

RESILIENCE AND COMMUNITY INVOLVEMENT: THE MEDIATING ROLE OF CHARACTER STRENGTHS AMONG MEDICAL STUDENTS

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DOI: <https://doi.org/10.5281/zenodo.17657134>

Received	Accepted	Published
23 September 2025	01 November 2025	20 November 2025

ABSTRACT

This study examines the relationship between resilience and community involvement in medical students, highlighting the mediating role of character strengths. Medical students often encounter high academic and emotional demands that can influence their psychological adjustment and engagement in community-related activities. Drawing on positive psychology, this research aimed to investigate whether character strengths serve as mechanisms linking resilience and community involvement. A cross-sectional design was employed with a sample of medical students (n =278), who completed validated measures of resilience, character strengths, and community involvement. Mediation analysis revealed that character strengths significantly mediated the relationship between resilience and community involvement, suggesting that resilient students who actively utilize their strengths are more likely to participate meaningfully in community settings. These findings underscore the importance of integrating strength-based psychoeducation and resilience-building programs into medical curricula to enhance both personal and professional development.

Keywords: Resilience, Character strengths, Community involvement, medical students, Positive psychology, Mediation analysis, Student well-being.

INTRODUCTION

Medical education is considered one of the most demanding and stressful academic pathways, exposing students to intense workloads, competitive environments, and emotionally challenging clinical encounters. The cumulative

pressures of examinations, long study hours, sleep deprivation, and the responsibility of learning to care for patients often contribute to high levels of stress, anxiety, and burnout among medical students. Such stressors not only affect their

academic performance but can also have long-term implications for their personal and professional development. In this context, resilience has emerged as a critical psychological resource. Defined as the capacity to adapt successfully in the face of adversity, resilience allows individuals to recover from setbacks, maintain balance under pressure, and continue to function effectively despite challenges (BergmannMuth and Loerbroks, 2019). Recent studies confirm that medical students with higher resilience demonstrate greater psychological well-being, reduced levels of burnout, and improved academic persistence compared to peers with lower resilience (Saad and Ali, 2025, Sanjaya et al., 2024).

While resilience enables students to cope with stress, community involvement is equally important for shaping professional identity and instilling social responsibility during medical training. Community involvement, in the form of outreach activities, voluntary service, and health awareness programs, provides students with opportunities to apply their knowledge beyond the classroom, develop empathy, and enhance civic engagement. Evidence suggests that medical students who participate in community activities not only report higher satisfaction with their training but also develop a stronger sense of empathy and commitment to patient-centered care (Laughey et al., 2021, Bejarano et al., 2022). Such involvement is particularly vital in resource-constrained contexts, where medical professionals are expected to address not only clinical needs but also broader public health and social challenges.

The connection between resilience and community involvement, however, cannot be understood in isolation. Positive psychology emphasizes the importance of character strengths universally valued traits such as perseverance, kindness, leadership, and self-regulation that contribute to individual flourishing and prosocial behavior (Peterson and Seligman, 2004). Character strengths are seen as internal resources that guide thought, emotion, and behavior in adaptive ways. Studies have shown that resilient individuals are more likely to harness these strengths when confronted with adversity, which in turn facilitates greater engagement in prosocial

and community-oriented behaviors (Niemiec and Pearce, 2020, Egan et al., 2024). In medical education, where resilience and social responsibility are both critical, character strengths may provide the psychological bridge between the ability to withstand challenges and the motivation to contribute positively to society.

Despite the growing recognition of these constructs, there remain important gaps in the literature. Most existing research on resilience, character strengths, and community involvement has been conducted with adolescents or general university populations, leaving medical students underexplored in this regard. While several studies have examined resilience in medical training, far fewer have empirically tested how resilience translates into community engagement, nor have they explicitly considered the mediating role of character strengths in this relationship. This gap is noteworthy given that medical students occupy a unique developmental and professional stage, balancing the demands of academic achievement with the cultivation of ethical and social responsibilities. Moreover, much of the prior work on resilience has emphasized individual coping outcomes rather than exploring its broader social and community implications (Luthar and Cicchetti, 2000, Vaughn and DeJonckheere, 2021).

The rationale for this study stems from the need to understand not only how medical students survive academic and emotional stressors but also how they can thrive and meaningfully contribute to their communities. By investigating character strengths as a mediator, this research advances the idea that resilience does not merely enable students to endure challenges but also enhances their ability to act on values such as empathy, perseverance, and leadership. These strengths may in turn drive meaningful community engagement, which is essential for the development of compassionate and socially responsible medical professionals. Integrating this knowledge into educational practice could inform psychoeducational interventions that build resilience and promote the application of character strengths, ultimately preparing students for both the personal demands of medical

education and the societal expectations of the medical profession.

The significance of this study lies in its contribution to bridging positive psychology and medical education. Understanding the dynamics between resilience, character strengths, and community involvement provides insights that go beyond individual well-being to encompass professional identity formation and civic responsibility. It highlights the importance of embedding resilience training and strengths-based approaches into medical curricula, thereby equipping future physicians not only with clinical competence but also with the psychological and social resources necessary to engage with communities effectively.

The aim of the present study is to examine the relationship between resilience and community involvement among medical students, with a specific focus on the mediating role of character strengths. The objectives are to assess levels of resilience, character strengths, and community involvement among medical students; to examine the association between resilience and community involvement; to explore the relationship between resilience and character strengths; and to analyze whether character strengths mediate the link between resilience and community involvement. In addressing these objectives, the study seeks to provide empirical evidence to inform educational practices that cultivate resilient, strength-oriented, and community-engaged medical graduates prepared to meet both personal and societal challenges.

Methodology

The present study employed a cross-sectional survey design and included a convenience sample of 278 medical students from Wah Medical College and Foundation University Medical College. Participants ranged in age from 21 to 26 years and comprised both male and female students. Recruitment took place during the academic semester through classroom announcements and institutional email lists. Students who agreed to participate were provided with detailed study information and asked to complete an online questionnaire. Prior to data collection, ethical approval was granted by the

Institutional Review Board of Foundation University Medical College, and informed consent was obtained from all participants.

Inclusion criteria specified that participants had to be full-time medical students enrolled in the MBBS program, within the age range of 21 to 26 years, and able to complete the survey independently in English. Students who failed to provide complete responses or fell outside the specified age range were excluded from the study. Demographic information was gathered to provide a descriptive overview of the sample and included variables such as age, gender, year of study, living environment (home or hostel), and socioeconomic status.

Resilience was assessed using the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), a validated 25-item instrument that evaluates the ability to adapt positively to adversity (Connor and Davidson, 2003). Character strengths were measured with the Values in Action Inventory of Strengths—Short Form, which captures 24 character strengths across multiple domains (Anjum and Amjad, 2021). Community involvement was measured using the Community Service Involvement Questionnaire, which evaluates both the extent and quality of engagement in volunteering and service-learning activities (Turcotte et al., 2019).

Data collection was conducted online, and participants were able to complete the survey in a single sitting of approximately 20–25 minutes. They were assured of the anonymity of their responses and informed that participation was voluntary, with no academic or personal consequences for non-participation. A debriefing statement was provided at the end of the questionnaire, outlining the aims of the study and providing details of support resources should participants experience discomfort.

Data analysis was performed using SPSS version 26. Descriptive statistics were calculated for all study variables, and reliability analyses were conducted to ensure the internal consistency of the scales. Pearson's correlation was employed to examine relationships among resilience, character strengths, and community involvement. Mediation analysis was performed using Hayes' PROCESS macro (Model 4), with 5,000 bootstrap

resamples to test indirect effects and establish confidence intervals. Statistical significance was set at $p < .05$.

Results

Table 2

Demographic Characteristics of Participants (n = 278)

Variable	Categories	f (%)
Age (years)	21-22	92 (33.1%)
	23-24	110 (39.6%)
	25-26	76 (27.3%)
Gender	Male	132 (47.5%)
	Female	146 (52.5%)
Year of Study	1st Year	55 (19.8%)
	2nd Year	58 (20.9%)
	3rd Year	54 (19.4%)
	4th Year	56 (20.1%)
	Final Year	55 (19.8%)
Living Environment	Hostel	124 (44.6%)
	Home	154 (55.4%)
Socioeconomic Status	Low	64 (23.0%)
	Middle	150 (54.0%)
	High	64 (23.0%)

The demographic profile shows a well-distributed sample of 278 medical students, with participants across the age range of 21-26 years. Gender representation was fairly balanced, with slightly more females than males. The sample included students from all years of study, indicating coverage across the full spectrum of medical training. Living environments were also varied,

with a majority residing at home and a substantial proportion living in hostels. Socioeconomic status was evenly distributed across low, middle, and high groups, with the middle class most represented. This diversity enhances the representativeness of the sample within the institutional context.

Table 2

Descriptive Statistics, Reliability, Skewness, and Kurtosis of Study Variables (N = 278)

Variable	M	SD	Cronbach's α	Skewness	Kurtosis
Resilience	3.85	0.67	.89	-0.34	0.82
Character Strengths	4.12	0.54	.91	-0.28	0.47
Community Involvement	3.45	0.72	.86	0.11	-0.63

The descriptive statistics indicate moderate to high levels of resilience ($M = 3.85$), character strengths ($M = 4.12$), and community involvement ($M =$

3.45) among participants. Internal consistency for all measures was excellent ($\alpha = .86-.91$), confirming scale reliability. Skewness and kurtosis

values fell within acceptable ranges (−1 to +1), indicating that the data were normally distributed and suitable for parametric analyses.

Table 3
Correlations Among Study Variables

Variable	1	2	3
1. Resilience	–		
2. Character Strengths	.52***	–	
3. Community Involvement	.38**	.47***	–

Note. $p < .05^*$, $p < .01^{**}$, $p < .001^{***}$.

Correlation analysis revealed significant positive associations among all study variables. Resilience was moderately correlated with character strengths ($r = .52$, $p < .001$) and community involvement ($r = .38$, $p < .01$), while character strengths showed a strong positive correlation with community

involvement ($r = .47$, $p < .001$). These results suggest that higher resilience is linked to stronger character strengths and greater community engagement, and that character strengths themselves play a particularly influential role in promoting community involvement.

Table 4
Mediation Analysis of Character Strengths in the Relationship Between Resilience and Community Involvement

Path	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Resilience → Character Strengths	.45	.07	.51	6.42	<.001
Character Strengths → Community Involvement	.39	.08	.42	5.03	<.001
Resilience → Community Involvement (direct)	.21	.09	.24	2.33	.021
Resilience → Community Involvement (indirect via strengths)	.17	.05	–	–	<.01

The mediation analysis demonstrated that character strengths significantly mediated the relationship between resilience and community involvement. Resilience was a strong positive predictor of character strengths ($\beta = .51$, $p < .001$), which in turn positively predicted community involvement ($\beta = .42$, $p < .001$). The direct effect of resilience on community involvement remained significant ($\beta = .24$, $p = .021$) but was reduced when character strengths were included in the model, indicating partial mediation. The indirect effect of resilience on community involvement through character strengths was also significant ($B = .17$, $p < .01$), underscoring the importance of strengths as the pathway linking resilience to meaningful engagement.

Discussion

The present study investigated the relationship between resilience and community involvement in medical students, with character strengths examined as a potential mediator. The findings demonstrated that character strengths significantly mediated the link between resilience and community involvement, suggesting that resilient students who actively draw upon their strengths are more likely to engage meaningfully in community-based activities. This provides an important contribution to the literature, extending prior work that has largely focused on adolescents or general student populations by contextualizing these dynamics within medical education (Ciaccio et al., 2014, SerhatoğluKoydemir and Schütz, 2022).

A central implication of these findings is that resilience alone, while vital for managing the academic and emotional stressors of medical training, does not automatically translate into community engagement. Rather, resilience appears to activate or enhance character strengths—such as perseverance, leadership, and kindness—which then facilitate prosocial involvement. This interpretation is consistent with positive psychology frameworks, which posit that strengths serve as pathways through which internal resources are expressed in socially valuable behaviors (Peterson and Seligman, 2004, Niemiec, 2013). Thus, resilience functions not merely as a coping resource but also as a catalyst for the mobilization of strengths that underpin civic responsibility and professional identity formation. The positive associations observed between resilience, character strengths, and community involvement echo prior research linking resilience with adaptive coping and well-being outcomes (Macia et al., 2021), as well as evidence showing that strengths predict prosocial behavior, engagement, and purpose in life (Lavy, 2020). However, the present study goes further by demonstrating a process-oriented mechanism: resilient students are more likely to draw on their personal strengths, which in turn fosters greater involvement in community service. This highlights the importance of integrating strength-based models into resilience research, particularly within medical training contexts.

From an applied perspective, the findings advocate for psychoeducational interventions within medical curricula that target both resilience and character strengths development. While resilience training programs, such as mindfulness-based or cognitive-behavioral approaches, are increasingly being introduced in medical schools (Vidal et al., 2024, Phan et al., 2022) the explicit integration of strengths-based approaches remains less common. Programs that encourage students to identify and apply their unique strengths in academic, clinical, and community contexts may foster greater self-efficacy and intrinsic motivation. When combined with resilience-building exercises, such interventions could create a synergistic effect, reinforcing both the capacity to manage stress and the motivation to contribute socially.

The mediating role of character strengths also raises questions for future research. For instance, it remains unclear which specific strengths (e.g., perseverance, teamwork, leadership) are most influential in linking resilience to community involvement. Prior evidence suggests that certain strengths, such as self-regulation and kindness, are particularly predictive of prosocial engagement (Lavy, 2020, GkintoniVassilopoulos and Nikolaou, 2025), and future studies could employ structural equation modeling to test these differential pathways. Moreover, longitudinal research is needed to examine whether the observed relationships persist across different stages of medical training and into professional practice, given the evolving challenges faced by students during their transition into clinical roles. Another consideration lies in the cultural and contextual relevance of these findings. The sample was drawn from medical students in Pakistan, where strong cultural values of collectivism, service, and social responsibility may interact with resilience and strengths in unique ways. Previous cross-cultural studies indicate that the salience and expression of character strengths vary across societies (Wagner et al., 2020), suggesting that the interplay between resilience and community involvement may be influenced by cultural norms. Replicating this study in different cultural and institutional contexts would help clarify the generalizability of these results.

Despite its contributions, the study is not without limitations. The use of a cross-sectional design restricts causal inferences, and reliance on self-report measures introduces the possibility of response biases. Furthermore, convenience sampling may limit the representativeness of the findings. Nonetheless, the robust associations identified and the theoretical grounding of the mediation model provide a strong basis for further exploration. Future research using longitudinal and experimental designs could more rigorously test the causal pathways and evaluate the effectiveness of combined resilience- and strengths-based interventions in medical education.

Conclusion

this study demonstrates that character strengths serve as an important psychological bridge between resilience and community involvement in medical students. By drawing on their strengths, resilient students are better equipped to engage in meaningful community service, which not only benefits their personal development but also aligns with the broader goals of medical education to cultivate socially responsible professionals. Embedding resilience and character strengths training into medical curricula has the potential to enhance students' academic success, emotional well-being, and civic contributions, ultimately shaping more compassionate and resilient physicians prepared to meet both personal and societal challenges.

Limitations and recommendations of the study

The present study has certain limitations that must be considered when interpreting the findings. The use of a cross-sectional design restricts the ability to draw causal inferences regarding the relationships between resilience, character strengths, and community involvement. Self-report measures may also have introduced response biases such as social desirability, particularly given the professional expectations placed on medical students to exhibit resilience and prosocial behavior. In addition, the study employed a convenience sample from two medical colleges, which may limit the generalizability of the results to other cultural or institutional contexts. Furthermore, the study did not account for variations in specific character strengths or types of community involvement, which may have yielded more nuanced insights into how particular strengths influence different forms of engagement. Despite these limitations, the findings offer practical implications and directions for future research. It is recommended that medical schools incorporate psychoeducational programs aimed at fostering resilience and developing character strengths as part of the formal curriculum. Such initiatives may include mindfulness-based resilience training, reflective exercises on personal strengths, and structured service-learning opportunities that encourage students to apply these strengths in real-world community settings.

Future studies should adopt longitudinal or experimental designs to establish causal pathways and evaluate the long-term impact of such interventions. Expanding research across diverse institutions and student populations, while employing multi-method approaches (e.g., faculty evaluations or behavioral assessments), can further strengthen the evidence base. These recommendations highlight the potential for resilience- and strengths-based education to not only support medical students' well-being but also enhance their professional identity and commitment to community engagement.

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