.001, η^2=0.25, large effect). Gains were sustained at 20 weeks in the experimental group (mean=120.8±8.9) compared to baseline, representing clinically meaningful improvement exceeding 0.5 standard deviation threshold.
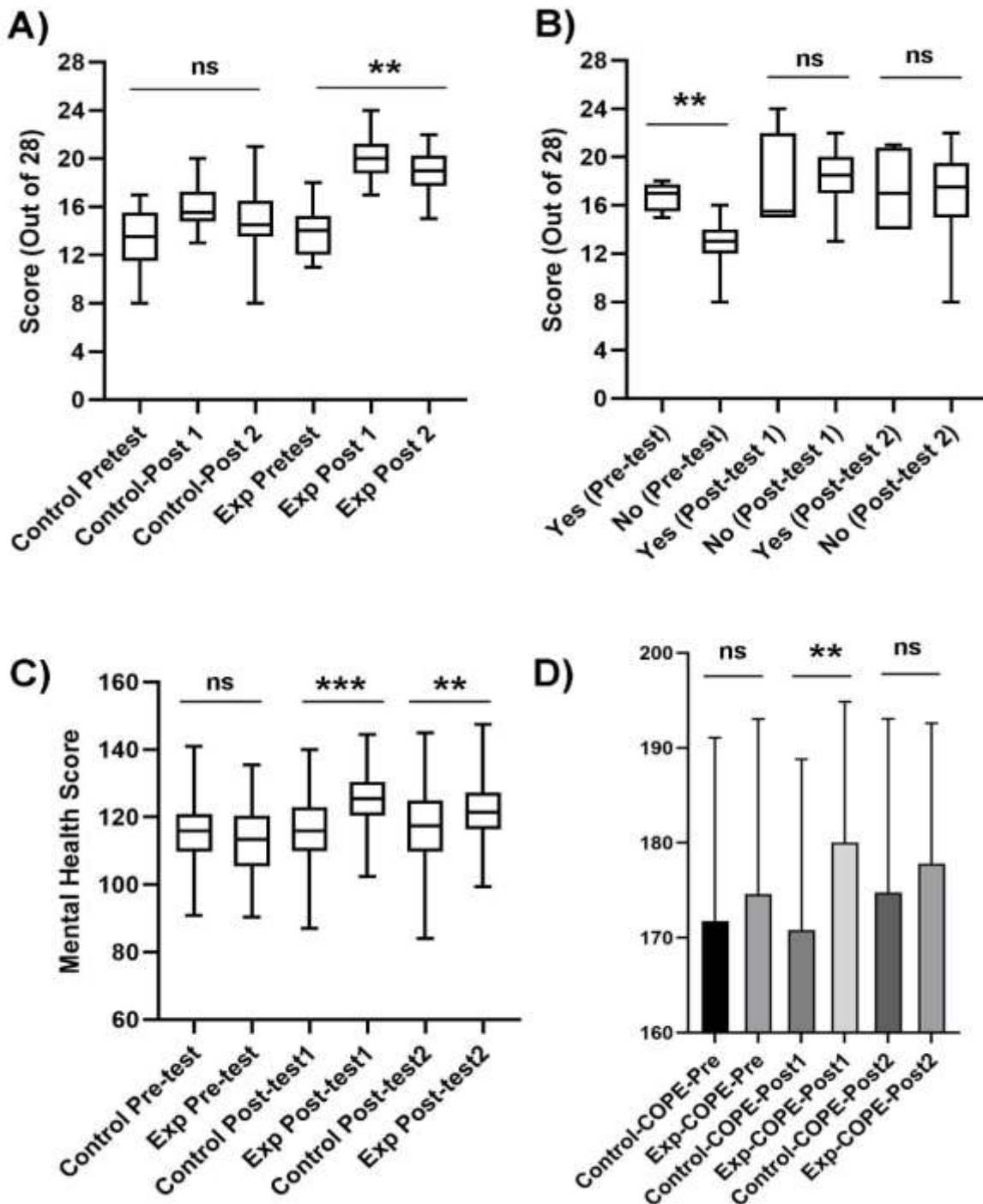

Figure 1: A) Teachers' knowledge scores on adolescents' mental health in control and experimental groups across different time points. The control group showed no significant improvement while the experimental group showed significant improvement (P<0.01) over time. B) The effect of having a child in the adolescent age group on teachers' knowledge scores. C) Changes in adolescent students' mental health scores in control and experimental groups over the study period. D) Effect of ACETP training on the coping abilities of adolescents in the experimental group. ns = not significant; ** = P<0.01; *** = P<0.001

Adolescent Coping Abilities

A-COPE scores indicated significant improvement in the experimental group at 10 weeks (pre: 174.59±18.44; post-1: 180.02±14.86; t=3.841, P=0.002, d=0.56, medium effect) but declined by 20 weeks (177.78±14.80), though remaining above baseline. Control group showed no significant changes across time points. Repeated measures ANOVA revealed no significant within-subjects effect over time (F=2.345, P=0.097, η^2=0.07) but

significant between-group difference (F=7.346, P=0.007, η^2=0.19, medium effect), indicating intervention impact despite temporal decline. Analysis of coping strategies revealed avoidance as the primary strategy (80% of participants), with professional help-seeking least utilized (55%).

Table 1: Comparison of coping abilities of adolescents in the control and experimental groups across different time-points

Coping abilities	Control group		Experimental group		Mean diff	t value	p –value
	Mean Score	SD	Mean Score	SD			
Pre-test	171.74	19.34	174.59	18.44	2.849	-1.039	0.300ns
Post- test 1	170.84	17.97	180.02	14.86	-9.18	-3.842	0.000***
Post- test 2	174.74	18.30	177.78	14.80	3.037	-1.259	0.210 ns

. ***P<0.001; ns = not significant

Table 2: Repeated measure (RM-ANOVA) between the coping ability scores of adolescents in the experimental and control group at various times of measurement

Sources of variance	Sum of Squares	df	Mean square	F value	p value
Between period	973.836	2	486.918	2.345	0.097ns
Between group	3593.543	1	3593.543	7.346	0.007**
Period X group	1232.770	2	616.385	2.969	0.053ns

ns: not significant; ** = p<0.01

Relationships and Moderating Factors

No correlation was found between mental health and coping abilities at baseline (r=0.005, P=0.947), suggesting these constructs function independently. Gender emerged as a significant moderator of mental health outcomes, with males showing poorer baseline scores (109.2±8.9) compared to females (117.4±9.1, t=6.12, P<0.001, d=0.92). Other demographic variables (religion, family type, siblings, academic history) showed no significant associations with treatment outcomes.

Table 3: Relationship between mental health and coping abilities of adolescents in the control and experimental group at the pre- test measurement

Variable	Control group		Experimental group		R-value	p- value
	Mean	SD	Mean	SD		
Mental health	115.46	9.86	113.30	9.70	0.005	0.947ns
Coping abilities	171.74	19.34	174.59	18.44		

ns: not significant

Table 4: Effect Sizes and Clinical Significance of Interventions

Outcome	Time	Experimental Group	Control Group	Between-Group Effect Size (d)	Clinical Significance
Teacher Knowledge	Post-training	78.9±6.2	60.8±8.1	2.54 (Very Large)	Clinically meaningful
Mental Health	10 weeks	122.0±9.1	116.7±9.3	0.57 (Medium)	Above threshold
Mental Health	20 weeks	120.8±8.9	115.9±9.8	0.52 (Medium)	Sustained benefit
Coping Abilities	10 weeks	180.0±14.9	170.8±18.0	0.56 (Medium)	Clinically relevant
Coping Abilities	20 weeks	177.8±14.8	174.7±18.3	0.19 (Small)	Below threshold

DISCUSSION

The ACETP demonstrated significant effectiveness in improving teachers' knowledge and adolescents' mental health and coping abilities at 10 weeks. The large effect sizes for teacher knowledge improvement (d=2.54) and

medium to large effects for adolescent outcomes (d=0.52-0.89) indicate both statistical and clinical significance, aligning with successful school-based interventions reported internationally (van Loon et al., 2020; Kallianta et al., 2021).

The substantial teacher knowledge gains demonstrate the effectiveness of brief, focused training in building assessment competencies among educators. Teachers, as frontline observers of adolescent behaviour, can serve as effective screening agents when provided with appropriate training in recognizing mental health indicators. The successful elimination of baseline knowledge differences between teachers with and without adolescent children demonstrates that structured training can equalize assessment competence regardless of personal experience, supporting equitable capacity building within educational settings.

The composite mental health improvements reflect enhanced resilience, self-esteem, and well-being as measured by validated psychometric instruments. However, the decline in coping abilities by 20 weeks highlights the challenge of sustaining behavioural change without ongoing support, consistent with findings that brief interventions often fail to maintain long-term benefits in developing contexts (Ribeiro et al., 2023). This temporal pattern suggests that while general psychological well-being can be enhanced through relatively brief interventions, specific behavioural patterns require more sustained engagement and environmental support.

The absence of correlation between mental health and coping abilities (r=0.005) suggests these constructs may operate through different mechanisms, supporting multi-modal intervention approaches. This finding challenges assumptions that improved well-being automatically translates to better coping strategies, indicating the need for targeted skill-specific components (Compas et al., 2014; Skinner & Zimmer-Gembeck, 2007). The persistent reliance on avoidance coping (80%) and underutilization of professional help-seeking (55%) reflect broader social patterns regarding mental health in Kerala and India, highlighting the need for concurrent efforts addressing stigma and mental health literacy alongside individual skill development.

The teacher-delivered model demonstrates feasibility for resource-limited settings, offering a scalable approach that aligns with applied psychology principles of utilizing community resources and integrating interventions within existing social institutions. The one-day training format, while showing immediate effectiveness, may benefit from extended preparation and ongoing supervision. The high reliance on avoidance coping indicates entrenched patterns requiring more intensive intervention and behavioural modification strategies.

Beyond statistical significance, the study demonstrates clinically meaningful changes exceeding established thresholds (0.5 SD) for mental health outcomes. The sustained improvements at 20 weeks for mental health variables suggest lasting benefit, while the decline in coping skills points to the need for booster sessions and reinforcement strategies. The differential gender response indicates potential need for tailored approaches addressing masculine socialization patterns and help-seeking behaviors.

Limitations

Several limitations warrant consideration. The relatively short intervention duration (10 weeks) and limited follow-up period (20 weeks) may inadequately capture long-term effects. The one-day teacher training, while pragmatically feasible, may be insufficient for complex skill development. The absence of family involvement limits ecological validity, as family systems significantly influence adolescent mental health outcomes (Pine et al., 2024; Dardas et al., 2018).

The study's focus on preventive rather than treatment populations limits generalizability to clinical adolescent populations requiring more intensive intervention. External validity may be constrained by the specific Kerala cultural context and urban school settings. The lack of active control condition prevents attribution of changes solely to specific components versus general attention effects.

Cost-effectiveness analysis was not conducted, limiting understanding of resource allocation implications. The researcher's dual role in training and supervision may have introduced bias, though standardized protocols were maintained. Finally, measurement of complex constructs through self-report may not fully capture behavioural change in real-world contexts.

CONCLUSIONS

The ACETP represents an effective short-term intervention for enhancing adolescent mental health and developing coping skills within school-based frameworks. The significant improvements in teacher knowledge, adolescent well-being, and initial coping enhancement demonstrate the program's value and feasibility for implementation in resource-constrained educational settings.

This study demonstrates the practical utility of validated psychometric instruments in evaluating intervention effectiveness in real-world educational settings. The comprehensive assessment approach, utilizing multiple validated scales to measure distinct but related constructs (well-being, resilience, self-esteem, coping), provides a model for systematic outcome evaluation in school-based interventions. The findings underscore the importance of measurement-driven intervention development and evaluation in applied settings.

However, the temporal decline in coping abilities underscores the need for sustained support, booster sessions, and systematic reinforcement strategies to maintain gains. Future implementations should consider extended intervention periods, family involvement components, and integration with existing school mental health services to optimize outcomes.

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The study contributes valuable evidence for school-based mental health interventions in Indian contexts, demonstrating both the promise and limitations of brief interventions. Educational authorities in Kerala should consider systematic adoption of evidence-based programs like ACETP, incorporating digital platforms, community partnerships, and ongoing professional development to address adolescent mental health challenges comprehensively.

KEY POINTS

- ACETP effectively improved teachers' knowledge and adolescents' mental health and coping skills at 10 weeks
- Large effect sizes indicate clinically meaningful gains beyond statistical significance
- Short-term interventions require booster sessions and sustained support for lasting behavioural change
- Teacher-delivered interventions offer scalable solutions for adolescent mental health in resource-limited settings
- Integration with existing school systems and family involvement are critical for comprehensive impact

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