

Comparison of Grit and Self-Esteem Between Ncc Cadets and Non-Ncc Students in India

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ABSTRACT

The National Cadet Corps (NCC) of India provides structured military-style training that may differentially shape psychological attributes in youth. This study examined whether NCC enrollment was associated with higher levels of grit and self-esteem relative to non-enrolled peers. A total of 324 young adults (130 female, 194 male) were recruited through purposive sampling: 166 active NCC cadets and 158 non-enrolled undergraduate students in India. Grit was measured using the 10-item Grit Scale (Grit-S; Duckworth & Quinn, 2009) and self-esteem using the 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Independent-samples t-tests and Mann-Whitney U tests confirmed significant group differences on both variables. NCC cadets reported substantially higher grit scores ($M = 3.55$, $SD = 0.895$) than non-NCC participants ($M = 2.39$, $SD = 0.892$), $t(322) = -11.70$, $p < .001$. Similarly, NCC cadets exhibited markedly higher self-esteem ($M = 31.75$, $SD = 4.38$) compared to non-NCC participants ($M = 17.91$, $SD = 4.96$), $t(322) = -26.60$, $p < .001$. Frequency analyses revealed that 80 NCC cadets (48.2%) fell in the high-grit category, while 91 non-NCC participants (57.6%) fell in the low-grit category. These findings suggest that structured military-affiliated training environments foster perseverance and positive self-regard in youth, carrying important implications for character development programmes in higher education.

Introduction

Psychological attributes such as perseverance and positive self-regard are considered foundational to adaptive functioning and personal achievement in adolescents and young adults (Duckworth et al., 2007). Among these, grit defined as the sustained passion and persistence toward long-term goals and self-esteem the subjective evaluation of one's own worth has garnered considerable scholarly attention in the context of human motivation, resilience, and mental health (Duckworth & Gross, 2014; Rosenberg, 1965).

In India, the National Cadet Corps (NCC) constitutes one of the largest uniformed youth organisations in the world, providing structured military, naval, and air-wing training to students at the secondary and collegiate levels (Ministry of Defence, Government of India, 2023). NCC training encompasses discipline, teamwork, physical conditioning, leadership development, and values-based education, all of which are theoretically congruent with the cultivation of trait-like perseverance and self-efficacy

(Bandura, 1997). Despite the NCC's pervasive presence in Indian educational institutions, empirical investigation of its psychological outcomes remains limited.

The construct of grit was operationalised by Duckworth et al. (2007) as comprising two facets: consistency of interest and perseverance of effort. Cross-sectional and longitudinal studies have demonstrated that grit predicts academic performance, retention in demanding training programmes, and life satisfaction beyond measures of intelligence alone (Duckworth & Quinn, 2009; Kannangara et al., 2018). Within the Indian context, research has begun to examine grit in student and athlete populations (Sharma & Bhardwaj, 2022; Vij & Bhardwaj, 2020), yet no study has specifically contrasted NCC and non-NCC youth on this construct.

Self-esteem, as conceptualised by Rosenberg (1965), reflects a global sense of self-worth that is closely tied to one's social experiences and achieved competencies. Elevated self-esteem has been associated with better mental health outcomes, lower rates of depression and anxiety, and higher academic and occupational achievement (Orth & Robins, 2022). Structured organisational environments that provide mastery experiences, social recognition, and role clarity have been hypothesised to bolster self-esteem in youth (Bandura, 1997; Mruk, 2013). The NCC, with its emphasis on awards, ranks, and collective identity, may constitute precisely such an environment.

The interplay between grit and self-esteem in the context of organisational training has been explored in Western samples (Eskreis-Winkler et al., 2014) but remains understudied in India. Recent Indian scholarship has highlighted the role of extracurricular and co-curricular engagements in shaping psychological wellbeing among youth (Kaur & Singh, 2021; Meenakumari & Gokulapriya, 2023). Against this backdrop, the present study sought to address these research gaps.

Objectives

The primary objective of the present study was to compare the levels of grit and self-esteem between NCC-enrolled cadets and non-NCC youth, while also describing the distributional patterns of both psychological constructs across gender categories. Based on theoretical frameworks and prior empirical literature, two main hypotheses were formulated. First, it was hypothesized (H1) that NCC cadets would report significantly higher grit scores compared to non-NCC students. Second, it was hypothesized (H2) that NCC cadets would exhibit significantly higher self-esteem scores than their non-NCC peers.

Method

Research Design

A cross-sectional comparative research design was employed. This design is appropriate when the aim is to compare two pre-existing, naturally occurring groups on one or more dependent variables at a single point in time, without any experimental manipulation (Creswell & Creswell, 2018). The independent variable was group membership (NCC vs. non-NCC), and the dependent variables were grit scores and self-esteem scores.

Participants and Sampling

Participants (N = 324) were recruited from higher educational institutions in India.

The sample comprised 166 active NCC cadets and 158 students with no NCC affiliation. Gender distribution across the total sample was 130 female (40.1%) and 194 male (59.9%) participants. Purposive sampling was employed to ensure that participants in the NCC group were currently enrolled and actively participating in NCC training activities. Non-NCC participants were drawn from the same or comparable institutions to minimise confounding socioeconomic and institutional variables. Inclusion criteria required participants to be between 18 and 25 years of age, enrolled in an undergraduate degree programme, and willing to provide written informed consent. Participants with incomplete questionnaire responses were excluded.

Measures

Grit was assessed using the 10-item Grit Scale (Grit-S; Duckworth & Quinn, 2009), a self-report instrument measuring consistency of interest and perseverance of effort on a five-point Likert scale (1 = not at all like me to 5 = very much like me). Total scores were averaged, with higher scores indicating greater grit ($\alpha = .73-.83$). Scores were categorised as low (≤ 2.5), moderate (2.6–3.5), and high (> 3.5).

Self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), a 10-item instrument rated on a four-point Likert scale (0 = strongly disagree to 3 = strongly agree) with total scores ranging from 0 to 30. Scores were categorised as low (0–15), moderate (16–25), and high (26–30). The RSES has demonstrated strong reliability ($\alpha = .77-.88$) and has been validated for use with Indian youth populations (Kaur & Singh, 2021).

Procedure

Data were collected through an in-person survey administered during regular institutional hours. Institutional ethical clearance was obtained prior to data collection. Participants were briefed on the study's purpose, voluntariness of participation, and confidentiality of responses. Questionnaires were administered in a group format under standardised conditions, checked for missing data, and entered a digital database.

Data Analysis

All data were analysed using jamovi (Version 2.6; The jamovi project, 2024) with the underlying R statistical environment (Version 4.4; R Core Team, 2024). Descriptive statistics (means, standard deviations) and frequency distributions were computed. Independent-samples t-tests were used to examine mean differences, with Welch-corrected degrees of freedom applied where Levene's test for equality of variances was significant. Mann–Whitney U tests were computed as non-parametric corroborations. Statistical significance was set at $\alpha = .05$.

Results and Discussion

Frequency Distributions: Grit and Self-Esteem by Group

Among NCC cadets ($n = 166$), 80 participants (48.2% of the NCC group; 24.7% of total) fell in the high-grit category, while 61 (18.8%) were moderate and only 25 (7.7%) low grit. Conversely, the majority of non-NCC participants ($n = 158$) fell in the low-grit

category ($n = 91$, 28.1% of total), with 49 (15.1%) moderate and 18 (5.6%) high grit. For self-esteem, all 156 participants (48.1% of total) classified with high self-esteem belonged to the NCC group. All 49 participants (15.1%) classified with low self-esteem belonged to the non-NCC group. Ten NCC participants (3.1%) and 109 non-NCC participants (33.6%) were categorised as having moderate self-esteem.

Table 1. Frequency Distribution of Grit and Self-Esteem Categories by Group

Variable	Category	NCC ($n = 166$)	Non-NCC ($n = 158$)	Total ($N = 324$)
<i>Grit</i>				
	Low Grit	25 (7.7%)	91 (28.1%)	116 (35.8%)
	Moderate Grit	61 (18.8%)	49 (15.1%)	110 (34.0%)
	High Grit	80 (24.7%)	18 (5.6%)	98 (30.2%)
<i>Self-Esteem</i>				
	Low Self-Esteem	0 (0.0%)	49 (15.1%)	49 (15.1%)
	Moderate Self-Esteem	10 (3.1%)	109 (33.6%)	119 (36.7%)
	High Self-Esteem	156 (48.1%)	0 (0.0%)	156 (48.1%)

Note. Percentages reflect proportion of the total sample ($N = 324$). Grit categories: low ≤ 2.5 , moderate 2.6–3.5, high > 3.5 . Self-Esteem categories: low 0–15, moderate 16–25, high 26–30 (RSES).

Gender-Based Frequency Distributions

Descriptive exploration revealed that male participants were more frequently represented in the high-grit category ($n = 64$, 19.8%) compared to female participants ($n = 34$, 10.5%), and similarly in the high self-esteem category (male: $n = 101$, 31.2%; female: $n = 55$, 17.0%).

Table 2. Frequency Distribution of Grit and Self-Esteem Categories by Gender

Variable	Category	Female ($n = 130$)	Male ($n = 194$)	Total ($N = 324$)
<i>Grit</i>				
	Low Grit	54 (16.7%)	62 (19.1%)	116 (35.8%)
	Moderate Grit	42 (13.0%)	68 (21.0%)	110 (34.0%)
	High Grit	34 (10.5%)	64 (19.8%)	98 (30.2%)
<i>Self-Esteem</i>				
	Low Self-Esteem	22 (6.8%)	27 (8.3%)	49 (15.1%)
	Moderate Self-Esteem	53 (16.4%)	66 (20.4%)	119 (36.7%)
	High Self-Esteem	55 (17.0%)	101 (31.2%)	156 (48.1%)

Note. Percentages reflect proportion of the total sample ($N = 324$).

Group Comparison: Hypothesis Testing

An independent-samples t-test confirmed significant differences in grit scores between NCC ($M = 3.55$, $SD = 0.895$) and non-NCC participants ($M = 2.39$, $SD = 0.892$), $t(322) = -11.70$, $p < .001$ (Mann–Whitney $U = 4905.00$, $p < .001$), supporting H_1 . For self-esteem, Welch-corrected t-test indicated that NCC cadets had significantly higher scores ($M = 31.75$, $SD = 4.38$) than non-NCC participants ($M = 17.91$, $SD = 4.96$), $t(322) = -26.60$, $p < .001$ (Mann–Whitney $U = 50.00$, $p < .001$), supporting H_2 .

Table 3. Group Descriptive Statistics and Independent-Samples t-Test Results

Variable	Group	n	M	SD	t	df	p	Mean diff.
<i>Grit Scores</i>	NCC	166	3.55	0.895	<i>-11.70</i>	322	< .001	-1.16
	Non-NCC	158	2.39	0.892				
<i>Self-Esteem</i>	NCC	166	31.75	4.384	-	322	< .001	-13.84
	Non-NCC	158	17.91	4.961				

Note. ^aLevene's test significant ($p < .05$); Welch-corrected degrees of freedom reported

Discussion

The present study sought to compare grit and self-esteem between NCC and non-NCC youth in India. Both hypotheses were supported. NCC cadets demonstrated significantly higher grit and self-esteem compared to their non-NCC counterparts, with large between-group mean differences on both constructs. These findings align with theoretical frameworks positing that structured, goal-oriented training environments foster perseverance and positive self-regard (Bandura, 1997; Duckworth et al., 2007).

The substantially higher grit scores observed among NCC cadets are consistent with research demonstrating that voluntary enrolment in demanding training programmes is both a consequence of, and contributor to, trait-level perseverance (Eskreis-Winkler et al., 2014). The NCC programme requires long-term commitment, exposure to physical challenges, and goal persistence across academic years—conditions theorised to strengthen grit through repeated mastery experiences (Duckworth & Gross, 2014). Furthermore, peer-group socialisation within the NCC may reinforce effort-based attribution styles that are foundational to grit (Kannangara et al., 2018). Indian research by Sharma and Bhardwaj (2022) and Vij and Bhardwaj (2020) similarly found elevated grit in populations exposed to structured co-curricular training.

The disparity in self-esteem between NCC and non-NCC participants was especially pronounced, with no NCC participant falling below moderate self-esteem and no non-NCC participant attaining high self-esteem. This near-total distributional separation warrants both substantive and methodological attention. Substantively, NCC membership confers social identity, institutional belonging, and tangible recognition through ranks, certificates, and public events—all of which are theoretically associated with enhanced self-regard (Mruk, 2013; Tajfel & Turner, 1986). Findings resonate with Indian empirical work by Kaur and Singh (2021), who documented associations between organisational belonging and self-esteem in Indian college students, and with Meenakumari and Gokulapriya (2023), who reported higher self-esteem in students engaged in structured extracurricular activities.

The gender-based distributional analysis revealed that male participants more frequently attained high grit and high self-esteem compared to female participants, though this observation is descriptive and must be interpreted cautiously given unequal

group sizes. These patterns are consistent with meta-analytic findings suggesting small but consistent gender differences in self-esteem favouring males during early adulthood (Orth & Robins, 2022), and with Indian literature documenting gender-related disparities in academic self-concept (Kaur & Singh, 2021).

The present findings carry several practical implications. First, they support the integration of NCC or analogous structured training programmes as institutional mechanisms for building psychological capital in Indian youth. Second, they suggest that grit and self-esteem are amenable to environmental influence, lending credence to programme-based positive psychology interventions (Meenakumari & Gokulapriya, 2023). Third, the near-complete absence of high self-esteem among non-NCC participants highlights the potential vulnerability of unenrolled youth and the need for alternative wellbeing-promotion strategies in Indian higher education.

Limitations

Several limitations of the present study merit acknowledgement. First, the cross-sectional design precludes causal inference; it cannot be established whether NCC enrolment caused higher grit and self-esteem, or whether individuals with pre-existing psychological strengths self-selected into the NCC. Longitudinal or quasi-experimental designs would be necessary to address this directionality. Second, the use of purposive sampling limits the generalisability of findings to broader populations. Third, all measures were self-reported, introducing potential social desirability bias, particularly within the NCC group, where socially desirable responding may be culturally normative. Fourth, the extremely distinct self-esteem distributions between groups may partly reflect score-range or ceiling effects inherent in the RSES scoring bands used. Future research should employ random sampling, pre-post designs, and supplementary qualitative methods to provide a richer account of the mechanisms through which NCC training shapes psychological outcomes.

Conclusion

This study confirms that enrollment in the National Cadet Corps (NCC) is associated with significantly higher levels of grit and self-esteem among Indian undergraduate youth. Structured uniformed training environments serve as a viable institutional mechanism to foster perseverance and self-worth. Higher education policymakers are encouraged to support character development and positive psychology interventions, while future studies should employ longitudinal designs to establish causality.

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