

RESEARCH ARTICLE



NSS volunteers' growth through service: self-efficacy, mattering and well-being

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ABSTRACT

Evidence suggests that volunteering plays an important role in the lives of youth, even when the engagement is through short-duration camps. While some Indian studies have explored well-being outcomes, limited research integrates mattering, self-efficacy, and psychological well-being, highlighting a gap in understanding volunteering as a holistic pathway for youth development. To address this gap, the current mixed-methods study investigated how undergraduate students' psychological well-being, mattering, and self-efficacy were affected by a five-day National Service Scheme (NSS) camp. The sample consisted of 40 NSS volunteers and 40 non-NSS peers of the same institution. According to the quantitative findings Mattering, autonomy, and environmental mastery were all positively impacted by camp participation. Three organising themes emerged from the qualitative findings and together, those themes formed the overarching theme of *volunteering as a pathway to feeling valued, capable, and empowered*, highlighting implications for youth development and well-being within educational and community settings.

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Volunteering; National Service Scheme; mattering; self-efficacy; psychological well-being; youth

Background of the study

Youth developmental outcomes are viewed as multidimensional, process-driven phenomena that extend beyond academic achievement (Benson & Saito, 2001). They encompass psychosocial competencies that require strengthening to support holistic development (de Carvalho & Veiga, 2022). Contemporary youth developmental programmes emphasize the integration of these capacities to promote positive developmental outcomes (García-Poole et al., 2019). In a rapidly transforming global society, fostering such competencies among college students has become increasingly important (Zhylin et al., 2022). Consequently, higher education (HE) institutions are expected to systematize need-based initiatives that cultivate psychosocial competencies while promoting social accountability among students (Kayyali, 2024).

Within this institutional responsibility, volunteerism among college students has emerged as a socially accountable initiative in HE (Berei, 2020). Utemisova (2025) highlighted volunteering as a mechanism for addressing community challenges while promoting professional ethics among students. Student volunteering capacity represents a process-oriented endeavour that connects institutional values in HE with students' developmental outcomes, particularly through strengthening responsibility and employability (Holdsworth & Brewis, 2014). Furthermore, volunteering promotes value-based practices, service learning and civic engagement, thereby reinforcing institutional social accountability and work ethics (Liu, 2026). These contributions highlight the relevance of incorporating structured volunteering initiatives within HE settings.

The curricular integration of volunteering within HE institutions has been supported through structured motivation systems, competency-based training modules and practical social projects that enhance experiential learning and civic education (Utemisova, 2025). Nguyen et al. (2025) highlighted that competency-based integration of volunteering skill sets can contribute to student-led frameworks for lifelong learning.

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Similarly, volunteering has been positioned as a need-based model of experiential learning within community-oriented frameworks (Høgenhaven, 2025). Participation in volunteering activities has been associated with competence development, self-esteem, community cohesion, interpersonal relationships, personal growth and overall well-being (Mbah & Williams, 2025). Within the Indian HE context, the National Service Scheme (NSS) represents an institutionalized volunteering initiative that facilitates ethical development, cultural awareness and interpersonal growth among college students through structured service activities (Mandal, 2024).

The NSS is a service-oriented programme, an initiative by the Government of India under the Ministry of Youth Affairs and Sports and implemented across Indian colleges. Guided by the vision of 'NOT ME BUT YOU,' it aims to facilitate holistic youth development through selfless service initiatives and community engagement (Mandal, 2024). Nabi et al. (2024) highlighted NSS as a platform that engages university and college students in community service activities within the Indian context. Through its curriculum framework, NSS facilitates the development of soft skills, including service-mindedness, social consciousness, responsibility, teamwork, decision-making, problem-solving, leadership and professional development (Lal, 2015; Mudi, 2025).

The implementation of a volunteering curriculum model has impelled college educators as stakeholders to examine the link between the regularization of volunteering initiatives, institutionalized motivational processes and outcomes on subjective well-being (Cuddy et al., 2025). Similarly, Luque-Suárez et al. (2021) found that integrating volunteering strengthens positive dispositional attributes among college students, thereby improving their psychological and physiological health. Therefore, HEIs are urged to further promote volunteering through pedagogical efforts and guide students in channelizing reasoning patterns, resolving affective distress and addressing maladjustment among college students (Green, 2018).

Literature review

Volunteering in higher education: short- versus long-term volunteering

Research has identified volunteerism as an important mechanism for promoting professional ethics, self-expressivity and civic engagement among college students. Alzaareer (2025) highlighted volunteerism as a resource for self-expressivity and civic engagement while emphasizing the need for context-specific research. Similarly, Francis (2011) highlighted the underutilization of college students and stressed the importance of standardizing volunteerism within university environments. A structured volunteering programme provides consistency in opportunities for personal growth, social responsibility and skill development while ensuring meaningful community involvement through organized frameworks for participation, training, reflection and evaluation (Francis, 2011). Such structured approaches strengthen the potential of volunteering initiatives to generate meaningful student experiences. Furthermore, reinforcing intergroup altruistic actions has been suggested as a means of developing self-efficacy, well-being and benevolence among students (Peak & McGarty, 2025).

Within HE, volunteering opportunities have been incorporated through differentiated approaches to support sustainable educational practices (Chen et al., 2023). The nature and duration of volunteering experiences influence the extent and form of the associated outcomes. Short-term volunteering experiences during college years can foster a service-oriented mindset and contribute to flourishing adulthood (Bowman et al., 2010), whereas sustained engagement may facilitate the development of intrinsic and extrinsic competencies (Trupp, 2017). These distinctions highlight the importance of examining volunteering experiences according to their duration, structure and purpose.

Empirical evidence suggests that volunteering experiences of varying durations can produce meaningful outcomes, with their impact influenced by factors such as programme structure and intensity. Longer-term volunteering programmes have been associated with improvements in knowledge, attitudes and civic engagement following a ten-week intervention (Farouk Saleh et al., 2025), enhanced social and moral development through a four-month programme (Fatharini et al., 2024) and improved well-being outcomes through a six-month peer-led initiative (Kwan et al., 2023). Similarly, shorter-duration interventions have also demonstrated positive outcomes, including changes in motivation and commitment after a one-day programme (Aziz et al., 2025), increased competence and self-efficacy following a one-week service-

learning experience (Davis et al., 2021), and sustained social responsibility after brief volunteering engagement (Reed et al., 2005).

Comparative research suggests that while sustained volunteering may facilitate deeper and more stable outcomes through continued engagement, short-duration volunteering can also generate meaningful changes when experiences are intensive, structured and socially engaging (Elias et al., 2016; Hartenian, 2008). Short-term programmes may influence students through concentrated experiential learning, emotional engagement and rapid role adaptation, whereas long-term volunteering benefits may develop through sustained commitment and repeated involvement (Basińska & Jeran, 2014; Blais et al., 2017). Collectively, these findings suggest that the outcomes of volunteering may vary according to the duration, intensity and structure of the volunteering experience.

Psychosocial outcomes of volunteering

Previous research has identified diverse psychological and social outcomes associated with volunteering among college students, including mattering, self-efficacy, psychological well-being, social competence, belongingness, empathy and civic responsibility. With regard to mattering, previous studies have noted that it develops when individuals feel recognized and valued by others, strengthening their sense of relevance, significance and dependability within social contexts while encouraging purposeful contributions towards community needs (Botero et al., 2025). Paradisi et al. (2024) further examined mattering in relation to self-confidence, meaning and social competence. The conceptualization of mattering comprises two experiential dimensions: feeling valued by others and possessing the capacity to add value to others' lives (Prilleltensky, 2020). The importance of fostering mattering through value-driven community initiatives and its relevance among college students has also been emphasized in previous research (Flett, 2022; Scarpa et al., 2022). Similarly, action-oriented approaches promoting mattering among college students have been found to encourage collective responsibility, meaningful engagement and collective well-being (MacLeod, 2022).

Volunteerism has also been associated with social problem-solving capacities, self-efficacy and well-being through the development of adaptive problem-solving strategies (Lau et al., 2019). Furthermore, gaining better social skills through volunteering has been shown to positively impact an individual's overall well-being (Brown et al., 2012). The role of mentoring in strengthening self-efficacy among college students has been highlighted by Mulle et al. (2024), while youth empowerment processes have been identified as contributing to self-efficacy development and informing the need for mixed-method research in policy development (Morton & Montgomery, 2011). Despite these findings, empirical limitations remain regarding how self-efficacy is integrated and evaluated within volunteering initiatives. Further research is therefore needed to examine the development of inclusive volunteer interventions that effectively support self-efficacy outcomes (Alganami & El Keshky, 2025).

Research has also examined the relationship between volunteering and broader psychological outcomes, with volunteering being associated with self-development, growth mindset, belongingness, self-efficacy and student well-being (Mbah & Williams, 2025). Structured peer-support initiatives have demonstrated the potential of volunteering-related activities to strengthen empathy, self-efficacy and reduce mental health stigma among college students (Abrams et al., 2022). Similarly, volunteering has been positively associated with college students' well-being (Trupp, 2017), while contemporary volunteering interventions have contributed to civic engagement and social responsibility (Ergün & Ergün, 2025). Taken together, previous literature indicates that volunteering is associated with multiple psychological and social outcomes, supporting further examination of how structured volunteering experiences influence students' psychological functioning.

Theoretical framework of the study

Psychological sense of community (PSOC) is a theoretical framework developed by McMillan and Chavis (1986), who conceptualizes a sense of community through four elements: membership, influence, integration and fulfilment of needs and shared emotional connection. Membership reflects individuals' sense of belonging and personal relatedness, whereas influence represents the perception of mattering and the

ability to make a difference within a group. Integration and fulfilment of needs refer to the extent to which community membership satisfies individuals' needs, while shared emotional connection reflects members' commitment through shared histories, experiences and interactions (McMillan & Chavis, 1986). Within volunteering contexts, collective service activities may provide opportunities for sustained social interaction and shared objectives, thereby strengthening belongingness and individuals' perceptions of their relevance within community settings.

Positive Youth Development (PYD) was initially theorized by Lerner et al. (2005), highlighting five developmental dimensions: competence, confidence, connection, character and caring. These five Cs contribute to the development of the sixth C, contribution, through which young people actively participate in and positively influence their families, schools and communities. From a PYD perspective, youth are more likely to thrive when they are situated within supportive environments that provide opportunities for meaningful engagement, skill development and contribution (Benson et al., 2006).

Mattering theory was originally conceptualized by Rosenberg and McCullough (1981) and further expanded by Prilleltensky (2020). The theory emphasizes that both recognition and contribution are essential components of individual well-being and social connectedness. Within volunteering contexts, participation in meaningful social roles may provide experiences of visibility, usefulness and contribution, enabling young people to perceive themselves as valued members of their communities. Research has further indicated that structured volunteering activities can enhance students' social awareness, teamwork abilities and perceptions of social value (Ergün & Ergün, 2025), which may contribute to the development of mattering.

The present study integrates PYD, PSOC and Mattering Theory to conceptualize NSS volunteering as a developmental context. PSOC explains the relational processes underlying collective engagement and community belonging (McMillan & Chavis, 1986), whereas PYD conceptualizes volunteering as a strengths-based opportunity for youth development through competence, connection and contribution (Benson et al., 2006). Mattering theory provides a psychological perspective for understanding how youth internalize these experiences through perceptions of being valued and capable of creating value for others (Prilleltensky, 2020). Together, these frameworks provide a basis for examining NSS volunteering as a community-oriented developmental experience in which collective participation may contribute to self-efficacy, mattering and psychological well-being among students.

Purpose of the study

In the Indian context, NSS provides a structured volunteering platform through which college students engage in community-oriented activities and develop psychosocial competencies. NSS volunteering involves voluntary participation in community service activities, where students engage based on their interest and commitment rather than through compulsory academic requirements (Ministry of Youth Affairs and Sports, n.d.). Research on NSS-based activities has highlighted its relevance in strengthening resilience, self-efficacy, social responsibility and community participation among students. NSS-based extracurricular sessions have been identified as valuable opportunities for enhancing resilience and self-efficacy among students (Verma & Zafari, 2025). Research has further emphasized the need to diversify youth development opportunities that promote capacity building, social responsibility, community participation and engagement with intergenerational challenges (Saikia & Rajalakshmi, 2022). NSS participation has also been associated with youth self-confidence, perceptions of being valued within communities and holistic well-being through meaningful engagement in NSS activities (Parmar, 2019). Additionally, research has highlighted the importance of developing social consciousness and psychosocial competencies among college students through structured volunteering experiences (Chauhan & Kharumnuid, 2015).

While existing research has demonstrated that NSS participation is associated with a range of psychosocial outcomes and developmental competencies, including motivation, civic engagement, empathy, prosocial behaviour, leadership skills and interpersonal competence among students (Kumari & Krishnan, 2024; Lobo et al., 2025; Praveen et al., 2024), these outcomes have largely been examined in isolation. Similarly, volunteering research has explored outcomes related to personal development and psychological well-being (Elias et al., 2016; Kumar et al., 2012). However, limited empirical attention has been given to the integrated examination of self-efficacy, mattering and psychological well-being within NSS-based volunteering experiences. Understanding how these

psychological constructs interact may provide deeper insight into the developmental processes underlying NSS participation.

Previous volunteering research has examined developmental outcomes through diverse methodological approaches. Abrams et al. (2022) used a pre-post quasi-experimental design to examine a one-year peer-led volunteering intervention, demonstrating improvements in empathy and self-efficacy among participants. Alzaareer (2025) adopted a phenomenological approach to explore participants' experiences of sustained engagement in a two-year volunteering programme. Similarly, Barr and McNamara (2022) employed a survey-based descriptive-comparative-correlational design to examine the relevance of long-term volunteering experiences. Hwang et al. (2023) implemented a structured instructional intervention that guided participants in identifying community concerns and developing solutions, thereby contributing to social accountability, community engagement and community-oriented outcomes. Although these studies provide valuable insights into volunteering outcomes, they have predominantly adopted single-method approaches and focused on sustained volunteering experiences. This highlights the need for mixed-method investigations that integrate measurable psychological outcomes with participant reflections, particularly within short-duration volunteering contexts.

Volunteering has been associated with diverse psychological and social outcomes, including social and emotional well-being, belongingness, self-esteem, purpose, social responsibility and psychological well-being among young adults (Brown et al., 2012; Luque-Suárez et al., 2021). Within this literature, *matter*ing reflects individuals' perceptions of being valued and significant to others, while self-efficacy represents perceived competence and agency in managing tasks and challenges. However, the relationship among these psychological constructs within structured volunteering experiences, particularly within the Indian HE context, remains insufficiently understood.

The present study is grounded in the assumption that volunteering experiences provide opportunities for students to develop perceptions of value, competence and agency. Even within short-duration interventions such as NSS camps, engagement in collaborative tasks, responsibility-taking, problem-solving and community interaction may facilitate psychological development (Brown et al., 2012). Volunteering may strengthen *matter*ing through recognition, social contribution and interpersonal connectedness, while enhancing self-efficacy through mastery experiences and successful role performance (Alganami & El Keshky, 2025).

Therefore, the present study aims to examine the outcomes of a five-day, service-driven NSS camp volunteering activity among undergraduate students by exploring psychological well-being (PWB), sense of *matter*ing and self-efficacy using a mixed-methods approach. At the community level, such volunteering experiences may contribute to youth empowerment and community development by strengthening students' capacity for meaningful social participation.

Methods

Study design

An explanatory sequential mixed-methods design was employed in the current study (Creswell, 2022), where quantitative data are first collected and analyzed, followed by qualitative data analysis. This facilitates a comprehensive understanding of the research question (Ivankova et al., 2006). In the quantitative phase, a quasi-experimental pretest–posttest design is employed. The experimental group comprises NSS camp participants and the control group including non-NSS female undergraduate students. Standardized questionnaires measuring *matter*ing, PWB and self-efficacy were administered to both groups before and after the NSS volunteering camp. In the qualitative phase, the experimental group responded to open-ended survey questions along with the other questionnaires. Here, the participants shared their experiences of volunteering during the camp and described the changes they perceived following their participation in the camp. Such open-ended surveys are considered a flexible and efficient method of collecting qualitative data (Fraser, 2024) which complements the findings from the quantitative phase by adding context and depth (Thorson & Farris, 2024).

Sampling and selection of participants

A convenience sampling method was employed to recruit participants. The experimental group consisted of undergraduate student volunteers who attended a five-day short-term National Service Scheme (NSS)

camp, while the control group comprised undergraduate students from the same college in Bengaluru, India, who had not participated in the camp. Since participation in the NSS camp was voluntary, pre-determination of the sample was not possible. Students who fulfilled the required NSS programme activities were eligible to receive certificates recognizing their participation; however, NSS volunteering activities did not involve financial remuneration or academic credits.

A total of 80 female students participated in the quantitative phase, including 40 NSS camp attendees (experimental group) who volunteered to participate in the present study and 40 non-attendees (control group) recruited through posters and official student groups. Recruiting both groups from the same institution helped minimize potential confounding effects related to academic and contextual factors. Eligibility criteria included undergraduate students aged 18–21 years and willingness to participate in the study. For the experimental group, participants were required to be NSS camp volunteers. There were no exclusion criteria.

For the qualitative phase, open-ended reflective questions developed by the researchers were included at the post-test for the experimental group. The sample size remained the same ($N = 40$) for both the quantitative and qualitative phases, which was considered appropriate given the homogeneity of the group and the nature of the study. Previous research evidence suggests that 20–50 participants are sufficient to achieve thematic saturation in applied programme-evaluation research (Creswell & Plano Clark, 2018; Patton, 2015). Participant demographic characteristics, including age and year of study, are presented in Table 1.

Measures

Demographic information was collected using a brief demographic form. Mattering was measured using the 24-item Mattering Scale, which assesses three distinct dimensions: awareness, Importance and Reliance. High alpha values (generally exceeding the standard threshold of 0.80) confirm that the items within each subscale reliably measure their intended dimension of mattering (Elliott et al., 2004). General self-efficacy was assessed using the 8-item New General Self-Efficacy Scale (Chen et al., 2001), showing good reliability ($\alpha = .85$ to $.90$) and construct validity in student samples. Psychological well-being was measured using the 18-item Ryff Psychological Well-Being Scale (Ryff, 1989), which assesses six dimensions of positive functioning and demonstrates acceptable reliability ($\alpha = .70$ to $.85$).

Post-test open-ended reflective questions (Appendix B) were developed to explore participants' lived experiences of NSS camp participation. The questions were guided by the study objectives and informed by the theoretical framework integrating Psychological Sense of Community (McMillan & Chavis, 1986), Positive Youth Development (Benson et al., 2006; Lerner et al., 2005) and Mattering Theory (Prilleltensky, 2020; Rosenberg & McCullough, 1981). These theories informed the identification of key experiential domains relevant to volunteering contexts, rather than being used to directly operationalize constructs. Accordingly, the questions focused on broader experiential areas such as confidence in managing tasks and challenges, sense of belonging and peer interaction, perceived contribution to the community and perceived personal or emotional changes following participation. The open-ended nature of the questions allowed participants to reflect freely on their overall NSS camp experience.

Procedure

Participants were recruited from the NSS unit (experimental group) and non-NSS undergraduate students (control group) from a college in Bengaluru India, after obtaining informed consent. Both groups completed the demographic form and standardized questionnaires via Google Forms as a baseline measure

Table 1. Demographic details.

Variable	Category	<i>N</i>	%
Age	18 years	8	10.0
	19 years	30	37.5
	20 years	34	42.5
	21 years	8	10.0
Year of study	Second year	40	50.0
	Third year	40	50.0
Gender	Female	80	100

before the camp. The experimental group then participated in the NSS camp activities. After camp participation, both groups completed the standardized questionnaires, participants in the experimental group also responded to the open-ended reflective questions along with the standardized questionnaires. Consistent with an explanatory sequential mixed methods design, quantitative data were analyzed first to examine pre-post group differences, followed by qualitative analysis to explain and contextualize the quantitative findings.

NSS camp activities

The NSS Camp was an institutionally organized experiential learning programme conducted under the NSS as part of its regular field-based community engagement activities (Patil, 2025). The five-day camp involved student volunteers in structured service-learning activities conducted in an adopted village and nearby community areas. Activities included orientation sessions, Shramadhana (cleanliness drives), awareness visits, guest lectures on women's hygiene and legal rights, poster-making, eco-themed fashion walk activities promoting sustainability, yoga sessions, reflective discussions such as 'Chinthana-Manthana,' and recreational and cultural programmes. A detailed description of the intervention activities and their relevance is provided in Appendix A.

The primary participants were NSS student volunteers, while the main community beneficiaries included school children, adolescents, women and village residents engaged through awareness and outreach activities. Children and adolescents participated in educational street plays and discussions, women attended sessions on hygiene and legal rights and the broader community took part in cleanliness and environmental awareness activities. The programme created a reciprocal learning environment in which volunteers developed communication skills, teamwork, civic responsibility and experiential understanding of social realities, while community members benefited from increased awareness of health, hygiene, education and environmental sustainability. All the student volunteers participated in the various camp activities, although the specific grouping of participants varied according to the nature and requirements of each activity. While all groups collectively contributed to the implementation of the programme, the present study did not measure or record the extent or intensity of individual participation or contribution across activities.

Data treatment

The initial sample consisted of 90 undergraduate students, comprising 45 participants in the experimental group (NSS volunteers) and 45 participants in the control group (non-NSS volunteers). All participants completed the pre-test assessment. However, during the post-test phase, five participants from the experimental group and two participants from the control group did not provide post-test responses, resulting in differential completion rates across groups. To ensure equivalence between groups for comparative analysis, a matched sample approach was adopted. Accordingly, the final analytic sample was standardized to 40 participants in each group by excluding three participants from the control group. All responses included in the final sample were screened for completeness prior to analysis, and only complete datasets were retained for statistical analysis.

Data analysis

To examine the effect of NSS camp volunteering on perceived mattering, psychological wellbeing and self-efficacy, quantitative data were first statistically analyzed using the statistical software package (SPSS-V30). To analyze the qualitative data, the study employed the structured tabular thematic analysis (ST-TA). This is a specialized framework for analyzing brief qualitative texts that integrates Braun and Clarke (2006) and Boyatzis's (1998) thematic analysis phases. The first step in the process was data familiarization, which led to the development of codes which were then grouped into unique themes. To ensure the results' trustworthiness, a systematic inter-analyst agreement was conducted. Furthermore, theme mapping was used to illustrate relationships and integrate findings into a unified conceptual framework (Robinson, 2022).

Responses collected via Google Forms were transferred to a spreadsheet for analysis. A researcher initially coded the responses, considering both semantic and latent content. Codes with similar meanings were clustered into sub-themes, which were then refined to yield three organized themes and an overarching theme. The themes

were systematically organized into tables with their corresponding data segments, facilitating the determination of how often each theme appeared in the sample. Also, researchers evaluated the agreement rate between analysts (two other researchers) to ensure the reliability of the analysis.

The study was approved by the Research Ethics Committee of the participating institution. All participants provided informed consent; participation was voluntary, and confidentiality and anonymity were maintained. Participants could withdraw at any time, and data were used solely for research purposes.

Results

Quantitative results

The present study is aimed at assessing the impact of five days of NSS camp volunteering on participants' perceived mattering, psychological well-being (PWB) and self-efficacy. The study consisted of 80 participants, with the experimental group ($N = 40$) and the control group ($N = 40$) assessed before and after the camp.

Descriptive statistics were first computed, followed by normality tests to determine the appropriate statistical analysis. The summary of the descriptive statistics is presented in Table 2. The table indicates that the mean and median scores differed, and the interquartile range varied across the three variables. The Shapiro–Wilk test (Appendix D) was computed to test the normality of the data, and it indicated that the scores for PWB, mattering and self-efficacy were not normally distributed ($p < 0.01$) except for mattering post-test. Hence, non-parametric tests were employed, which included the Wilcoxon signed-rank test for within-group comparisons (Pre–Post) and Mann–Whitney U test for between-group comparisons (Experimental–Control).

To examine if camp volunteering has any effect on PWB, mattering and self-efficacy, the Wilcoxon signed-rank test was conducted on the pre–post test data (Table 3). Result indicates no significant differences in their overall PWB and across its domains ($Z = -1.50$, $p = .133$). For mattering, the individual dimensions were not found statistically significant ($p > 0.01$), but with regard to the overall mattering, a significant difference was observed ($Z = -2.00$, $p = .046$), where the post-test score was increased in comparison to the pre-test. Also, with regard to self-efficacy, no significant difference was observed ($Z = -0.27$, $p = .791$).

Table 2. Descriptive statistics for mattering, psychological well-being and self-efficacy.

Variables	<i>N</i>	Mean	Median	IQR
Mattering pre	40	78.31	73.50	13
Mattering post	40	80.70	81.50	17
PWB pre	40	86.15	86.00	13
PWB post	40	83.41	79.00	17
Self-efficacy pre	40	3.68	3.75	0.80
Self-efficacy post	40	3.67	3.68	1.44

Note: *N* = sample size; IQR = interquartile range.

Table 3. Shows the Wilcoxon signed-rank test results for pre–post comparisons ($N = 40$).

Measure	Negative ranks	Positive ranks	<i>Z</i>	<i>P</i>
Autonomy	22	14	−0.77	.439
Environmental mastery	21	15	−0.66	.513
Positive relations	20	13	−1.19	.233
Personal growth	23	12	−1.78	.076
Purpose in life	18	16	0.00	1.000
Self-acceptance	23	14	−1.38	.168
Psychological well-being	25	14	−1.50	.133
Awareness	15	22	−1.24	.215
Importance	14	21	−1.81	.071
Reliance	13	20	−0.94	.347
Mattering	13	23	−2.00	.046
Self-efficacy	17	17	−0.27	.791

Note: *Z* = standardized test statistic; *p* = two-tailed significance.

Table 4. Shows the Mann–Whitney U test result, comparing experimental and control groups (On the Post-test scores).

Measures	Groups	N	Mean rank	Sum of ranks	U	Z	p
Autonomy	Experimental	40	45.96	1838.50	581.50	−2.121	.034
	Control	40	35.04	1401.50			
Environmental mastery	Experimental	40	46.31	1852.50	567.50	−2.252	.024
	Control	40	34.69	1387.50			
Personal growth	Experimental	40	39.01	1560.50	740.50	−0.576	.565
	Control	40	41.99	1679.50			
Positive relations	Experimental	40	37.46	1498.50	678.50	−1.181	.238
	Control	40	43.54	1741.50			
Purpose in life	Experimental	40	36.86	1474.50	654.50	−1.410	.159
	Control	40	44.14	1765.50			
Self-acceptance	Experimental	40	45.16	1806.50	613.50	−1.806	.071
	Control	40	35.84	1433.50			
Psychological well-being	Experimental	40	42.81	1712.50	707.50	−0.891	.373
	Control	40	38.19	1527.50			
Awareness	Experimental	40	36.14	1445.50	625.50	−1.695	.090
	Control	40	44.86	1794.50			
Importance	Experimental	40	39.14	1565.50	745.50	−0.531	.596
	Control	40	41.86	1674.50			
Reliance	Experimental	40	37.68	1507.00	687.00	−1.102	.271
	Control	40	43.33	1733.00			
Mattering	Experimental	40	37.24	1489.50	669.50	−1.264	.206
	Control	40	43.76	1750.50			
Self-efficacy	Experimental	40	42.49	1699.50	720.50	−0.769	.442
	Control	40	38.51	1540.50			

Note: U = Mann–Whitney U statistic; Z = standardized test statistic; p = two-tailed significance.

Table 4 summarizes the results of the Mann–Whitney U test for the post-test scores of experimental and control groups. The result indicate that the experimental and control groups have shown significant differences only on the two dimensions of PWB, namely, autonomy ($U = 581.50$, $Z = -2.12$, $p = .034$) and environmental mastery ($U = 567.50$, $Z = -2.25$, $p = .024$). According to the mean rank score it can be observed that the experimental group in comparison to the control group scored higher on these measures for both of the dimensions. But no significant differences were observed between the groups for the remaining dimensions of PWB as well as the overall PWB, mattering and self-efficacy ($p > .05$).

Qualitative results

Figure 1 shows the themes derived from the thematic analysis. The identified codes from the open-ended questions were grouped into nine subthemes, which were then grouped into three organized themes, each developed by combining three subthemes. A total of three organized themes emerged from the responses with respect to NSS camp volunteers' thoughts, feelings, engagement and experiences during the camp: (1) perceived sense of social value/meaning through service impact and recognition, (2) perceived development of confidence and capability through active participation, new roles and responsibilities and (3) perceived enhancement of well-being through purpose and constructive growth. Together, these organized themes are grouped to identify the overarching theme: *Volunteering as a pathway to feeling valued, capable and empowered*, which reflects the overall participants' experience in volunteering, resulting in a sense of mattering through value reinforced by engagement and peer interaction, and making them feel more confident and empowered by taking up new responsibilities and participating in volunteering-related activities. Each of the organized and sub-themes will be described further using participants' verbatim.

Theme 1: Perceived sense of personal significance derived from service and social recognition.

Sub-theme: contributing to the community. Participants expressed that through village visits during the five-day short-term camp, they realized that their efforts in community engagement could make a meaningful contribution. As volunteers visited a nearby village to conduct an awareness session on hygiene, education and community well-being, one participant expressed, 'Feeling impactful while teaching children [in the village community] to be strong' (P14).

This sense of impact was echoed across participants, with several describing how even, small actions could create meaningful change. One participant noted, 'Realization that small actions [such as the community

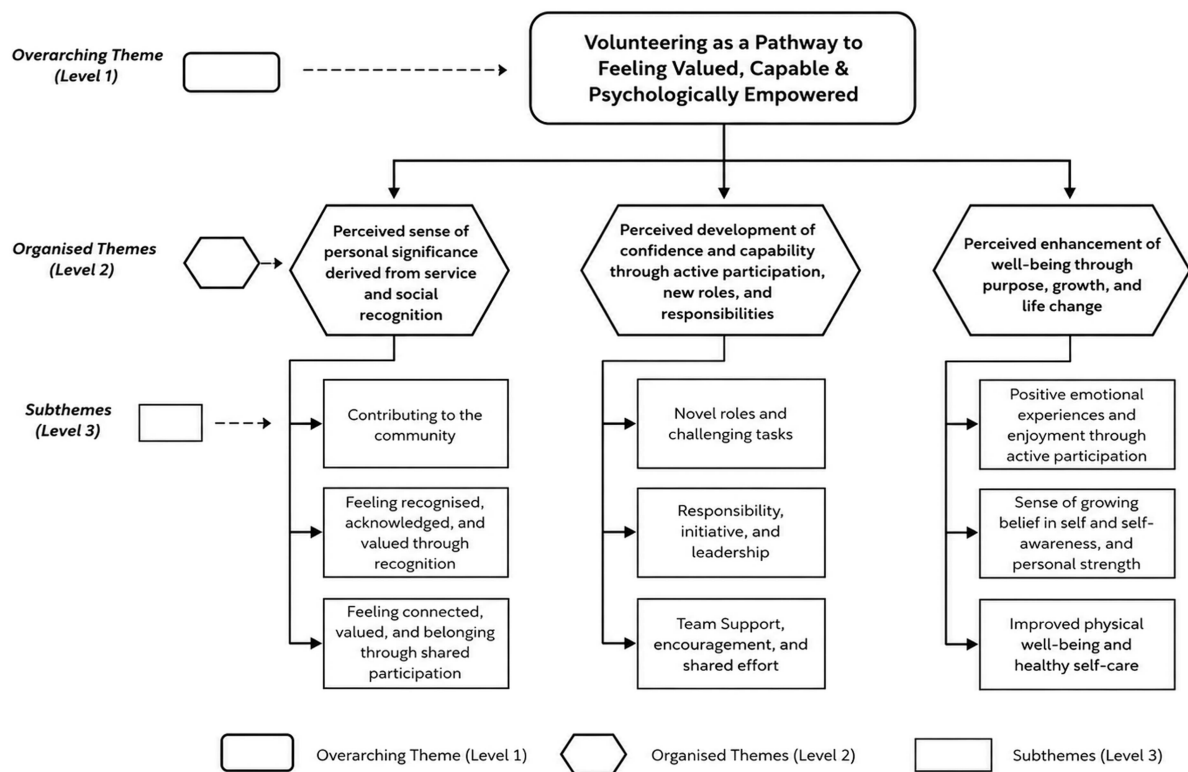


Figure 1. Overarching, organized and sub-themes derived from volunteering experiences.

education activities] can have meaningful impact' (P31), while another similarly reflected, 'I learnt that even a small thing could make a big difference [in other people's lives]' (P32). In addition, participants also described an emotional response to this experience, with one reporting 'Pride from contributing to community cleanliness and education' (P35).

Together, these responses suggest that participants were not only recognizing the practical impact of their actions but were also beginning to experience a sense of pride and personal significance linked to their contribution during the short-term camp.

Sub-theme: feeling recognized, acknowledged and valued through recognition. While participating in the camp activities, participants reported feeling recognized, acknowledged and valued by both community members and their peers. For example, one participant noted, 'Feeling valued when community members listened, responded, acknowledged and appreciated' (P31). Participants also described how group activities and teamwork contributed to a stronger sense of being valued within the peer group. Another participant stated, 'Feeling included, supported and valued through acceptance of ideas and shared team goals' (P35).

Across these responses, it is evident that participants' sense of being valued emerged through everyday social interactions rather than formal recognition alone. Being listened to, included, and having ideas accepted during collaborative activities appeared to strengthen their sense of belonging during the short-term camp experience.

Sub-theme: Feeling connected, valued and belonging through shared participation. Participants described a sense of connection emerging through both peer and community interactions during the five-day short-term volunteering experience. This is reflected in Participant 21, who noted, 'Feeling valued through positive social interaction' (P21). Despite some initial challenges, participants also highlighted how emotional support and being consulted by peers helped strengthen their sense of connection within the group, as expressed by one participant: 'Feeling valued through emotional support and being consulted by others [peer volunteers] during challenging moments' (P12). Over time, even within this short duration, participants were able to recognize changes in how they interacted with their team, as reflected in another account: 'Initial difficulty in team integration followed by growing connection through shared participation' (P38). Overall, these experiences suggest that a sense of connection can begin to develop even within a

short-term volunteering context, as continued interaction, shared tasks and peer support helped participants move from initial adjustment to a growing sense of belonging.

Taken together, the sub-themes of contributing to the community, feeling recognized and acknowledged, and feeling connected, valued and belonging through shared participation show that participants' sense of personal significance during the short-term volunteering experience was shaped through active involvement in community activities and interactions with peers and community members. Participants highlighted both their contributions during the camp and the importance of being listened to, included, and appreciated by others, which reinforced their sense that their presence mattered. This reflects Psychological Sense of Community (McMillan & Chavis, 1986), particularly the dimensions of membership and shared emotional connection, as participants describe belonging developing through participation and social interaction in the camp context. These experiences also reflect Mattering Theory (Prilleltensky, 2020), as participants consistently expressed both being valued by others and recognizing that their actions contributed value within the community during the short-term volunteering experience.

Theme 2: Perceived development of confidence and capability through active participation, new roles and responsibilities.

Sub-theme: Novel roles and challenging tasks. This sub-theme reflects how participants experienced confidence building through engagement in unfamiliar and challenging roles during the short-term volunteering experience. Many participants described how being placed in new situations required them to step out of their comfort zone and actively engage in tasks they had not previously undertaken. For example, one participant shared that first-time performance boosted their confidence while performing a social awareness community activity: 'confidence built through first-time public performance for social awareness' (P13). Similarly, participants noted that these novel roles helped them develop confidence to speak and communicate, as reflected in 'developed confidence to speak' (P4). Another participant described feeling competent while managing challenging tasks under time constraints: 'Perceived competence and confidence in managing tasks under time constraints' (P36). This experience was further supported by Participant 35, who reflected that managing camp responsibilities helped them realize their own capability: 'Managing those situations [camp activities, new roles and responsibilities] made me realize that I am capable of facing challenges' (P35).

These accounts suggest that confidence developed through direct engagement with new responsibilities during the short-term volunteering experience, where successfully completing unfamiliar tasks helped participants recognize their own ability to handle challenges.

Sub-theme: Responsibility, initiative and leadership. Participants described how taking responsibility, showing initiative and undertaking leadership roles contributed to increased confidence and self-efficacy. Participant 27, for instance, referred to 'confidence enhancement through leadership role' (P27), highlighted the importance that leadership roles themselves played in fostering confidence. Furthermore, one participant noted that 'growing self-efficacy through task management' (P30) was linked to actively managing tasks and responsibilities. Participants (7) also highlighted how taking responsibility and initiative demonstrated leadership confidence: 'Taking personal initiative to lead the team in the absence of collective direction' (P7). This sense of responsibility also helped enhance self-confidence, as noted by participant 34, 'Validation and recognition enhancing self-confidence' (P34). Participants further expressed pride in their accomplishments through responsibility, as reflected in the statement: 'Sense of competence and pride through task responsibility' (P23).

What emerges is that confidence and capability were strengthened when participants were given responsibility and trusted to take initiative within the short-term volunteering setting. In simple terms, leadership roles and task ownership helped participants recognize their ability to manage situations independently and contribute meaningfully to group activities.

Sub-theme: Team support, encouragement and shared effort. This sub-theme reflects how participants experienced confidence building through supportive peer relationships, encouragement from team members and shared effort during the short-term volunteering experience. Participants described how feeling supported by others helped them step out of their comfort zones, take initiative and engage more actively in camp activities.

For example, participants highlighted overcoming fear through encouragement and social support, 'Overcoming fear through encouragement and social support' (P22) and described how peer encouragement contributed to developing leadership confidence, 'Emerging leadership confidence through peer encouragement' (P40). Similarly, one participant noted how team support helped them move beyond initial hesitation, 'Came out of my comfort zone as a result of team encouragement' (P38). In addition, another participant emphasized the role of sustained encouragement, stating 'Progressive confidence gains through repeated performance and mentor support' (P20).

This pattern shows that confidence development was not only linked to individual effort or responsibility, but was also shaped through ongoing encouragement, collaboration and reassurance from peers and mentors within the short-term volunteering context.

The theme of positive development of confidence and capability through active participation, new roles and responsibility brings together participants' experiences of engaging with unfamiliar tasks, taking initiative and receiving encouragement within the short-term volunteering context. Participants described novel and challenging tasks, taking responsibility and leadership roles, and experiencing team support, encouragement and shared effort during the camp. These experiences relate to positive youth development (Benson et al., 2006; Lerner et al., 2005), particularly the focus on competence and confidence development through structured opportunities for participation that include both challenge and support within a group setting.

Theme 3: Perceived enhancement of well-being through purpose, growth and life change.

Sub-theme: Positive emotional experiences and enjoyment through active participation. This sub-theme focuses on participants' positive emotional experiences and enjoyment during active participation in the short-term volunteering experience, particularly the feelings of happiness, confidence and reduced anxiety that emerged while engaging in camp activities. Participants described experiencing enjoyment and positive emotions through their involvement in different activities. One participant noted, 'I was so happy that I was participating in many activities' (P1), while another shared that participating in the fashion walk made them feel both happy and confident: 'When I did the fashion walk, it made me feel happy and confident' (P12). In some cases, participants also described a reduction in initial performance-related fear over time, as reflected in 'The experience felt good, like the constant slight fear was slowly leaving and lifting the heaviness from my shoulders' (P16).

These experiences highlight how active participation in camp activities was associated with positive emotional responses and reduced anxiety during the short-term volunteering experience.

Sub-theme: Sense of growing belief in self and self-awareness, and personal strength. This sub theme highlights participants' sense of growing belief in themselves, increased self-awareness and perceived personal strength that emerged through their experiences in the camp. Participants described how engagement in camp activities helped them recognize their own abilities and develop a clearer understanding of themselves. One participant shared, 'NSS volunteering had made me so confident that it showed my capability which I didn't know these many days' (P29), while another reflected on increased self-awareness, stating, 'I actually came to know about me, my character and everything [after attending the camp], which made me so happy' (P19). Participants also described developing awareness of personal strengths through their involvement in helping others, as reflected in 'Whether it was helping, listening, or supporting others, it made me feel connected and purposeful. It also helped me understand my own strengths, like patience, empathy and teamwork' (P18). In addition, some participants described finding meaning in their actions during the camp, 'Helping villagers during activities felt meaningful and made me happy' (P23) and recognized the impact of small contributions, 'I had moments where my small actions helped others in the community, like supporting teammates and guiding students' (P30).

Together, these accounts point to participants developing a clearer sense of their own abilities and personal strengths through active involvement in the short-term volunteering experience.

Sub-theme: Improved physical well-being and healthy self-care. Participants not only perceived the camp enhances mental well-being, but they also perceived an improved idea of physical well-being and moving toward a healthy lifestyle. This was echoed by one participant who shared, 'It slowly made me want to have more healthier lifestyle which I'm slowly working on it maybe from doing yoga or helping around' (P16),

and another participant (P34) noted that they developed discipline and a healthy routine though it was a short-duration camp, as shared: 'After returning home, I will continue these habits [developed over the camp] regular exercise, eating breakfast and maintaining a healthy routine. The camp also taught me to stay calm and handle tasks with a more balanced approach' (P34). These descriptions show that participants reported gradual shifts toward healthier routines and self-care practices during the camp.

Participants' experiences across the sub-themes of positive emotional experiences, growing belief in self and personal strength and improved physical well-being indicate that their experiences during short-term volunteering were associated with changes in how they felt, how they understood themselves and how they approached their daily routines. Together, these changes point to a broader sense of personal growth emerging through participation in the activities.

These patterns align with Mattering Theory (Prilleltensky, 2020) and positive youth development perspectives (Lerner et al., 2005), where meaningful engagement and contribution in structured settings are linked with enhanced self-worth, sense of purpose and overall well-being. In this sense, the short-term volunteering experience provided a context where participants could feel valued, develop self-awareness and adopt healthier ways of living.

Negative case analysis

While most participants reported positive outcomes from the volunteering experience, a small number described experiences of exclusion, not being heard and reduced feelings of belonging within group settings. Some participants reported that their ideas were dismissed or overlooked in time-pressured or group decision-making contexts. For example, one participant noted, 'For the poster making, even I had ideas, opinion to make it but then they did not want to involve my ideas because there was a shortage of time. And most of them did not even hear my ideas' (P7). Similarly, another participant expressed feeling undervalued during group discussions despite an overall positive experience with peers: 'I had very good experience while performing with my team members but somewhere I was less valued when it comes to group discussion' (P18). These accounts highlight moments of disconnection and uneven participation within otherwise collaborative environments.

Despite these challenges, some participants demonstrated perseverance and continued commitment to group cohesion even when feeling excluded. One participant reflected, 'I felt left out of my group, but I always manage to stick together because it's a team of six... and I am happy about that for myself for not giving up on "us"' (P15). This suggests that feelings of exclusion did not always translate into withdrawal from group participation. In contrast, other participants reported strongly positive experiences of inclusion and recognition. One participant described, 'Felt included and valued, especially when my ideas were accepted. It made me feel like I was truly part of a group with a common goal' (P35). Similarly, another noted, 'Since we were organizing the camp, everyone's opinion and effort mattered. My team trusted me with important tasks, and their support made me feel valued' (P31).

Overall, these accounts suggest that while shared involvement in volunteering frequently fostered belonging and inclusion, interpersonal dynamics and situational constraints could also limit participation and recognition for some individuals.

Mixed-method integration

The integration of quantitative and qualitative findings shows both convergence and divergence across outcomes. Quantitative findings indicated no significant overall changes in psychological well-being and self-efficacy across pre-post and between-group analyzes. However, significant differences were observed in specific dimensions, with higher post-test scores in environmental mastery and autonomy, along with an increase in mattering following participation in the NSS camp. These findings converge with qualitative data, where participants consistently reported feeling valued, recognized and appreciated through being listened to, having their ideas accepted and perceiving their contributions as meaningful during volunteering activities, closely reflecting the construct of mattering. Similarly, participants described taking responsibility, adapting to unfamiliar tasks and engaging in group processes, which aligns with improvements in

environmental mastery and autonomy. Taken together, this convergence helps triangulate the findings, indicating consistency between experiential accounts and specific measured dimensions.

Divergence is observed in relation to overall self-efficacy and psychological well-being. While quantitative findings did not show significant overall changes, qualitative responses reflected perceived gains in confidence, initiative, responsibility and emotional well-being, including enjoyment, reduced anxiety and a greater sense of purpose during participation. This divergence in triangulation may be explained by the fact that these experiences are often immediate and context-specific, and may not be fully captured through standardized measures used for assessment. In addition, a very small number of participants reported less positive experiences, such as feeling excluded or less involved in group processes, which may have contributed to variation in qualitative accounts while not substantially influencing overall quantitative outcomes.

Discussion

The objective of the present study was to evaluate the effects of a five-day NSS camp volunteering activity on undergraduate students' psychological well-being (PWB), mattering and self-efficacy using a mixed-method design. The quantitative results combining within-group (pre- to post-test) and between-group (experimental vs. control post-test) analyses showed that overall PWB and self-efficacy did not differ significantly; however, the experimental group scored significantly higher than the control group in the PWB subdomains of environmental mastery and autonomy. Current findings align only partially with previous findings regarding volunteering and PWB, as only the subdomains of environmental mastery and autonomy were found to be positively influenced by volunteering, consistent with the literature, which shows a positive relationship between volunteering and psychological well-being and also suggests that volunteering has positive effects on students' PWB (Cuddy et al., 2025; Geng et al., 2022).

Previous studies indicate that NSS students have higher self-efficacy and resilience compared to non-NSS students (Verma & Zafari, 2025). In addition, research shows that volunteering is associated with higher well-being through mediators such as self-esteem, self-efficacy and social connectedness and also found that participation in recreational camps is related to higher self-efficacy and a more positive future outlook among students (Brown et al., 2012), which contrasts with the present results regarding self-efficacy.

The present findings do not fully align with earlier research, which could be due to the duration of the volunteering activity, as previous studies have reported that long-term volunteers experience higher levels of psychological well-being, sense of mastery and competence, self-acceptance, engagement and personal growth compared to short-term volunteers (Elias et al., 2016; Trupp, 2017). Research on the length of college service experiences showed that longer service periods positively affect future service attitudes and behaviours. Students who engaged in extended volunteer activities were more likely to continue volunteering and believe in their ability to make a difference in their communities (Gamble et al., 2017). This may explain why the short duration of the NSS camp in the present study had little measurable impact on students' overall PWB and self-efficacy.

However, in the current study, volunteering at the NSS camp resulted in a significant increase in post-test scores for overall mattering among students in the experimental group. This finding can be linked to literature showing that volunteers report significantly higher resilience and gratitude than non-volunteers, with resilience increasing proportionally to volunteer hours (Llenares et al., 2020), as well as greater self-awareness and sense of importance (Matsumura et al., 2023). Students also report increased self-confidence and interpersonal skills, which may contribute to a sense of mattering (Shinde & Malode, 2025). These findings align with the current results, as they reflect the domains of mattering, namely awareness, importance and resilience, and are further reinforced by the qualitative results of the present study.

The current qualitative findings indicate that being part of the NSS camp has provided the students with a sense of value and recognition, also they noted that their contributions are valued by the team and the community. This is in line with the literature findings which indicated that outdoor volunteering activities promote personal development, civic duty and inclusive values which may in turn contribute to broader social change (Mudi & Samanta, 2024). Also, previous research findings show that participation in structured volunteering activities enhances students' social awareness, teamwork abilities and sense of social value (Ergün & Ergün, 2025).

Students noted that taking up responsibilities and leadership, during the camp, made them feel more capable and confident, which aligns with the existing study on participation in the NSS camps in India can strengthen leadership skills, communication abilities and emotional stability (Shinde & Malode, 2025). A similar view was shared by Wootton (2017) who found that leadership roles in volunteer organizations have shown to enhance confidence and self-efficacy through experiential learning and mentoring.

Qualitative findings also show that student participants reported that peer support and encouragement helped them get over their fears and participate more fully in the camp activities. This supports the previous research findings, which show that peer support is a key factor in sustaining youth engagement in community and organizational programmes (Ariffin et al., 2017). Taylor and Pancer (2007) shared similar results, stating that peer environments can also be linked to continued volunteering even after the short-duration volunteering and may increase greater commitment among students. Literature findings also support that peer-support programmes are a valuable resource for enhancing student well-being and engagement (Abrams et al., 2022).

The study participants expressed how the NSS camp participation has improved their mental well-being, which they linked to actively assisting others and giving back to the community. This included positive emotions, personal development and a sense of purpose, aligning with existing literature that shows a positive relationship between volunteering and psychological well-being and suggests that volunteering has positive effects on students' well-being (Cuddy et al., 2025; Geng et al., 2022).

Along with mental well-being, participants also perceived an improved understanding of physical well-being and a move toward a healthy lifestyle. This was corroborated by Agans et al. (2022), whose findings showed that short summer camps can enable youth to increase their physical activity levels and change their beliefs about physical activity. The present findings also align with another similar literature evidence on short summer camp, showing that participants significantly increased their knowledge about healthy foods, healthy eating and self-perception of competence, as well as their physical activity levels (Seal & Seal, 2011).

Apart from the identified themes, a few volunteers expressed negative experiences during the camp activities, as they felt left out and unheard, especially when their suggestions were ignored due to time constraints or group dynamics. Previous research reports similar findings, that volunteers may experience conflicting views about cooperation, which can lead to feelings of exclusion when their input is not valued (Kewes et al., 2024). Similarly, youths' descriptions of negative experiences in organized youth activities most frequently involve peers and peer group dynamics (Dworkin, 2007), which aligns with the present findings.

Additionally, mattering showed a significant improvement in the post-test, supported by qualitative findings, indicating convergence between quantitative and qualitative data. This, along with changes in environmental mastery and autonomy, strengthens the triangulated interpretation of positive experiential outcomes associated with participation in the NSS camp. In contrast, no statistically significant change was found for overall PWB and self-efficacy, although qualitative accounts indicated perceived gains in confidence, initiative, emotional engagement and task involvement. This divergence may be explained by the different ways in which quantitative and qualitative approaches capture change, with quantitative methods focusing on structured statistical analysis of numerical data suited for identifying broad trends, while qualitative approaches capture subjective and contextual meanings that may not be reflected in standardized measures (Wirtz & Strohmer, 2016). This aligns with experiential learning research suggesting that self-report measures may not fully capture short-term experiential shifts (Strange & Gibson, 2017), and mixed-methods perspectives highlighting that quantitative outcomes may not fully represent how interventions operate in practice, while qualitative data helps explain underlying mechanisms (Vander Wel et al., 2005).

The findings can also be linked to the theories of PYD, PSOC and Mattering, as the camp provided participants with experiences of feeling valued by others and adding value to the community. The findings also highlight how peer and community membership increased participants' confidence. Taking on responsibilities and leadership roles during the camp made them feel more capable, enhancing their perceived self-efficacy. Participants felt that they mattered both within the community and with their team, and their contribution to the community, in line with the six Cs, is also recognized here (Lerner et al., 2005; McMillan & Chavis, 1986; Rosenberg & McCullough, 1981). This can also be explained by the overarching theme of the study, *Volunteering as a Pathway to Feeling Valued, Capable and Empowered*, which shows how

volunteering can help youth feel more capable, recognized and confident, while also promoting mattering, self-efficacy and overall well-being.

Implications, limitations and future prospects

The study has important implications for the design and implementation of short-term volunteering programmes within educational settings in India. The findings suggest that such programmes can contribute to students' personal and developmental outcomes by enhancing confidence, social interaction skills, sense of responsibility and self-awareness through structured participation, peer engagement and meaningful involvement in activities. This highlights short-term volunteering as an important educational experience for student development when appropriately structured and facilitated. At an institutional level, the findings suggest that higher education institutions and programme coordinators, including NSS units, may benefit from strengthening the structure of volunteering initiatives. This includes improving facilitation of group-based activities, ensuring consistency in programme design and incorporating intentional inclusion strategies to maximize student engagement. Educational policymakers may also consider supporting regular implementation of short-term volunteering programmes across the academic year to ensure wider student access and sustained developmental opportunities.

A key implication of the study is that while a five-day NSS camp can generate meaningful experiential outcomes, particularly in relation to mattering, engagement and positive subjective experiences, more stable outcomes such as self-efficacy and psychological well-being may require longer exposure. This is also a limitation of the present study, as the short duration may not be sufficient to produce measurable changes in these domains. Existing research suggests that longer-duration volunteering interventions tend to show more consistent improvements across well-being domains, particularly in relation to eudaimonic well-being, whereas short-term interventions are more likely to produce limited effects (Trupp, 2017; Vella-Brodrick et al., 2025). Future research should compare programmes of varying lengths (e.g. one week, two weeks, one month) to determine optimal exposure for broader well-being gains. In addition, future research should also include the perspectives of community beneficiaries to understand how NSS camp activities were experienced and whether they were perceived as beneficial, enabling a more comprehensive and reciprocal evaluation of programme outcomes beyond participant experiences.

A further limitation of the present study is that individual levels of participation within the NSS camp were not assessed. Although the study examined differences between NSS participants and non-participants, it did not capture variations in the intensity of engagement, types of activities undertaken, or the quality of community interactions experienced by individual participants. Therefore, changes in mattering should be interpreted in relation to the overall NSS camp experience rather than specific levels or qualities of individual volunteering involvement. Future studies could examine how variations in participation patterns, engagement quality and specific forms of community interaction contribute to changes in psychological outcomes.

Building on this, future studies should also examine whether gains in mattering are sustained over time and whether they predict continued volunteering behaviour, using larger pre-determined samples, gender-diverse participants and longitudinal follow-up designs. The study is also limited by sample size, which may restrict generalizability and by the inclusion of only female participants due to institutional context. Future studies should therefore include larger and more diverse samples to improve representativeness.

Methodologically, the mixed-methods design is a strength as it allows both quantitative measurement and qualitative insight into participant experiences, enabling a more comprehensive understanding of the findings. However, the qualitative component relied on open-ended questionnaire responses rather than in-depth qualitative methods. While open-ended questions allowed reflection, the absence of probing limited the depth of responses. Future research could incorporate semi-structured interviews, focus group discussions, or structured reflective methods such as journaling to generate richer and more nuanced insights. Mixed-methods designs with stronger qualitative depth may also better capture mechanisms underlying observed outcomes (Strange & Gibson, 2017; Vander Wel et al., 2005; Wirtz & Strohmmer, 2016).

Future research could also consider enhancing the structural design of volunteering interventions by introducing a more systematically organized framework for implementation. In the present study, the NSS camp was conducted in its natural institutional format without a specifically designed structure for

differentiating or systematically capturing variations in participation. Developing a more structured flow within similar programmes could help better understand how patterns of involvement and contribution across activities influence outcomes such as mattering, engagement and perceived impact. This would allow future studies to move beyond overall programme effects and examine how the organization of participation itself shapes developmental outcomes.

Finally, a very small number of participants reported feeling excluded or unheard during group activities, despite generally positive experiences. This likely reflects variations in group dynamics within short-term intensive volunteering settings, where limited time can restrict fully inclusive participation structures. It should not be interpreted as relating to individual participant characteristics, but rather as a need for structured facilitation within group-based activities. Future programme design could incorporate structured inclusion strategies such as role rotation, peer mentorship and facilitated team-building activities to support equitable participation, while also enhancing interpersonal and collaborative skills transferable beyond the volunteering context.

Conclusion

The quantitative findings indicate that no significant changes were observed in psychological well-being and self-efficacy, although a positive change was noted in mattering among NSS camp volunteers. The qualitative findings suggest that short-term volunteering in the NSS camp enhanced students' self-awareness, sense of importance and perceived personal value. The results also highlight the role of peer interaction, where supportive group environments contributed to increased confidence, engagement and willingness to participate in activities. Engagement in such volunteer work may also encourage continued participation in community service in the future, reinforcing long-term civic involvement (Mbah & Williams, 2025). Overall, the findings indicate that the short-duration NSS camp influenced participants' self-perceptions and contributed to increased confidence and perceived well-being. At the same time, some participants reported moments of feeling excluded or unheard, suggesting that structured facilitation and additional peer support mechanisms may be important to ensure inclusive participation and to help participants navigate group dynamics more effectively within such settings.

Author contributions

VR: Conceptualization, methods, data analysis, report writing and refining original draft. RG: Investigation, literature review, report writing. DM: Investigation, qualitative analysis, report writing. PR: Quantitative analysis, report writing and refining. SL: Qualitative analysis, report writing. MA: Investigation, report writing. YF: Qualitative analysis, report writing. All authors approved the final version and agreed to be accountable for all aspects of the work, including accuracy and integrity.

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Data availability statement

The data that support the findings of this study are available from corresponding author upon reasonable request.

Ethics statement

The study was approved by the Research Ethics Committee of Jyoti Nivas College (Autonomous), Bengaluru, India (Ref. No. 2025/RECJNC/PSYRE01, dated 13/11/2025).

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Appendices

Appendix A

Table A1. NSS Camp activities.

Activity	Description	Relevance
Orientation, Flag Hoisting, Ice-breaking & Group Formation (Day 1)	The NSS camp began with an orientation session introducing the objectives, structure, expected outcomes and daily schedule of the camp. This was followed by a formal flag hoisting ceremony marking the inauguration. Ice-breaking and group formation activities were conducted to help volunteers build rapport, communicate across diverse groups and develop initial teamwork dynamics.	Engaging in structured orientation and group formation activities may help participants develop early-stage cohesion, clarity of roles and readiness for collaborative engagement in community-based learning environments (Williams et al., 2006; Zwaagstra, 1997).
Shramadhana and Cleanliness Activities (Day 1–Day 4)	Volunteers participated in daily Shramadhana activities involving cleaning and maintaining camp and surrounding areas. The activities required coordinated group effort and encouraged discipline, responsibility and shared ownership of the environment.	Participation in collective cleanliness and environmental maintenance activities may strengthen civic responsibility, teamwork and sensitivity toward hygiene and shared public spaces through experiential participation (Gautama et al., 2026; Jago et al., 2025).
Village Visit & Community Awareness Sessions (Day 1–Day 5)	Volunteers visited nearby villages in small groups and conducted awareness sessions using street plays, discussions, demonstrations and informal interactions with community members. The sessions focused on hygiene, health awareness, education and social well-being, allowing direct engagement with villagers.	Engaging in community-based awareness sessions may enhance communication skills, empathy and social responsibility among volunteers, while simultaneously enabling community members to receive relevant information on health, hygiene and social well-being through participatory learning interactions (Gordon et al., 2022; Plessas et al., 2024).
Yoga and Reflective ‘Chintha-Manthana’ Sessions (Day 2–Day 5)	Daily yoga sessions were conducted to promote physical and mental wellbeing, followed by structured reflective discussions where volunteers shared experiences from camp and field activities. These sessions encouraged meaning-making and peer learning.	Participation in yoga and reflective discussions may support emotional regulation, self-awareness and deeper processing of experiential learning, helping participants integrate field experiences into personal development (Alt et al., 2022; Schley et al., 2017).
Poster Making on Social Awareness (Day 2)	Volunteers worked in groups to design posters on themes such as environmental protection, health awareness, hygiene, education and gender equality. The activity involved visual expression of social messages through creativity and collaboration.	Engaging in creative awareness-based activities may enhance participants' ability to interpret and communicate social issues, thereby strengthening civic awareness and participatory learning processes (Sapan et al., 2025; Zarobe & Bungay, 2017).
Guest Lecture on Women's Hygiene and Legal Rights (Day 2 & Day 3)	Expert-led sessions were conducted focusing on menstrual hygiene, preventive health practices, safety and legal rights. The sessions included interactive discussions and real-life examples to improve understanding among participants.	Exposure to structured health and rights education may improve awareness, promote informed health practices and strengthen understanding of legal protections, contributing to improved health literacy and empowerment (Sahepali & Kiran, 2025).
Eco-themed Fashion Walk ('Nature') (Day 3)	Volunteers showcased outfits made from recycled and sustainable materials, integrating environmental themes into creative presentations. The activity encouraged teamwork, innovation and expressive communication of sustainability concepts.	Participation in sustainability-focused creative activities may enhance environmental awareness and encourage positive attitudes toward sustainable living through experiential engagement with ecological themes (Papavasileiou et al., 2025; Silva et al., 2023).
Recreational, Cultural & 'Relive the Moment' Activities (Day 1–Day 5)	Recreational games, cultural performances and reflective sharing sessions were conducted throughout the camp to provide relaxation, bonding and opportunities for expressing experiences creatively.	Engagement in recreational and cultural group activities may promote emotional wellbeing, peer bonding, creativity and social connectedness, contributing to positive group dynamics in experiential learning settings (Chasciar et al., 2025; Soria et al., 2022).

Appendix B: Open-ended reflective questions

Instructions for Participants:

We would like to hear about your experiences during your volunteering at the NSS camp. There are no right or wrong answers. Please take your time to think about each question and share your experiences in your own words. *You can describe moments when you felt capable, connected with others, faced challenges, or noticed changes in yourself. Feel free to share your thoughts and experiences in as much detail as you want.*

1. During your volunteering, were there moments when you felt confident in your ability to do something or manage a challenge? How did that experience feel?
2. Can you reflect on your experience during volunteering when something you did positively impacted someone or the community? What happened, what made that experience stand out to you and how did it feel to be part of it?
3. Can you share what it was like working with your team or with the larger community during the NSS camp? Were there moments when you felt included, valued, or part of the group? Please share in detail.
4. Did volunteering at the NSS camp make any difference in how you felt about yourself, your happiness, or your outlook on life? Can you share any experiences or moments that show this?
5. Looking back on your volunteering, what felt most meaningful to you and how do you think it has influenced you or how you see yourself?
6. Which activity is more preferred during camp? And why?

Appendix C

Table C1. Thematic matrix.

Organized theme	Subthemes	Selected extract
Perceived sense of personal significance derived from service and social recognition	Contributing to the community	'Realization that small actions can have a meaningful impact.' (P31)
		'I learnt that even a small thing could make a big difference.' (P32)
		'Feeling impactful while teaching children to be strong.' (P14)
		'Inspiring others by stepping out of the comfort zone.' (P11)
		'Creating impact across generations during village visit.' (P27)
	Feeling recognized, acknowledged and valued through recognition	'Pride from contributing to community cleanliness and education.' (P35)
		'Feeling valued when community members listened, responded, acknowledged and appreciated.' (P31)
		'Feeling included, supported and valued through acceptance of ideas and shared team goals.' (P35)
		'Emotional connection formed through Village kids' gratitude.' (P32)
		'Experiencing collaborative teamwork that led to shared memories and positive bonding.' (P19)
Perceived development of confidence and capability through active participation, new roles and responsibilities	Feeling connected, valued and belonging through shared participation	'Initial difficulty in team integration followed by growing connection through shared participation.' (P38)
		'Feeling valued through emotional support and being consulted by others during challenging moments.' (P12)
		'Feeling valued through positive social interaction.' (P21)
		'Feeling enjoyment and a sense of being valued as a member of the group.' (P11)
		'Developed confidence to speak.' (P4)
Novel roles and challenging tasks		'confidence built through first-time public performance for social awareness.' (P13)
		'Managing those situations made me realize that I am capable of facing challenges.' (P35)

Table C1. (Continued)

Organized theme	Subthemes	Selected extract
		'Gradual reduction of performance anxiety through repeated participation in street plays and NSS activities.' (P16)
		'Perceived competence and confidence in managing tasks under time constraints.' (P36)
		'Participating in drama and even a fashion walk, things I had never tried before.' (P34)
	Responsibility, initiative and leadership	'Reassured self-efficacy through successful task completion.' (P31)
		'Confidence enhancement through leadership role.' (P27)
		'Growing self-efficacy through task management.' (P30)
		'Validation and recognition enhancing self-confidence.' (P34)
		'Taking personal initiative to lead the team in the absence of collective direction.' (P7)
		'confidence built through first-time public performance for social awareness.' (P13)
		'Sense of competence and pride through task responsibility.' (P23)
		'Confidence gained by attempting unfamiliar activities.' (P38)
	Team Support, encouragement and shared effort	'overcoming fear through encouragement and social support.' (P22)
		'Emerging leadership confidence through peer encouragement.' (P40)
		'progressive confidence gain through repeated performance and mentor support.' (P20)
		'came out of my comfort zone as a result of team encouragement.' (P38)
		'understood the value of teamwork and helping others.' (P35)
		'feeling supported when consistency motivated team work.' (P34)
Perceived enhancement of well-being through purpose, growth and life change	Positive emotional experiences and enjoyment through active participation	'was so happy that I was participating in many activities.' (P1)
		'when I did the fashion walk, it made me feel happy and confident.' (P12)
		'The experience felt good like the constant slight fear was slowly leaving and lifting the heaviness from my shoulders' (P16)
		'The experience felt good like the constant slight fear was slowly leaving and lifting the heaviness from my shoulders.' (P16)
	Sense of growing belief in self and self-awareness and personal strength	'NSS volunteering had made me so confident that it showed my capability which I didn't know these many days.' (P29)
		'Managing those situations made me realize that I am capable of facing challenges.' (P35)
		'I actually came to know about me my character and everything that made me so happy.' (P19)
		'NSS camp has brought a new life into me. It changed my character, my way of thinking and my way of

(Continued)

Table C1. (Continued)

Organized theme	Subthemes	Selected extract
		talking to people.' (P29)
	Improved physical well-being and healthy self-care	'I felt confident when I managed a task by myself during the camp, and it made me feel really good and capable.' (P32) 'After returning home, I will continue these habits regular exercise, eating breakfast and maintaining a healthy routine. The camp also taught me to stay calm and handle tasks with a more balanced approach.' (P34) 'It slowly made me want to have more healthier lifestyle which I'm slowly working on it maybe from doing yoga or helping around.' (P16) 'The morning routine I followed at the NSS camp had a significant positive influence on my health. Waking up early, exercising and having proper breakfast every day made me feel more active and energetic. I could clearly notice the change in my body and mindset.' (P27)
Diverse Responses	Navigating Inclusion and Exclusion	'I had very good experience while performing with my team members but somewhere I was less valued when it comes to group discussion.' (P18) 'For the poster making, even I had ideas, opinion to make it but then they didn't want to involve my ideas because there was a shortage of time. And most of them did not even hear my ideas.' (P7) 'I felt left out of my group, but I always manage to stick together because it's a team of 6 and it happens, So am I happy about that for myself for not giving up on "US".' (P15) 'Felt included and valued, especially when my ideas were accepted. It made me feel like I was truly part of a group with a common goal.' (P35) 'Since we were organizing the camp, everyone's opinion and effort mattered. My team trusted me with important tasks, and their support made me feel valued.' (P31) 'I was always included and heard by my team, everyone was too.' (P16)

Note: Only the highlighted extracts are used within the text.

Appendix D: Showing the Shapiro–Wilk Test Scores for the variables

Variables	N	Shapiro–Wilk value	p-value
Mattering pre	40	0.87	0.00
Mattering post	40	0.97	0.16
Psychological well-being pre	40	0.94	0.00
Psychological well-being post	40	0.92	0.00
Self-efficacy pre	40	0.90	0.00
Self-efficacy post	40	0.95	0.00