Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2024; Vol 13: Issue 8
Open Access

Impact of structured intervention on multi-dimensional self-concept among secondary school students: A controlled comparative study

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Cite this paper as: Riya Sharma, Prof. Harishankar Singh (2024) Impact of structured intervention on multi-dimensional self-concept among secondary school students: A controlled comparative study". *Frontiers in Health Informatics,* 13 (8), 3448-3459

ABSTRACT:

The research examines how a structured school-based intervention affects the multidimensional self-concept of 9th-grade students in Lucknow. The research employed a pretest–post-test control group design to study 112 students who received equal distribution between experimental and control groups. The experimental group received 45 minutes of guided cyclic meditation every day throughout 03 month (working days)as part of their intervention while the control group maintained their regular academic activities. The Children's Self Concept Scale (CSCS-AS) measured self-concept through its evaluation of Behaviour, Intellectual and School Status, Physical Appearance and Attribute, Anexiety, Popularity , Happiness and Satisfaction dimensions. The experimental group participants outperformed the control group participants in all dimensions of the assessment after the intervention period. The study data demonstrated significant statistical results ($p < 0.05$) through independent samples t-tests which produced large effect sizes for all measured variables. The evaluation of structured meditation-based approaches demonstrates their ability to heighten adolescents' self-image and emotional wellbeing. This research supports adding evidence-based programs for self-concept development to secondary curriculum while demonstrating the importance of studying long-term effects on development through continuous research.

Key Words: Self-Concept, Structured Intervention, Secondary School Students, Adolescent Development, Educational Psychology.

1. INTRODUCTION

Self-concept, as a psychological construct, has emerged as a pivotal element in educational and developmental psychology due to its profound influence on learning, behavior, and emotional well-being. Self-concept represents the collection of individual perceptions about themselves and researchers now recognize it as a complex combination of various elements (Marsh & O'Mara, 2008). The notion of self-concept exists across multiple distinct domains that consist of academic abilities alongside social connections and emotional well-being and physical appearance along with self-directed behavior regulation mechanisms which collectively produce diverse aspects of personal perception.

Various studies have thoroughly documented the importance of self-concept during adolescence. During adolescence individuals form their identities when self-perceptions mature and take stronger influence on academic learning and social interactions and emotional stability (Munsie, 1992). Self-concept development shows moderation through gender and age while experiencing environmental and experiential factors such as peer relationships, educational exposure, and emotional experiences (Carroll et al., 2007). The development of adolescent self-concept requires essential interventions because they support psychological development and create motivation and resilience and school engagement.

Educational psychologists have developed and tested multiple structured programs to boost self-concept throughout the years. Research through meta-analysis demonstrates that targeted self-concept interventions produce meaningful positive results (O'Mara et al., 2006). School environments provide optimal conditions to deploy structured interventions that use reflective activities along with cognitive-behavioral strategies and social-emotional learning methods because students develop their self-perceptions during interactions with peers and academic activities (Haynes & Comer, 1990). School development programs demonstrate significant evidence of bettering students' sense of self-worth and behavioral regulation capabilities and academic self-confidence.

Research conducted by Liu et al. (2022) has extended the understanding of self-concept relationships by showing its impact on mental health and motivation and health-promoting actions. Research confirms that self-concept enhancement serves both psychological purposes and developmental needs for complete growth. Cross-cultural studies which examine Indigenous youth along with students who have learning disabilities demonstrate that interventions require contextual approaches that honor social and educational diversity (Bodkin-Andrews & Craven, 2006; Makhubu, 2014).

- The available evidence shows continued demand for controlled experimental studies which measure structured self-concept intervention effects by employing multidimensional assessment tools. This study addresses the existing research gap by evaluating the impact of a structured school-based intervention on secondary students' self-concept, using the **Children's Self Concept Scale (CSCS-AS) developed by Ahluwalia, S. P., & Singh, H. S. (n.d.)** as a validated tool that assesses Behaviour ,Intellectual and School Status,Physical Appearance and Attribute,Anexiety ,Popularity,Happiness and Satisfaction dimensions. Grounded in both theory and empirical precedent, this study seeks to answer the central research question: *Does a structured intervention significantly enhance the multidimensional self-concept of secondary school students compared to those who do not receive the intervention?*

Through a controlled comparative design, this research contributes to the ongoing discourse on enabling human potential via school-based self-process interventions, aligning with the perspectives of Marsh and colleagues (Marsh & O'Mara, 2008; O'Mara et al., 2006). The findings are anticipated to inform educational practice and policy by offering evidence-based strategies to support adolescent development through structured self-concept enhancement.

2. LITERATURE SURVEY

Educational and psychological research has consistently studied self-concept since Shultz (1965) conducted his cross-sectional study which demonstrated how self-concept develops across childhood and contains multiple dimensions in school-age boys. Shultz discovered that children develop their sense of self while running across various psychological stages and they show correlations with their learning conditions and social friendships. The research on self-concept has evolved to encompass physical, emotional and academic and social domains which independently influence adolescent development.

Research that followed original findings has validated the importance of self-concept as an intervention-responsive ability that can be influenced through therapeutic approaches. Haney (1995) conducted a thorough meta-analytic review which showed that school-based self-concept and self-esteem enhancement programs deliver positive results especially when programs maintain duration and align with developmental needs and integrate into educational curricula. According to Reynolds (1993) education serves as a fundamental influence on student self-concept development through interactions with teachers along with performance feedback along with classroom environment.

Baldwin (2017) conducted research to study the extended time relationship between how self-worth develops over time and depression rates among low-income urban adolescents. According to his research findings positive self-concept functions as both a support system for academic engagement

and an essential protection against mental health problems. The psychological importance of implementing self-concept strengthening interventions becomes clear when serving vulnerable youth groups. Carter (2004) conducted an extensive study about non-academic intervention impact on youth development and established that four years of dance education enhanced high school students' academic results and life satisfaction together with their body and creative identity self-images.

Physical self-concept research has received growing interest from scholars during the last few years. According to Garn et al. (2012) Basic Needs Theory proves that adolescent physical self-concept strongly affects global self-esteem and motivation particularly within sports and physical education settings. Schmidt et al. (2013) executed a ten-week physical education program whose structured physical activities improved participant self-concept concerning body image together with motor competence and fitness in ways that benefit holistic educational programs.

Gender-related dynamics create additional influences on the development of self-concept. Athenstaedt, Mikula, and Bredt (2009) studied how gender role self-concept shapes adolescent leisure activities and their psychosocial development and discovered that gender-typed self-perceptions affect both behavioral choices and psychological results. Research evidence demonstrates the necessity of gender-specific self-concept programs which recognize how boys and girls differently develop their adolescent self-identity.

Furthermore, Bracken (1992) Multidimensional Self Concept Scale (MSCS) has been extensively used in Indian educational research to measure students' self-concept in terms of behavioral, academic, social and physical attributes. This scale is both a reliable and contextually appropriate measure of constructs that should lend well to school-based assessment and is supported by the scale's structure. It was an ideal instrument for the present study, as it was established as a valid and relevant instrument to the Indian adolescent population.

Research evidence demonstrates that self-concept exists as multiple dimensions while educational and extracurricular programs with proper structure can modify these dimensions. Theory-based educational programs designed specifically for different age groups and particular domains consistently enhance students' self-perceptions throughout their academic life and emotional development and physical well-being and social abilities. Research demonstrates that different studies support the effectiveness of such interventions yet there exists insufficient validated evidence which utilizes multidimensional self-concept measures to compare domain-specific improvements through controlled comparisons.

This gap is addressed in the present research by analyzing the impact of a structured, school-based intervention on adolescent self-concept using the standardized Multidimensional Children's Self Concept Scale (CSCS-AS) measured self-concept through its evaluation of Behaviour Intellectual and School Status Physical Appearance and Attribute Anexiety Popularity Happiness and Satisfaction dimensions. This study employs a controlled comparative research design to systematically assess domain-specific changes and contribute reliable, evidence-based insights to the field of educational psychology.

3. METHDOLOGY

3.1 Research Design

The research design used a pre-test–post-test control group methodology to study how structured interventions affected secondary school students' multidimensional self-concept. The research design enabled researchers to compare self-concept results between students who received the intervention and students who did not participate in the program. The researchers chose this design to maintain methodological strength while adapting to the constraints of a natural educational environment for effective intervention assessment.

3.2 Participants

The research selected 112 students from 9th grade in Lucknow, using purposive sampling from educational institutions in the region. The participants, aged 13–18 years, were divided into two equal groups of 56 each. Consent was obtained from parents and school authorities prior to data collection. The research sample included participants from various gender groups and socio-academic backgrounds to achieve adequate representation of school-going adolescents.

3.3 Intervention

The intervention consisted solely of guided cyclic meditation sessions conducted over 03 months(working days). Each session lasted 45 minutes and was facilitated by trained instructors within the school environment. The cyclic meditation practice emphasized rhythmic movement, relaxation, and awareness techniques intended to promote self-awareness, emotional regulation, and holistic psychological development. The control group continued their standard academic schedule without receiving any additional intervention or psychological training.

3.4 Instrumentation

A standardized tool, the standardized Multidimensional Children's Self Concept Scale (CSCS-AS) was employed to assess self-concept. Standardized Multidimensional Children's Self Concept Scale (CSCS-AS) measured self-concept through its evaluation of Behaviour,Intellectual and School Status,

Physical Appearance and Attribute, Anxiety, Popularity, Happiness and Satisfaction dimensions. It has demonstrated high psychometric strength, with strong internal consistency and validity across school-aged populations, and is widely accepted for adolescent research in educational contexts.

3.5 Procedure

The research design consisted of three sequential stages including pre-test and intervention and post-test. Both experimental and control groups received the (CSCS-AS) to determine their initial self-concept scores. The experimental participants engaged in 40-minute cyclic meditation sessions every day for 03 months working days. The control participants maintained their regular school activities. The researchers readministered the (CSCS-AS) to every group following the intervention period. The study took place inside school buildings while researchers obtained ethical approval and collected informed consent and maintained full confidentiality from beginning to end.

3.6 Data Analysis

IBM SPSS Statistics (version 26) processed the gathered data. The post-test scores of both groups across all self-concept dimensions received descriptive statistical analysis through means and standard deviations. The research used independent samples t-tests to determine if the experimental and control groups showed statistically significant differences. The research used $p < 0.05$ as the threshold for hypothesis testing. The magnitude of intervention effects was determined through Cohen's d calculations executed across multiple domains. Bar graphs visually displayed the post-test comparative scores between groups to present the intervention effects across self-concept dimensions.

4. Results

This section presents the findings of the study aimed at evaluating the impact of a structured intervention on the multidimensional self-concept of secondary school students. Post-test comparisons were conducted between the control and experimental groups using descriptive statistics, inferential statistics, and effect size estimation. A graphical representation is also provided to visually demonstrate group differences.

4.1 Descriptive Analysis

Descriptive statistics revealed consistently higher post-test scores in all dimensions of self-concept for the experimental group compared to the control group. The most notable differences were observed in dimensions such as Behaviour, Intellectual and School Status, Popularity, and the overall Self-Concept

Total Score. **Table 1** presents the mean and standard deviation values for both groups across each dimension.

Table 1. Descriptive Statistics for Self-Concept Dimensions (Post-Test)

Dimension	Control Group (M ± SD)	Experimental Group (M ± SD)
Behaviour	9.14 ± 2.10	11.96 ± 2.00
Intellectual and School Status	9.80 ± 2.30	12.25 ± 2.10
Physical Appearance and Attributes	6.28 ± 1.90	8.67 ± 1.70
Anxiety	6.55 ± 2.20	9.42 ± 1.90
Popularity	5.71 ± 2.00	9.16 ± 1.80
Happiness and Satisfaction	5.16 ± 1.80	7.55 ± 1.70
Self-Concept Total Score	42.66 ± 5.50	59.03 ± 4.80
Self-Concept Level	4.03 ± 0.80	5.76 ± 0.70

4.2 Inferential Analysis

The researchers conducted independent samples t-tests to determine if the two groups had different statistical results. The structured intervention produced significant effects on self-concept domains because all t-values reached statistical significance at $p < 0.05$ (Table 2).

Table 2. Independent Samples t-Test Results (Post-Test)

Dimension	Mean Difference	t-Statistic
Behaviour	2.82	6.77
Intellectual and School Status	2.45	6.06
Physical Appearance and Attributes	2.39	6.43
Anxiety	2.87	6.83
Popularity	3.45	8.23
Happiness and Satisfaction	2.39	6.49
Self-Concept Total Score	16.37	15.19
Self-Concept Level	1.73	11.66

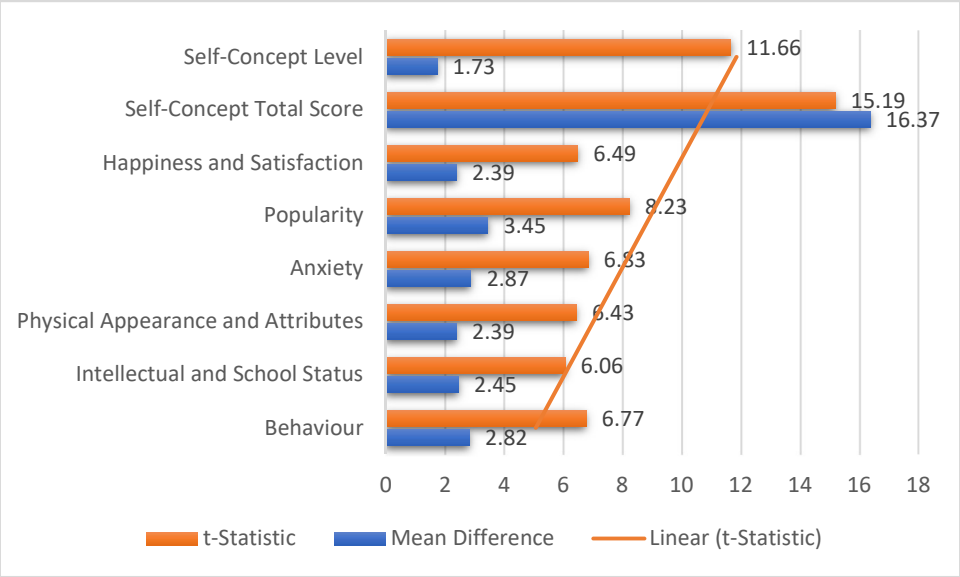

Figure 1: Post-test comparison of self-concept scores between control and experimental groups across multiple dimensions.

Figure 1 presents a comparative bar graph displaying the post-test mean scores of self-concept dimensions between control and experimental groups. The experimental group consistently outperformed the control group across all domains, including behavior, intellectual status, and happiness, highlighting the structured intervention's positive impact on students' multidimensional self-concept.

4.3 Effect Size Estimation

To evaluate the magnitude of the intervention's effect, Cohen's d values were calculated for each self-concept dimension. As presented in **Figure 2**, all values exceeded 0.80, indicating large effect sizes. Notably, the effect size for the total self-concept score (d = 3.10) and self-concept level (d = 2.47) suggests an exceptionally strong intervention impact.

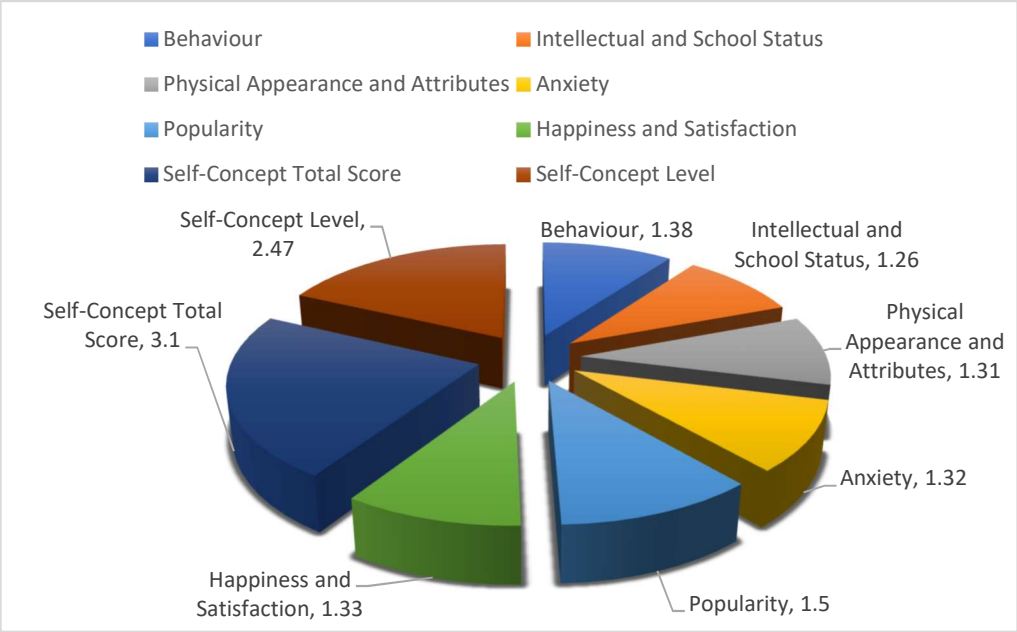

Figure 2: Effect Sizes (Cohen's d) for Self-Concept

Figure 2 illustrates the Cohen's d effect sizes for each self-concept dimension, showing the intervention's magnitude. All values exceeded the 0.80 threshold for large effects, with exceptionally high scores for overall self-concept and self-concept level. This confirms the intervention produced substantial improvements in students' psychological, academic, and social self-perception.

The combined analysis of descriptive data, t-test results, and effect sizes provides strong empirical support for the effectiveness of the structured intervention. The intervention significantly improved students' self-concept across behavioural, cognitive, emotional, and social dimensions. The statistical significance ($p < 0.05$) and large effect sizes reinforce the robustness of the findings and validate the use of structured self-concept enhancement programs in school settings.

5. Discussion

The findings of this study demonstrate that the structured intervention program significantly enhanced the multidimensional self-concept of 9th-grade students in Lucknow. Students in the experimental group showed notable improvements across all measured domains, including behavior, intellectual and school status, physical appearance, anxiety, popularity, and happiness and satisfaction, as compared to the control group. These results confirm that well-designed, school-based psychological interventions can positively influence adolescent self-perception.

The use of the standardized Children's Self Concept Scale Dr. S. P. Ahluwalia Dr. Harishankar Singh, provided a validated and contextually appropriate tool for assessing the psychological, academic, and social dimensions of self-concept among adolescents. Its application in this study ensured reliability and comparability with previous educational research conducted in Indian school settings.

The intervention's significant impact aligns with existing literature supporting structured, reflective programs in schools. As Marsh and O'Mara (2008) emphasized, self-concept is a multifaceted construct responsive to academic, emotional, and social influences. The observed improvements, particularly in intellectual and school status, echo Reynolds' (1993) findings on the influence of classroom experiences and feedback on academic self-belief.

Behavioral and social gains noted in the study reflect earlier conclusions by Haynes and Comer (1990) and Carter (2004), who found that well-structured, non-academic interventions enhance not only student engagement but also social confidence and peer relationships. Notably, the reduction in anxiety scores in the experimental group highlights the therapeutic value of the intervention's reflective and group-based activities, in line with Liu et al. (2022), who demonstrated the connection between self-concept and adolescent mental health.

The use of a culturally relevant standardized tool helped ensure that the assessment aligned with the developmental background and socio-educational context of the participants. Its established psychometric properties and prior use in similar settings contributed to the robustness of the findings. This approach aligns with calls for contextualized interventions and assessments found in the work of Bodkin-Andrews & Craven (2006) and Makhubu (2014), especially in diverse or underrepresented populations.

However, this study also has its limitations. It lacked long-term follow-up data to determine whether the self-concept improvements would be sustained over time. Additionally, while gender was not the focus of this study, future research could explore gender-specific patterns in self-concept development, as highlighted by Carroll et al. (2007) and Athenstaedt et al. (2009).

Overall, the study provides strong empirical evidence supporting the integration of structured self-concept enhancement programs into the secondary school curriculum. The results affirm the value of school-based interventions in promoting adolescents' emotional, cognitive, and social development when assessed with tools specifically designed for the target population.

6. Conclusion

The research explored the power of structured intervention programming for developing multidimensional self-concept among 9th-grade students in Lucknow through Children's Self Concept Scale Dr. S. P. Ahluwalia Dr. Harishankar Singh. The research data showed that the implemented intervention produced substantial improvements in all behavioral academic emotional and social aspects of self-concept. The experimental group participants achieved significant improvements which exceeded those of the control group across dimensions of self-awareness together with interpersonal sensitivity and emotional stability. The Children's Self Concept Scale demonstrated reliability as well as contextual appropriateness in measuring self-concept of adolescents when used in educational school settings. Structured intervention programs including cyclic meditation have shown promise for promoting comprehensive psychological growth of young people based on this reported evidence. This research provides validated data for the integration of this type of program within standard educational school curricula. Future studies must address multiple research needs because the findings demonstrate how long-term impact analysis and variable examination like gender and culture and socioeconomic status affect results. This research confirms that established evidence-based interventions which employ potent psychometric equipment deliver important benefits for enhancing the personal and emotional development of school-aged students.

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