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Evaluating the Immediate Emotional Impact of Community Volunteering on High School Students

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ABSTRACT

Background: Adolescence represents a challenging period of emotional and psychological development, yet today's youth face unprecedented pressures that compromise their mental health. Community service has emerged as a potentially transformative experience that may enhance adolescent well-being, but the immediate mood effects of short-term, structured volunteer activities are not well understood. Objective: This study aims to quantify the immediate emotional impact of participation in a high school-based community service program, "Strong Teens Stronger Community," on positive and negative affect among adolescents. Methods: The study employed a pre-post quasi-experimental design with repeated measures. Eleven high school students (N = 11; ages 15-17) completed the Positive and Negative Affect Schedule (PANAS) immediately before and after six structured service events over a 12-month period. Non-parametric Wilcoxon signed-rank tests and effect size calculations were used to analyze mood changes. Results: Participants exhibited significant increases in positive affect (Mchange=+14.64, $p<0.001$, $d=1.37$) and decreases in negative affect (Mchange= -7.45, $p<0.001$, $d=1.51$) following the service events. Remarkably, students with lower initial positive affect showed greater improvements, and negative affect scores converged to a uniformly low level post-intervention, suggesting an "emotional reset" effect. Conclusion: Structured community service activities can elicit substantial and consistent improvements in the mood states of high school students, particularly benefiting those with lower baseline positive affect. These findings highlight the potential of community service as an accessible and impactful intervention for adolescent mental health support.

Introduction

Adolescence is a pivotal time for emotional and psychological development, yet today's youth are encountering mental health struggles that are both widespread and unprecedented. They face a range of pressures: academic demands, the constant presence of social media, and mounting peer expectations. It is no wonder that these and other factors are fueling a troubling rise in depression and anxiety among American teens. In 2021, the U.S. Surgeon General reported that 42% of high school students reported persistent feelings of sadness or hopelessness, which was a significant jump from 28% just a decade earlier (Jones et al., 2022; McGorry & Mei, 2023). The complexity and scope of these mental health concerns frequently surpass what traditional support systems can address alone. Therefore, there's an urgent need for scalable, accessible interventions that can reliably support adolescents across a wide range of settings.

Among these interventions, community service has emerged as a promising option, particularly for adolescents (Goethem et al., 2014; Ballard et al., 2021; Ballard et al., 2022; Hernantes et al., 2020). Research suggests that volunteerism, or unpaid work for others, can significantly bolster psychological resilience, enhance social connections, and foster a sense of purpose and self-worth (Jenkinson et al., 2013; Matthieu et al., 2017). For adolescents, engaging in altruistic prosocial activities provides an opportunity to break from daily routines, gain new perspectives, and experience a renewed sense of self (Tashjian et al., 2020).

However, most of the research on volunteerism's mental health benefits focuses on long-term service or adult populations (Jenkinson et al., 2013; Jiang et al., 2020; Tabassum et al., 2016; Bang et al., 2020). Less attention has

been given to short-term, structured volunteer experiences on adolescents—especially those in school settings where time and resources are often limited. Such brief interventions could offer an accessible and scalable approach to improving resilience and mental health, particularly when sustained, long-term involvement is not feasible (Sundeen et al., 2000).

To assess the immediate impact of volunteerism on adolescent mood, this study employs the Positive and Negative Affect Schedule (PANAS), a widely validated tool for measuring fluctuations in both positive affect (e.g., enthusiasm) and negative affect (e.g., distress) (Watson et al., 1988). Given that adolescents frequently experience rapid and intense emotional changes, the PANAS is well-suited for capturing these fluctuations in mood, making it an ideal instrument for evaluating the effects of brief, structured volunteer experiences (Jovanović & Gavrilov-Jerković, 2016; Melvin & Molloy, 2000).

This research focuses on the effects of participation in "Strong Teens Stronger Community," a high school-based service program. We hypothesize that adolescents who engage in structured volunteer work will exhibit significant increases in positive affect and decreases in negative affect, as measured by the PANAS, immediately following each service event. If even short volunteer experiences can lift an adolescent's mood, then schools, families, and communities gain a simple, effective tool for enhancing young people's mental health. Unlike long-term commitments that can be challenging to maintain, brief volunteer activities offer a realistic, accessible way to foster positive emotional moments. This approach gives communities and schools a meaningful way to support adolescent well-being, one small but impactful activity at a time.

Methods

Participants and Ethical Approval

This study received approval from the Argus Independent Review Board on September 25, 2023. The sample included 11 high school students, ages 15 to 17, who were part of "Strong Teens Stronger Community," a community service club at a suburban public high school in Southern California. To protect participant privacy, demographic details like gender, racial/ethnic identity, and socioeconomic status weren't collected, though this limitation is recognized and discussed in detail in the discussion section.

Participants were selected through purposive sampling, with inclusion criteria requiring active club membership and the ability to complete mood assessments. Written informed consent was obtained from parents or guardians, while assent was obtained directly from each participant. Although the sample size (N = 11) was based on club membership and attendance rather than a formal power analysis, it aligns with comparable pilot studies on adolescent volunteering effects (Ballard et al., 2022).

Research Design

This study used a pre-post quasi-experimental design with repeated measures to capture immediate mood changes linked to community service participation. The protocol incorporated the Positive and Negative Affect Schedule (PANAS), a highly regarded psychometric tool known for strong internal consistency—Cronbach's α ranges from .86 to .90 for positive affect and .84 to .87 for negative affect—as well as reliable test-retest scores ($r = .68$ for positive affect, $r = .71$ for negative affect) across diverse groups, including adolescents (Watson et al., 1988; Crawford et al., 2004).

The study focused specifically on capturing mood changes immediately before and after each session. Rather than following participants' mood shifts over the long term, this approach allowed for a clear snapshot of short-term emotional responses tied to each event.

Service Event Protocol

Six service events took place at intervals of one to two months, skipping the summer months when school was on break. Each event lasted between 1 and 3 hours (M = 2.1 hours, SD = 0.4). These events focused on assisting elderly community members (aged 65+) who live independently. Participants worked with pre-screened individuals to ensure tasks were both manageable and safe. The service activities fell into four main categories: (1) household organization and furniture arrangement, (2) domestic cleaning, (3) basic home maintenance, and (4) yard maintenance. Task assignments followed a set protocol, designed to offer each participant a balanced mix of physical and social engagement. An adult coordinator supervised all events to ensure safety and consistency of the experience.

Instruments and Measures

Affects were measured using the 20-item PANAS. The instrument consists of two 10-item subscales measuring Positive Affect (PA) and Negative Affect (NA), each rated on a 5-point Likert scale (1 = "very slightly or not at all" to 5 = "extremely"). For the PA subscale, participants rate the extent to which they feel emotions like: (1) enthusiastic, (2) excited, (3) inspired, (4) determined, (5) active, (6) alert, (7) proud, (8) strong, (9) attentive, and (10) interested. In contrast, the NA subscale measures emotions such as: (1) upset, (2) distressed, (3) guilty, (4) scared, (5) hostile, (6) irritable, (7) ashamed, (8) nervous, (9) lonely, and (10) frightened. Subscale scores range from 10 to 50, with higher scores indicating greater intensity of the affective state. For instance, a participant scoring 50 on the PA subscale would be experiencing extremely high levels of positive emotions, such as excitement or enthusiasm, while a score of 50 on the NA subscale would indicate extreme negative feelings like distress or fear. The PANAS has been validated for use with adolescents (ages 14-18) and shows strong construct validity across varied demographic backgrounds (Jovanović & Gavrilov-Jerković, 2016; Melvin & Molloy, 2000).

Data Collection and Management Procedures

Data collection followed a consistent and standardized protocol across all service events to ensure reliability. The principal investigator administered PANAS assessments at specific intervals—2 to 5 minutes before the intervention and again 2 to 5 minutes afterward. These precise time frames were selected to minimize the impact of immediate situational factors while still capturing participants' mood states both at the beginning and end of the activity. This approach was designed to limit interference with the service task itself, though we recognize that it may not capture any delayed or longer-term changes in mood. This limitation is addressed in the discussion, where we consider the need for future research to explore these longer-term effects.

For confidentiality, each participant was assigned a unique alphanumeric identifier. This allowed us to link pre- and post-event responses for analysis while ensuring the privacy of the individuals involved.

Statistical Analysis

The statistical analysis and graph depictions were carried out using GraphPad Prism version 10.3.1 for macOS, GraphPad Software, Boston, Massachusetts USA, www.graphpad.com. We set the significance threshold at $\alpha = .05$ (two-tailed). Knowing the relatively small sample size (N = 11) and the ordinal nature of the PANAS scales, we opted for non-parametric methods, which were better suited for the data.

The focus of our analysis was to capture immediate shifts in mood following the volunteer intervention by comparing Positive Affect (PA) and Negative Affect (NA) scores both before and after the service event. The Shapiro-Wilk test showed that NA scores did not follow a normal distribution ($p < .05$). Coupled with the small sample size,

this led us to choose the Wilcoxon signed-rank test as the appropriate method to compare the paired pre- and post-event scores.

The Wilcoxon signed-rank test was performed separately for the Positive PANAS scores (before and after volunteering) and Negative PANAS scores (before and after volunteering). It checks whether the median difference between paired observations is significantly different from zero (Rosner et al., 2006). The test produces a 'W' statistic, which represents the sum of ranks for positive differences between the paired measurements.

The p-value for each test was computed by comparing the observed sum of the ranks of the differences in the paired scores (before and after the volunteering event) to the expected distribution of ranks under the null hypothesis. The null hypothesis assumes no difference between the pairs. A smaller p-value (with p-value <0.05 being significant) states the observed differences in scores are unlikely to have occurred by chance.

We also calculated descriptive statistics, including means (M), mean change scores (Mchange), and standard deviations (SD). Lastly, to provide context for the magnitude of these changes, we calculated Cohen's d, an effect size measure that gives us a sense of the strength of the observed effects.

Cohen's d was computed using the formula:

$$d = \frac{Mean\ dif\,ference\ between\ pre - and\ post - event}{Pooled\ s\tan d\ ard\ deviation}$$

where the pooled standard deviation accounts for variability within both pre- and post-event scores. This effect size offers a standardized measure that facilitates comparison with existing literature on similar interventions, providing both statistical and practical significance indicators.

Results

Analysis of affect changes following volunteer service participation revealed significant and nuanced improvements in participant mood states.

Primary Outcome Measures

Positive Affect

Wilcoxon signed-rank tests demonstrated a significant increase in positive affect from pre-intervention (M = 26.91, SD = 10.64) to post-intervention (M = 41.55, SD = 6.47), W = 66.0, p < .001 (see Table 1, Figure 1). The magnitude of this improvement was substantial, with a large effect size (Cohen's d = 1.37). Ten of eleven participants (90.9%) showed increases in positive affect scores, with improvements ranging from 2 to 34 points (Mchange = +14.64). Figure 2 displays individual pre- and post-event trajectories for positive affects in the blue line.

Negative Affect

Conversely, the Wilcoxon signed-rank test indicated a significant decrease in negative affect from pre-intervention (M = 18.00, SD = 4.92) to post-intervention (M = 10.55, SD = 1.04), W = 0.0, p < .001 (see Table 1, Figure 1). This substantial reduction, accompanied by a large effect size (Cohen's d = 1.51), was observed in all participants (100%), with individual decreases ranging from 2 to 19 points (Mchange = -7.45). Figure 2 shows that every participant experienced a reduction.

Table 1. Pre-Post Changes in Positive and Negative Affect Scores Among Adolescent Participants in a Community Service Program: Results from the "Strong Teens Stronger Community" Initiative

Measure	Pre-	Post-	Change	Test	Cohen's d

	Volunteer Activity	Volunteer Activity	Score (Mchange)	Statistic	(Effect Size)
Positive Affect Mean (SD)	26.91 (10.64)	41.55 (6.47)	+14.64	W=66.0***	1.37
Range	12-46	30-50			
Negative Affect Mean (SD)	18.00 (4.92)	10.55 (1.04)	-7.45	W=0.0***	1.51
Range	12-29	10-13			

Table 1: This table corresponds with Figure 1 and presents changes in affect scores measured via the Positive and Negative Affect Schedule (PANAS) among high school students (N = 11, ages 15-17) immediately before and after participating in structured community service activities. Assessments were conducted within 2-5 minutes pre- and post-intervention across six service events focused on assisting elderly community members. All variables were tested using Wilcoxon signed-rank tests due to non-normal distribution. Change scores (Mchange) represent raw mean score differences (post minus pre). Positive change scores indicate improvement in positive affect; negative change scores indicate reduction in negative affect. The significant changes in both positive and negative affect, coupled with notably large effect sizes, demonstrate the substantial immediate emotional benefits of community service participation among adolescents. SD = Standard Deviation; W = Wilcoxon signed-rank test statistic; d = Cohen's d effect size. Effect sizes: small (0.2), medium (0.5), large (0.8). ***p< .001, two-tailed.

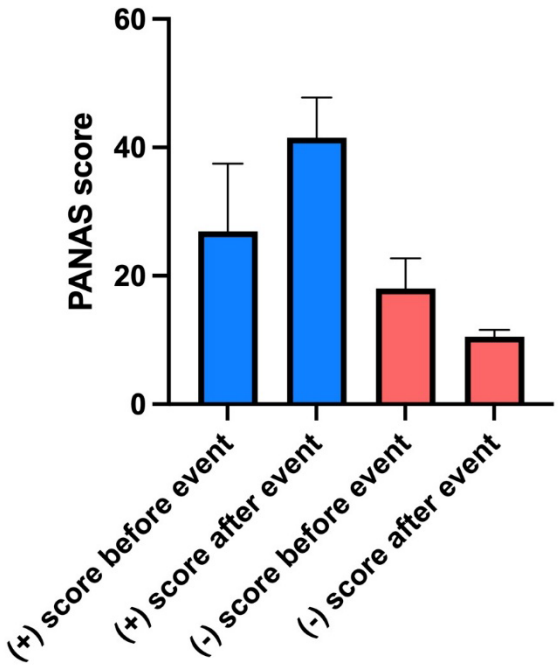

Figure 1. Changes in Positive and Negative Affect Following Community Service Participation. This figure corresponds with Table 1. Mean PANAS scores before and after service events (N = 11). Blue bars represent positive affect scores, showing a significant increase from pre-event (M = 26.91, SD = 10.64) to post-event (M = 41.55, SD = 6.47), p < .001. Red bars represent negative affect scores, showing a significant decrease from pre-event (M = 18.00, SD =

4.92) to post-event (M = 10.55, SD = 1.04), p < .001. Error bars represent standard deviations. Both changes demonstrated large effect sizes (Cohen's d = 1.37 and 1.51 for positive and negative affect, respectively).

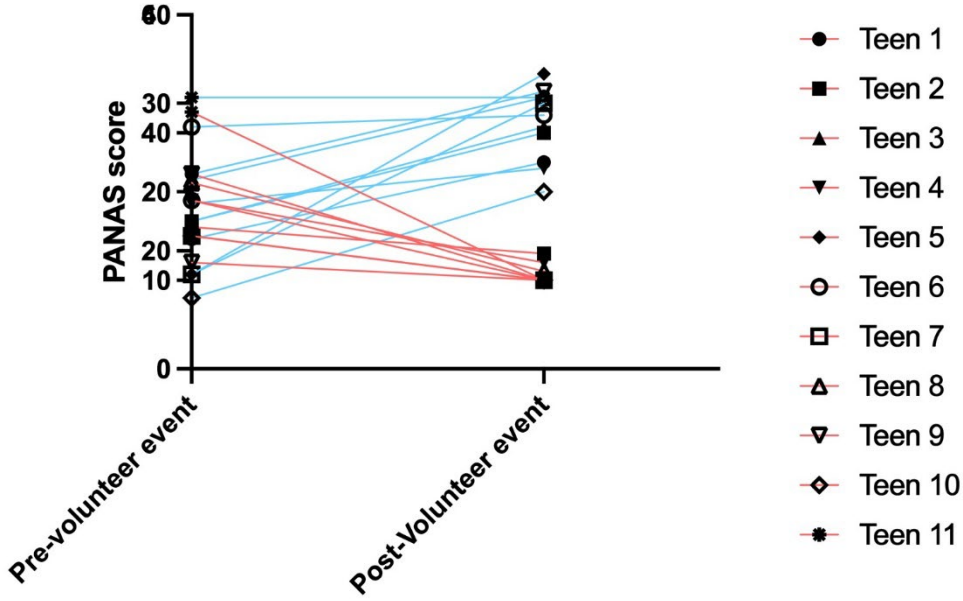

Figure 2. Individual-level affective trajectories in response to volunteer activity. Individual participant trajectories (N = 11) showing changes in positive affect (blue lines) and negative affect (red lines) from pre- to post-volunteer events. The visualization reveals consistent patterns of improvement across participants, with 10 of 11 participants (90.9%) showing increased positive affect and all participants demonstrating decreased negative affect following the event.

Secondary Analysis

Baseline Dependency Effect

Further analysis revealed a notable relationship between initial mood states and magnitude of improvement. Participants with lower initial positive affect scores (≤20) showed substantially larger improvements (Mchange = +27 points) compared to those with higher initial scores (Mchange = +9.8 points) (see Figure 3). This suggests the program may be especially beneficial for students experiencing lower baseline mood states.

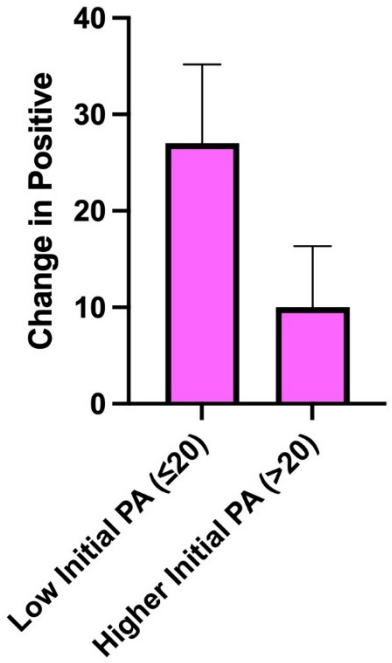

Figure 3. Differential impact of community service participation on positive affect scores based on initial emotional state. The bar graph illustrates the mean change in PANAS positive affect (PA) scores following community service activities, stratified by initial PA levels (Low: ≤20, n=3; Higher: >20, n=8). Error bars represent standard errors. Participants with low initial PA scores demonstrated substantially larger improvements (Mchange = +27.00 points) compared to those with higher initial scores (Mchange = +10.00 points), suggesting an "affective lifting effect" where the intervention provides greater benefits to those with lower baseline emotional states. Data were collected from high school students (N=11, ages 15-17) participating in a structured community volunteer program.

Convergence Effect

A pattern emerged in the post-intervention negative affect (NA) scores, which showed a startling convergence (SD = 1.04) compared to pre-intervention scores (SD = 4.92). Before the intervention, there was considerable variation in negative affect scores, ranging from 12 to 29. However, post-intervention scores were notably consistent, with almost all participants falling between 10 and 13, regardless of where they started. In fact, 8 out of the 11 participants ended up with a score of exactly 10 (the lowest possible for NA) (See Figure 4).

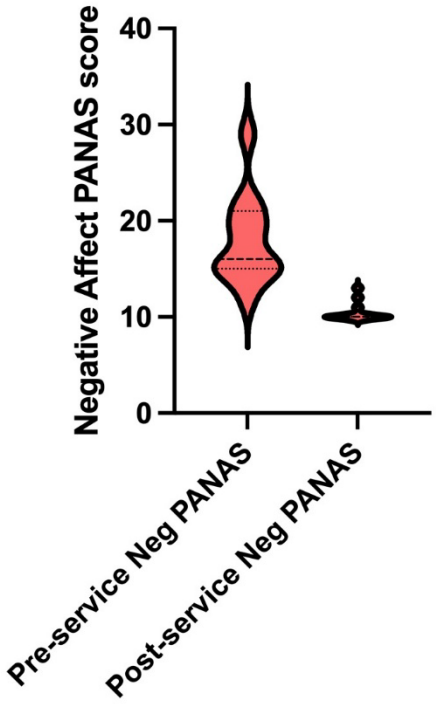

Figure 4. Convergence of Negative Affect Scores Before and After Community Service. Violin plots show the distribution of PANAS Negative Affect scores for high school students (N=11) immediately before and after participating in community service activities. The wider spread in pre-service scores (M=18.00, SD=4.92) narrows considerably post-service (M=10.55, SD=1.04), demonstrating a significant reduction and convergence in negative affect following community service participation ($p<.001$, Cohen's $d=1.51$).

Discussion

Interpretation of Results

Differential Impact Based on Initial State

Initial emotional states were revealed to play a striking role in determining the amount of mood improvements among participants. Those who started with lower positive affect scores (≤20, n=3) saw their moods go up by an average of 27 points. This was nearly triple the improvement compared to their peers who began in better spirits (>20, n=8), who still showed a respectable gain of 10 points (see Figure 2). This finding hints at a ceiling effect in mood enhancement. Essentially, this means that those who started with higher moods might not experience as much of a boost. This substantial difference in improvement magnitude suggests that the program may function as an emotional equalizer, providing the greatest benefit to those who need it most.

The heightened responsiveness among students with lower initial mood states indicates that community service activities might serve as an especially effective intervention for students experiencing more mood difficulties or emotional challenges. This effect was also seen in a previous study where internet-based intervention focused on positive affect was most effective for participants (ages 19-68) who had "worse mental health scores and well-being at baseline" (Vara et al., 2020).

The Convergence Phenomenon

There was a remarkable convergence of negative affect scores following the service activities as noted in Figure 4. This "emotional reset" effect suggests that community service activities might trigger a kind of standardizing mechanism in emotional regulation. It seems that, regardless of their initial emotional state, service activities help bring participants to a similar, baseline level of negative affect. This has significant implications for how prosocial activities might be used as a reliable tool for emotional regulation, especially among adolescents.

Magnitude and Consistency of Effects

The impact of the service activities was both striking in its strength and consistency across participants. The effect sizes observed—d = 1.37 for positive affect and d = 1.51 for negative affect—are particularly noteworthy, especially when compared to the typical range of effect sizes seen in psychological interventions, which often fall between 0.2 and 0.8. These large effect sizes suggest community service is practically meaningful.

Equally impressive is the consistency of these effects. A remarkable 10 out of 11 participants (90.9%) showed improvements in positive affect, while all 11 participants (100%) demonstrated reductions in negative affect. This near-universal response points to the robust mood-enhancing effects of community service, which seem to transcend individual differences in initial emotional states. Given the usual variability of psychological interventions, the consistency of these results stands out.

A wide range of improvements, paired with the overall consistency in positive outcomes, suggests that community service can offer meaningful emotional benefits to high schoolers, with particular effectiveness for those starting with lower mood states.

Theoretical Implications

Emotional Regulation Mechanisms

The convergence of negative affect scores observed in participants suggests that community service may trigger several emotional regulation mechanisms that help stabilize and improve mood. These mechanisms likely work in tandem, each playing a role in reducing negative emotions.

One key pathway is the shift in focus to others' needs. When participants engage in service tasks aimed at helping the elderly in the community, they have to momentarily redirect their attention away from personal worries and stress, which can decrease rumination (Yoon and Joormann, 2012).

Another important factor may be the sense of accomplishment that comes from completing meaningful tasks that benefit others. This sense of achievement not only reinforces feelings of competence but also strengthens personal value, which can have a powerful, positive impact on mood (Thoits and Hewitt, 2001).

The social aspect of group-based service activities likely plays a role by interacting with others and fostering positive connections. Moreover, many service tasks involve physical activity, which is known to boost mood by releasing endorphins and relieving stress (Mikkelsen et al., 2017).

All of these elements—helping others, gaining a sense of accomplishment, social support, and physical exertion—seem to work together in a comprehensive way to enhance emotional regulation. These findings point to the potential of community service as a practical tool for emotional regulation in teens.

Conclusion

This study offers preliminary but convincing proof that organized community service projects, such as those provided by the "Strong Teens Stronger Community" initiative, significantly enhance the mood states of adolescents, especially immediately following the service activity. The significant effect sizes and steady improvements in participants'

moods suggest that community service is a practical and affordable way to improve high school students' emotional health.

As mental health challenges among adolescents continue to grow, this research underscores the value of community service as a meaningful way to foster positive emotional states. The dual benefits—helping others while simultaneously improving one's own mood—highlight the unique potential of service activities as a practical, impactful mental health intervention. By engaging with their communities, adolescents not only contribute to the well-being of others but also find agency to improve their own emotional state.

We advise making voluntary community service a regular component of students' academic journeys by including it into high school curricula. By partnering with established local organizations, we can make sure that these service opportunities are sustainable and accessible. We also support more institutional funding for such youth assistance programs, as well as ongoing research in this field.

Limitations

While this study offers valuable insights into how community service affects adolescent mood, it's important to keep in mind several limitations that may affect how the results can be interpreted and applied more broadly. One of the key limitations is the small sample size (N = 11). Although a post-hoc power analysis showed that the study had enough power to detect large effects, the small sample makes it harder to capture more subtle mood changes and restricts the generalizability of the findings.

Another limitation is the lack of detailed demographic data. While we know that the participants were adolescents aged 15-17 from a middle to upper-class suburban community, the anonymous data collection process prevented us from capturing additional information like gender, race, ethnicity, or specific socioeconomic factors, which limits our ability to understand how these variables might have influenced the results.

The lack of a control group is another important limitation. Without a comparison group engaging in non-service activities, such as individual study time or other group activities, we can't conclusively attribute the observed mood improvements to the community service intervention itself. It's possible that other factors, like the benefits of social interaction or physical activity, could have contributed to the changes in mood. To more clearly isolate the effects of community service, future research would benefit from including a randomized controlled design that compares service activities with other types of structured group experiences.

Data were only collected at two time points—before and after the service event—which means we couldn't track more dynamic, real-time changes in mood during the activity itself or the long-term changes that may happen days and weeks after the event.

The reliance on self-reported mood assessments is another potential limitation, as participants may have been influenced by social desirability bias, especially since they knew the study was focused on mood enhancement.

Finally, several other variables could have influenced the results. Physical exertion during service activities, time of day and/or season, group dynamics, and individual differences in emotional regulation and maturity may have impacted mood independently of the service itself.

To address these limitations, future research should aim to expand the sample size, include more frequent data collection points, and control for external variables that could affect mood.

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References

Ballard, P. J., Daniel, S. S., Anderson, G., Nicolotti, L., Caballero Quinones, E., Lee, M., & Koehler, A. N. (2021). Incorporating Volunteering into Treatment for Depression Among Adolescents: Developmental and Clinical Considerations. Frontiers in psychology, 12, 642910. https://doi.org/10.3389/fpsyg.2021.642910

Ballard, P. J., Daniel, S. S., Anderson, G., Koehler, A. N., Caballero Quinones, E., Strahley, A., & Nicolotti, L. M. (2022). An Exploratory Feasibility Study of Incorporating Volunteering into Treatment for Adolescent Depression and Anxiety. Frontiers in psychology, 13, 840881. https://doi.org/10.3389/fpsyg.2022.840881

Bang, H., Won, D., & Park, S. (2020). School engagement, self-esteem, and depression of adolescents: The role of sport participation and volunteering activity and gender differences. Children and Youth Services Review. https://doi.org/10.1016/j.childyouth.2020.105012.

Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): construct validity, measurement properties and normative data in a large non-clinical sample. The British journal of clinical psychology, 43(Pt 3), 245–265. https://doi.org/10.1348/0144665031752934

Goethem, A., Hoof, A., Castro, B., Aken, M., & Hart, D. (2014). The role of reflection in the effects of community service on adolescent development: a meta-analysis. Child development, 85 6, 2114-30. https://doi.org/10.1111/cdev.12274.

Hernantes, N., Pumar-Méndez, M., López-Dicastillo, O., Iriarte, A., & Mujika, A. (2020). Volunteerism as adolescent health promotion asset: a scoping review.. Health promotion international. https://doi.org/10.1093/heapro/daz026.

Jenkinson, C. E., Dickens, A. P., Jones, K., Thompson-Coon, J., Taylor, R. S., Rogers, M., Bambra, C. L., Lang, I., & Richards, S. H. (2013). Is volunteering a public health intervention? A systematic review and meta-analysis of the health and survival of volunteers. BMC public health, 13, 773. https://doi.org/10.1186/1471-2458-13-773

Jiang, D., Warner, L., Chong, A., Li, T., Wolff, J., & Chou, K. (2020). Benefits of volunteering on psychological well-being in older adulthood: evidence from a randomized controlled trial. Aging & Mental Health, 25, 641 - 649. https://doi.org/10.1080/13607863.2020.1711862.

Jones, S. E., Ethier, K. A., Hertz, M., DeGue, S., Le, V. D., Thornton, J., Lim, C., Dittus, P. J., & Geda, S. (2022). Mental Health, Suicidality, and Connectedness Among High School Students During the COVID-19 Pandemic - Adolescent Behaviors and Experiences Survey, United States, January-June 2021. MMWR supplements, 71(3), 16–21. https://doi.org/10.15585/mmwr.su7103a3

Jovanović, V., & Gavrilov-Jerković, V. (2016). The Structure of Adolescent Affective Well-Being: The Case of the PANAS Among Serbian Adolescents. Journal of Happiness Studies, 17, 2097-2117. https://doi.org/10.1007/S10902-015-9687-8.

Matthieu, M. M., Lawrence, K. A., & Robertson-Blackmore, E. (2017). The impact of a civic service program on biopsychosocial outcomes of post 9/11 U.S. military veterans. Psychiatry research, 248, 111–116. https://doi.org/10.1016/j.psychres.2016.12.028

McGorry, P., & Mei, C. (2023). Youth mental health: A rising public health challenge. Australasian Psychiatry, 31, 245 - 246. https://doi.org/10.1177/10398562231177350.

Melvin, G., & Molloy, G. (2000). Some Psychometric Properties of the Positive and Negative Affect Schedule among Australian Youth. Psychological Reports, 86, 1209 - 1212. https://doi.org/10.2466/pr0.2000.86.3c.1209.

Mikkelsen, K., Stojanovska, L., Polenaković, M., Bosevski, M., & Apostolopoulos, V. (2017). Exercise and mental health. Maturitas, 106, 48-56. https://doi.org/10.1016/j.maturitas.2017.09.003.

Rosner, B., Glynn, R., & Lee, M. (2006). The Wilcoxon Signed Rank Test for Paired Comparisons of Clustered Data. Biometrics, 62. https://doi.org/10.1111/j.1541-0420.2005.00389.x.

Sundeen, R., & Raskoff, S. (2000). Ports of Entry and Obstacles: Teenagers' Access to Volunteer Activities. Nonprofit Management and Leadership, 11, 179-197. https://doi.org/10.1002/NML.11204.

Tabassum, F., Mohan, J., & Smith, P. (2016). Association of volunteering with mental well-being: a lifecourse analysis of a national population-based longitudinal study in the UK. BMJ Open, 6. https://doi.org/10.1136/bmjopen-2016-011327.
Thoits, P., & Hewitt, L. (2001). Volunteer work and well-being. Journal of health and social behavior, 42 2, 115-31. https://doi.org/10.2307/3090173.

Tashjian, S., Rahal, D., Karan, M., Eisenberger, N., Galván, A., Cole, S., & Fuligni, A. (2020). Evidence from a Randomized Controlled Trial that Altruism Moderates the Effect of Prosocial Acts on Adolescent Well-being. Journal of Youth and Adolescence, 50, 29 - 43. https://doi.org/10.1007/s10964-020-01362-3.

Vara, M., Mira, A., Miragall, M., García-Palacios, A., Botella, C., Gili, M., Riera-Serra, P., García-Campayo, J., Mayoral-Cleríes, F., & Baños, R. (2020). A Low-Intensity Internet-Based Intervention Focused on the Promotion of Positive Affect for the Treatment of Depression in Spanish Primary Care: Secondary Analysis of a Randomized Controlled Trial. *International Journal of Environmental Research and Public Health*, 17. https://doi.org/10.3390/ijerph17218094.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. Journal of personality and social psychology, 54(6), 1063–1070. https://doi.org/10.1037//0022-3514.54.6.1063

Yoon, K., & Joormann, J. (2012). Is Timing Everything? Sequential Effects of Rumination and Distraction on Interpersonal Problem Solving. Cognitive Therapy and Research, 36, 165-172. https://doi.org/10.1007/s10608-010-9330-2.