CHAPTER-5

5.0 METHODS

5.1 PATICIPANTS

Eighty-seven participants were recruited in the present study with an age group of 13-18 years.

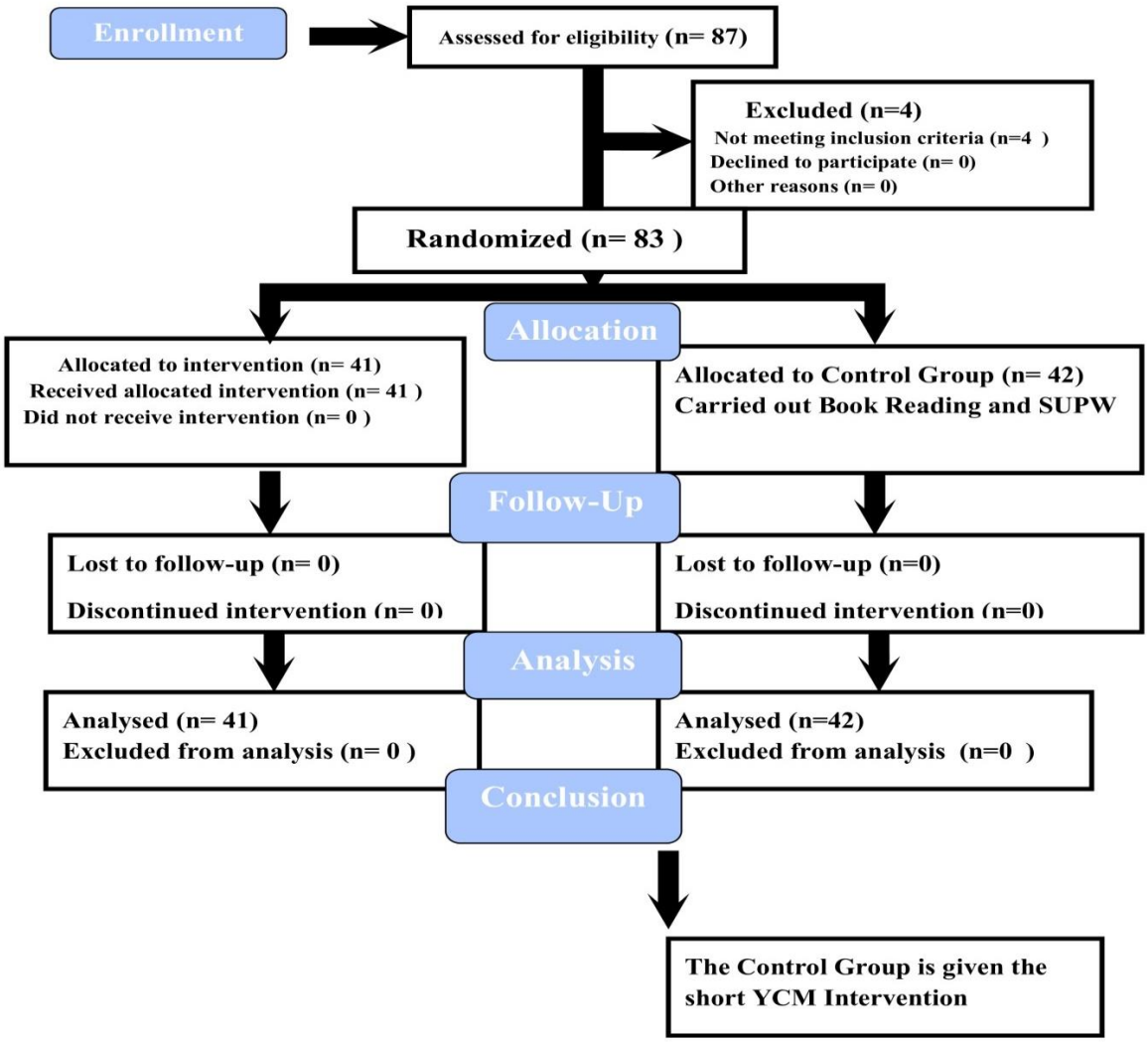


Figure 6- Consort Diagram

5.1.1 SAMPLE SIZE

The sample size for the study was calculated 87 using G*Power software (version 3.1.9.4), with an alpha level of 5%, a statistical power of 95%, and an effect size of 0.51, based on the findings of the HERO study (Sundar et al., 2016). In the HERO study, a positive psychology intervention rooted in Indian scriptural teachings significantly improved psychological well-being, resilience, optimism, and self-efficacy among participants. Since YCM follows a similar mindfulness-based intervention model, the estimated sample size ensures adequate statistical power and generalizability, allowing for a robust evaluation of its impact on mental well-being and emotional regulation.

5.1.2 SELECTION AND SOURCE OF PARTICIPANTS

Adolescent participants were recruited from an educational institution in Bengaluru. The recruited participants were allocated into two groups (i) YCM (n= 41) and (ii) CG (n= 42).

5.1.3 INCLUSION CRITERIA

- Ability to read and write in English School/College students will be screened.
- Age between 13-18 years (as per WHO adolescent age range for both male and female).
- Both boys and girls will be included.
- No prior exposure to counseling, as indicated in the demographic self-disclosure form.
- Schools located in Bangalore.

5.1.4 EXCLUSION CRITERIA

- Major psychological issues/problems, as indicated in the demographic self-disclosure form or personally disclosed to the researcher.
- Suffering from any chronic illness, as indicated in the demographic self-disclosure form or personally informed to the researcher.

5.1.5 DEMOGRAPHIC DATA

The present randomized controlled trial (RCT) was conducted among 83 adolescents, including 42 females, aged between 13 and 18 years (mean age: 14.54 ± 1.02). Regarding parental education, the majority of fathers had completed SSLC (26.4%), while 53.4% had educational backgrounds below SSLC, and smaller percentages had education levels ranging from primary school (2.7%) to a college degree (1.4%). A significant portion of the data on paternal education was missing, with 16.1% of this information not available. Regarding maternal education, 11.5% of mothers had completed SSLC, 6.8% had attained PUC, and 58.8% of the data was not disclosed, leaving 42.2% of maternal education data available. Participants came from varied socioeconomic backgrounds, with 45.3% classified as middle-income, 2.7% as lower-income, and 1.4% as upper-income. A remaining 50.6% of the socioeconomic data was not available.

Table 2: Demographic Details of the Participants

Demographic Variable	Category	Percentage (%)
Total Participants	83 adolescents	-
Gender	Female	42 (50.6%)
	Male	41 (49.4%)
Age Range	13-18 years Mean age: 14.54 ± 1.02	-
Father's Education Level	SSLC	26.4%
	Below SSLC	53.4%
	Primary School	2.7%
	College Degree	1.4%
	Missing Data	16.1%
Mother's Education Level	SSLC	11.5%
	PUC	6.8%
	Missing Data	58.8%
Socioeconomic Status	Middle-Income	45.3%
	Lower-Income	2.7%
	Upper-Income	1.4%
	Missing Data	50.6%

Table 3- Demographic Data

5.1.5 ETHICAL CONSIDERATION

The study was approved by the Institutional Ethics Committee. The certificate was issued to the researcher with number-(RES/IEC.SVYASA/223/2022) mentioning to document a generalized recommendation in the end for public and not to screen participants to avoid

labelling of students based on cognitive distortion. Further the study was registered with the Clinical Trial Registry of India (CTRI/2022/06/043104). Permission from the school Management, Parental consent and students' assent were obtained after explaining the objectives, design and intervention of the study. The IEC recommendation for not screening the participants and to provide the generalized recommendation from study was accepted.

5.2 DESIGN

The present study employed the randomized control trial design. The recruited participants were randomly allocated into two groups: (i) YCM (n=41) and (ii) CG (n=42). The randomization was done using https://www.randomizer.org/.

5.3 VARIABLES STUDIED

The following standardized tools were administered at both baselines as Pre and at end of intervention as Post and after follow-up. The scoring for each assessment tool was adapted from the manual of the respective tools and instruments were selected for their validity and reliability in assessing the relevant constructs.

HOW I THINK QUESTIONNAIRE

The How I Think Questionnaire (HIT) developed by Barriga & Gibbs, 1996 assesses self-serving cognitive distortions in adolescents (12–21 years) using a Likert scale. It evaluates self-centered thinking, blaming others, minimizing, and assuming the worst. This tool is widely used to assess cognitive distortions and their impact on emotional well-being. With 54 items assigned with numerical values to responses on a 6-point Likert scale which are transferred to the score list. The scale is scored as follows: strongly disagree = 1, slightly disagree = 2, slightly agree = 3, agree = 4, strongly-agree=5, disagree=6. If a youth circles two response the one with higer one is coded and laso if one missing respons are more than five responses the protocol is considered invalid. If fewer than five responses are missing scoring the Anomalous Responding

(AR) Scale is done and the sum of the Likert scores for AR items is divided by the number of items to get the AR Mean which is then subtracted from 7 for the True AR Score. If the True AR Score is over 4.25, the protocol is discarded. If it is below 4.25, one sums the Likert scores for the cognitive distortion and behavioral referent scales, dividing it by the number of items, and rounded to two decimal places. The final HIT scores between 2.36-2.73 are considered as Nonclinical, between 2.77-2.97 as Borderline-clinical and scores ranging between-3.03-4.79 are considered as Clinical. The participants are instructed to reflect on how these statements describe their thinking over the past six months. Higher scores indicate a higher degree of cognitive distortion. The psychometric properties of the scale are well-established, and it is commonly used in studies assessing cognitive distortions and their effects on emotional well-being. The Cronbach's alpha for the HIT has been reported as 0.85, demonstrating high internal consistency. The scale has been shown to be valid and reliable for use with adolescent population.

EMOTIONAL REGULATION QUESTIONNAIRE FOR CHILDREN AND ADOLESCENTS (ERQ-CA)

The Emotional Regulation Questionnaire developed by Gross (2003) for Children and Adolescents (ERQ-CA) measures cognitive reappraisal and expressive suppression in adolescents (13–18 years). This instrument consists of 10 items, rated on a 7-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire includes items such as "When I want to feel more positive emotion, I change what I am thinking about" and "I keep my emotions to myself." The scale measures the strategies used by adolescents to regulate their emotional experiences. The scoring for ERQ-CA involves averaging the scores for each subscale. A higher score reflects a greater use of cognitive reappraisal or expressive suppression as an emotion regulation strategy. The items related to cognitive reappraisal are 1,

3, 5, 7, 8, and 10, while the items related to expressive suppression are 2, 4, 6, and 9. There is no reverse scoring in this scale. Higher scores on cognitive reappraisal are generally viewed positively, reflecting adaptive emotion regulation, while higher scores on expressive suppression might indicate a tendency to inhibit emotional expression, which is less associated with positive outcomes. An increase in cognitive reappraisal and a decrease in expressive suppression would typically be seen as a positive outcome, indicating a shift towards more adaptive emotion regulation. The Cronbach's alpha for the ERQ-CA is reported as 0.80, indicating good internal consistency for this instrument in adolescent populations.

HARE SELF-ESTEEM SCALE

The HARE Self-Esteem Scale developed by Shoemaker (1980) evaluates self-esteem in children (10–18 years) across home, peer, and school domains, showing good internal consistency (Cronbach's alpha 0.70–0.85). The scale consists of 10 items, rated on a 4-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." Examples of items include "I am not as popular as other people my age" and "My parents are proud of the kind of person I am." Reverse scoring is applied to items 1, 3, 5, 6, and 9. The total score is the sum of all item responses, with higher scores indicating better self-esteem. The scoring for the Hare Self-Esteem Scale involves averaging the scores across the 10 items. The scoring for the Hare Self-Esteem Scale uses the following values: "Strongly Agree" = 4, "Agree" = 3, "Disagree" = 2, "Strongly Disagree" = 1. Reverse scoring is applied to items 1, 3, 5, 6, and 9. The total score is then averaged across the 10 items, with a higher average indicating better self-esteem. The score range is from 1 to 4, with higher scores reflecting a greater sense of self-worth. The Cronbach's alpha for the Hare Self-Esteem Scale is 0.84, confirming its reliability and internal consistency for measuring self-esteem in adolescents.

SHORT WARWICK-EDINBURGH MENTAL WELL-BEING SCALE

The Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS) developed by Tennant et.al., 2007 consists of seven items assessing mental well-being in individuals (10–18 years) with strong reliability (Cronbach's alpha 0.84–0.91). It uses a 5-point Likert scale, ranging from "None of the time" to "All of the time." Examples of items include "I have been feeling optimistic about the future" and "I have been feeling useful." Higher scores indicate better mental well-being. The total score is calculated by summing the item scores, which are then transformed into metric scores using a conversion table. The psychometric properties of the SWEMWBS have been validated in various populations.

The raw scores are summed, with higher total scores reflecting better mental well-being. The total score ranges from 14 to 70, with higher scores indicating better mental well-being. The conversion table is used to transform raw scores into metric scores for context and comparison with population norms. The Cronbach's alpha for the SWEMWBS is reported as 0.89, indicating excellent internal consistency and reliability in measuring mental well-being.

DEPRESSION, ANXIETY, AND STRESS SCALE (DASS-21)

The Depression, Anxiety, and Stress Scale (DASS-21) developed by Lovibon S &Lovibond P (1995) assesses the levels of depression, anxiety, and stress experienced by individuals over the past week. It contains 21 items, and each item is rated on a 4-point Likert scale, ranging from "Did not apply to me at all" to "Applied to me very much, or most of the time." The DASS-21 measures three dimensions: depression, anxiety, and stress. Scores for each dimension range from 0 to 21, with higher scores indicating more severe symptoms. The scoring involves summing the item responses for each subscale and multiplying the total score for each by 2.

The scoring for DASS-21 involves summing the item responses for each of the three

subscales: Stress (S), Anxiety (A), and Depression (D). The total score for each subscale is multiplied by 2. The score range for each subscale is: Stress: 0-10 (Normal), 11-18 (Mild), 19-26 (Moderate), 27-34 (Severe), 35-42 (Extremely Severe): Anxiety: 0-6 (Normal), 7-9 (Mild), 10-14 (Moderate), 15-19 (Severe), 20-42 (Extremely Severe): Depression: 0-9 (Normal), 10-12 (Mild), 13-20 (Moderate), 21-27 (Severe), 28-42 (Extremely Severe) The Cronbach's alpha for the DASS-21 is 0.92, demonstrating excellent reliability for measuring psychological distress across these three dimensions.

BRIEF RESILIENCE SCALE (BRS)

The Brief Resilience Scale (BRS) developed by Smith et al.,2008 measures resilience by evaluating an individual's ability to recover from stress and adversity. It uses a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." The scale focuses on assessing an individual's ability to "bounce back" from difficulties. Higher scores indicate better resilience. The total score is calculated by summing the responses for all six items, and reverse scoring is applied to negatively worded items.

The total score ranges from 6 to 30, with higher scores reflecting better resilience. A score above 24 suggests high resilience, while scores below 18 indicate lower resilience. The Cronbach's alpha for the BRS is 0.85, indicating good internal consistency and reliability in measuring resilience.

CHILD AND ADOLESCENT MINDFULNESS MEASURE (CAMM)

The Child and Adolescent Mindfulness Measure (CAMM) consists of 10 items that assess mindfulness in children and adolescents. Each item describes a situation related to mindfulness, such as awareness of thoughts and feelings, non-judgment, and attention. The responses to these items are rated on a 5-point Likert scale, where 0 means "Never True," 1

means "Rarely True," 2 means "Sometimes True," 3 means "Often True," and 4 means "Always True."

To score the CAMM, you first reverse the scores for each item. This means changing a score of 0 to 4, 1 to 3, 3 to 1, and 4 to 0, while keeping the score of 2 unchanged. After reversing the scores, you sum all the individual item scores. The total score reflects the individual's level of mindfulness, with higher scores indicating higher levels of mindfulness.

The total score can range from 0 to 40. Higher scores correspond to better mindfulness, meaning the individual is more aware of their thoughts and feelings and can manage them more effectively. Lower scores suggest lower mindfulness, indicating challenges with awareness and emotional regulation. The CAMM is a valuable tool for assessing mindfulness in children and adolescents, providing insight into their ability to stay present, non-judgmental, and attentive to their thoughts and emotions.

WHY HIT SCALE FOR COGNITIVE DISTORTIONS WAS CHOOSEN

The HIT Questionnaire has been chosen as a therapeutic tool within the Yogic Counseling Module (YCM) because of its ability to assess cognitive distortions (CD) in a reliable and practical manner while tracking therapeutic progress over time. The HIT questionnaire is used as an investigative tool and for evaluation as therapeutic role, which aligned with the YCM study on improving clarity of thoughts, understanding of emotions, and behavior correction.

In this developmental phase of adolescents' individuals transition from a lack of self-awareness, characterized by the state of *"I do not know -what I do not know,"* to a more self-aware state of *"I do not know-What I should know"* giving clarith to understand their emotions

and behaviors. The HIT Questionnaire helps track this transformative process by assessing self-serving cognitive distortions, which often hinder adolescent growth.

The HIT Questionnaire plays a crucial role in evaluating such as self-centeredness, aggression, and impulsivity which are key outcomes of YCM and with correction of maladaptive behaviour adolescents will develop greater clarity in their thoughts and emotion leading to positive changes in their behavior.

The changes in the secondary variables such as emotional regulation, self-esteem, and social adaptation are presumed to be directional with changes in HIT scores. As adolescents show improvement in their cognitive distortions, there is a corresponding shift toward holistic development will also progress leading to cognitive clarity through regular assessments, which allows therapists to observe these shifts, helping them gauge the adolescent's evolving understanding of their internal world.

While the HIT Questionnaire has traditionally been used as an investigative tool for measuring self-serving cognitive distortions, its role within YCM as a therapeutic tool is invaluable. It not only tracks the reduction of cognitive distortions but also serves as a marker for evaluating emotional regulation, behavior correction, and holistic development in adolescents. Through its use, the HIT Questionnaire provides significant insights into the adolescent's therapeutic journey, from uncertainty to self-awareness, guiding the process of emotional and cognitive growth.

5.4 INTERVENTIONS

The module development in phases can be seen as Annexure.

YCM was conducted over 15 sessions for 45 minutes each, twice a week, for a total period of two months. Follow-up was conducted once a week for a period of three months. Each YCM

session included greetings with a short game or song followed by two minutes of silence, a discussion of the previous session's takeaways, and sharing of experiences lasting five minutes. A new topic based on ancient concepts, such as clarity of thoughts, mind and its working, triad of thought-feelings-and actions among other topics were discussed for 15 to 20 minutes. It was followed by a question-and-answer session for five minutes. Activities related to the concept of the day were conducted, followed by three minutes of silent sitting and recalling the learning of the day. The session concluded with a closing prayer. The active control group followed the protocol of Socially Useful Productive Work (SUPW), such as attending library sessions and engaging in book reading during the intervention and follow-up sessions.

5.5 DATA EXTRACTION

Data was obtained at the beginning of the study as pre data, after two months of intervention as a post data, and follow-up after two months of midline. Data scoring was conducted following the stipulated manual instructions of instruments.

5.6 DATA ANALYSIS

Responses were anonymized, entered into MS Excel and verified by two independent reviewers for accuracy. Data was analysed using SPSS 21-(Chicago, USA for normality and homogeneity of variance using the Shapiro-Wilk and Levene's tests, respectively $(p<0.05)$. Repeated measures analysis of variance (RM-ANOVA) was used to compare within-group and between-group differences over time. A 2x2 ANOVA was conducted to analyze the interactions between group (YCM vs. Control) and time (Pre vs. Post vs. Follow-up) across all 18 study variables. Pairwise comparisons were adjusted using Bonferroni correction, and Pearson's correlation was applied to determine relationships among self-reported variables.