Relationship Between Loneliness and Academic Performance among Medical students

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ABSTRACT

The present study aimed to explore the relationship between loneliness and academic performance among medical students, with a focus on gender differences. A quantitative research design was employed, and data were collected from medical students using standardised scales to measure loneliness and self-reported academic performance. Spearman's correlation analysis revealed a weak negative correlation between loneliness and academic performance among male students (r = -0.266, p = 0.189), indicating that higher levels of loneliness were associated with lower academic achievement. However, this relationship was not statistically significant. Additionally, independent samples t-tests were conducted to examine gender differences. The results showed no significant difference in academic performance (t = 1.208, p = 0.234) or loneliness (t = 1.351, p = 0.184) between male and female students. These findings suggest that loneliness has no significant impact on academic performance, and gender does not influence either variable in this sample. Further research is recommended to investigate these variables in larger and more diverse populations.

Keywords: Loneliness, academic performance, Spearman's rank order correlation

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INTRODUCTION

Medical education is universally recognized as academically demanding and emotionally taxing. Medical students are often required to adapt to rigorous schedules, competitive environments, and prolonged academic engagement, all of which can significantly impact their psychological well-being (Dyrbye et al., 2006). While stress, anxiety, and depression among medical students have been extensively studied, the experience of loneliness—a distressing feeling of social isolation or lack of meaningful connection—has received comparatively less attention in this population (Naser et al., 2020).

Loneliness, distinct from physical solitude, is a subjective perception of inadequate social relationships. It arises when there is a mismatch between desired and actual social interactions (Weiss, 1973). In the context of medical education, loneliness may be amplified due to academic relocation, limited time for socialization, separation from family, and pressure to excel in a highly competitive environment. These experiences often lead to a diminished sense of belonging and increased emotional detachment, especially during the early years of medical training (Smith et al., 2019).

Studies have shown that loneliness is associated with several adverse outcomes, including depression, impaired sleep, reduced academic motivation, and poor coping mechanisms (Hawkley & Cacioppo, 2010). Importantly, it can negatively affect academic performance by disrupting concentration, reducing cognitive efficiency, and lowering self-confidence (Mushtaq et al., 2012). Medical students experiencing loneliness may find it harder to engage in collaborative learning, seek academic help, or maintain consistent performance due to lack of social and emotional support. Despite these concerns, the relationship between loneliness and academic performance remains underexplored in medical education, particularly in developing countries. Most research has focused on clinical symptoms and burnout, with limited attention to how interpersonal experiences shape academic outcomes. Investigating this link is critical, as it can guide institutions in developing evidence-based interventions such as peer support groups, mentoring systems, and mental health resources to reduce loneliness and enhance educational outcomes.

Therefore, this study aims to examine the relationship between loneliness and academic performance among medical students, providing insights into how emotional and social factors contribute to academic success. The findings are expected to inform student support services and contribute to a more holistic approach in medical education

LITERATURE REVIEW

This comprehensive synthesis of empirical research spanning from 2014 to 2025 explores the complex interplay between loneliness and academic performance across diverse adolescent and university student populations globally. The reviewed studies—employing methodologies including correlational designs, structural equation modeling (SEM), and meta-analyses—consistently report significant associations between perceived loneliness and decreased academic achievement, adjustment, and engagement. Variables such as internet addiction, social media use, academic stress, emotional regulation, self-efficacy, procrastination, and school climate emerged as critical mediators or moderators in this relationship. Multiple studies underscored the negative influence of excessive digital engagement on both loneliness and academic performance, while protective factors like internal locus of control, self-esteem, and achievement motivation were shown to buffer these effects. Cultural context, gender, and institutional support systems were also found to significantly shape these dynamics. Collectively, the findings highlight loneliness as a pervasive psychological risk factor that undermines academic success and emphasize the need for targeted mental health interventions, supportive educational environments, and culturally sensitive policies to foster student well-being and scholastic achievement.

RESEARCH GAP

The articles above helped identify research gaps that we have covered in our study:

- There is limited research directly examining the relationship between loneliness and academic performance across different educational levels.

- Most existing studies focus on either academic stress or mental health, without specifically exploring how loneliness impacts academic outcomes.

- The mediating and moderating variables—such as self-efficacy, social support, or school climate—in the relationship between loneliness and academic achievement are not well-studied.

METHODOLOGY

Objectives

- To find out the difference between loneliness and academic performance among medical students based on gender.

Hypotheses

- Gender has no significant influence on loneliness and academic performance among medical students.

Operational Definition

Loneliness

Loneliness is defined as a subjective, distressing experience that occurs when a person's social relationships are perceived to be less satisfying or fewer in number than desire

- (*Peplau & Perlman, 1982*)

Academic Performance

Academic performance refers to a student's level of achievement in educational settings, typically measured through standardized assessments such as grades, test scores, or cumulative grade point average (CGPA). It is an objective

indicator of a student's academic success and learning outcomes within an institutional framework. Academic performance reflects not only subject mastery but also cognitive, behavioral, and motivational factors that contribute to a student's ability to succeed in their academic environment.

Research design

Quantitative research design

Participants

The study consisted of a total of 45 participants. Out of these, 21 were male, representing approximately 46.6% of the total sample. In comparison, 24 participants were female, making up around 53.3%. The gender distribution shows a fairly balanced representation, with a slightly higher number of females than males. This small difference suggests that both genders were almost equally represented in the study.

S. No	Gender	Frequency	Percentage
1	Males	21	46.6
2	Females	24	53.3

Selection criteria

The sample size was chosen based on the purposive sampling method.

Inclusion criteria for the sample selection: medical students currently enrolled on any medical courses.

Tool 1: UCLA Loneliness version 3

The UCLA Loneliness Scale Version 3, developed by Russell (1996), is a widely used self-report instrument designed to measure an individual's subjective feelings of loneliness and social isolation. This tool demonstrates high reliability, both in terms of internal consistency (Cronbach's alpha ranging from 0.89 to 0.94) and test–retest reliability over one year ($r = 0.73$). The scale correlates with other measures of loneliness, suggesting it accurately captures the intended construct.

Data Collection

A standardised questionnaire was distributed through Google Forms. Instructions were given according to the tool. Informed consent was taken from each participant. The participants were asked to choose any one option from the given ones.

RESULTS

*Table 1: Table showing the results of Descriptive Statistics*

	Loneliness	Academic Performance
Mean	48.400	7.550
Std.Deviation	6.051	1.016
Skewness	-1.080	0.242
Std.Error of Skewness	0.354	0.354
Kurtosis	0.746	0.212

Std. Kurtosis	0.695	0.695
Shapiro-Wilk	0.898	0.970
P value of Shapiro-Wilk	<.001	0.285

The descriptive statistics of the study revealed that the mean score for loneliness among medical students was 48.40 with a standard deviation of 6.05, indicating moderate variation in feelings of loneliness across the sample. The distribution of loneliness scores was found to be positively skewed, as shown by the skewness value of 1.080. This was further supported by the Shapiro-Wilk test for normality, which yielded a value of 0.898 with a p-value less than 0.001, confirming that the loneliness data significantly deviated from a normal distribution. The kurtosis value of 0.746 suggests a slightly peaked distribution. In contrast, the mean academic performance was 7.55 with a standard deviation of 1.02, indicating relatively stable academic performance among the participants. The academic performance scores showed near-normal distribution with a skewness of 0.242 and a kurtosis of 0.212. The Shapiro-Wilk value for academic performance was 0.970 with a p-value of 0.285, indicating no significant deviation from normality. Given the non-normal distribution of the loneliness variable and the normal distribution of academic performance, a non-parametric test, Spearman's rank-order correlation, was deemed appropriate to examine the relationship between loneliness and academic performance.

Figure 1; Figure showing the results of Normality
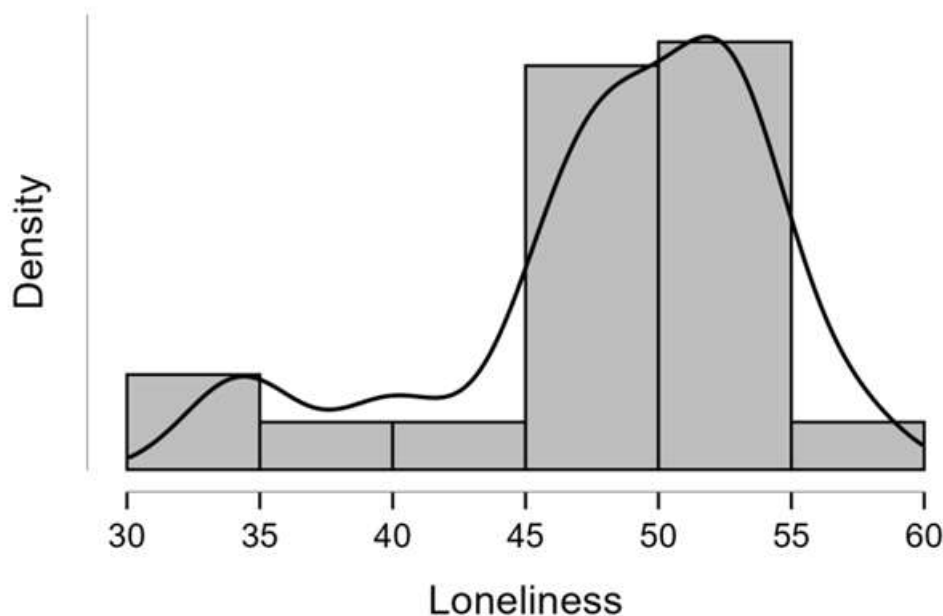
The histogram of loneliness scores shows a positively skewed distribution, meaning that most of the students scored on the higher end of the loneliness scale, with fewer students reporting very low levels of loneliness. This pattern aligns with the earlier descriptive statistics where the skewness value was 1.080, indicating moderate positive skew. The curve (density line) further shows that the distribution does not follow a normal bell shape. This supports the result of the Shapiro-Wilk test ($p < .001$), confirming that the loneliness data is not normally distributed.

Academic performance

Academic Performance
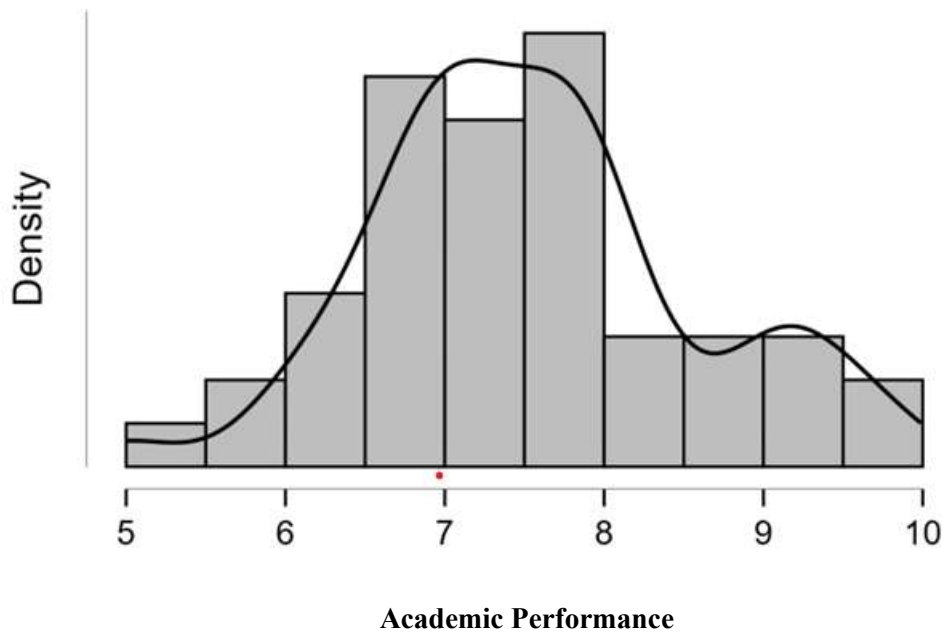
The histogram of academic performance scores appears to be roughly symmetrical and bell-shaped, indicating that the academic performance of the students is approximately normally distributed. The density curve closely follows the shape of a normal distribution. This visual interpretation is supported by the skewness value of 0.242 (nearly symmetrical) and a Shapiro-Wilk p-value of 0.285, which suggests no significant deviation from normality. Most students have academic performance scores clustered around the mean, with relatively fewer students scoring extremely low or high.

Table 2: Table showing the results of the Correlation analysis of female

Variables		Loneliness	Academic performance
Loneliness	r value		
	p value		
Academic performance	r value	-0.405	
	p value	0.077	

There is a moderate negative correlation between loneliness and academic performance among female participants ($r = -0.405$), but this relationship is not statistically significant ($p = 0.077$).

Table 3: Table showing the results of the Correlation analysis of male

Variables		Loneliness	Academic performance
Loneliness	r value		
	p value		
Academic performance	r value	-0.266	

p value	0.189

There is a weak negative correlation between loneliness and academic performance in male students, but this correlation is not statistically significant (r = -0.266, p = 0.189).

Table 4: Table 3 showing the results of an independent t-test for Gender.

Variable	t	df	p
Academic Performance	1.208	43	0.234
Loneliness	1.351	43	0.184

An independent samples t-test was conducted to compare loneliness and academic performance (CGPA) between male and female medical students. The results showed that the differences in loneliness scores (t = 1.351, p = 0.184) and Academic performance scores (t = 1.206, p = 0.234) were not statistically significant. This suggests that gender does not have a significant effect on loneliness or academic performance among the students.

DISCUSSION

The findings of the present study revealed a weak negative relationship between loneliness and academic performance among male students. Although the direction of the relationship suggests that loneliness may negatively influence academic achievement, the lack of statistical significance implies that this association is not strong enough to be considered meaningful in this context.

Additionally, the independent t-test results demonstrated that there were no statistically significant differences in either academic performance or loneliness between male and female students. This indicates that gender may not play a critical role in influencing these variables within this sample of medical students.

These results are consistent with prior research that has shown mixed findings regarding the influence of loneliness on academic outcomes and gender-based differences in psychological variables. Further studies with larger and more diverse samples may help to clarify these relationships.

CONCLUSION

The present study aimed to examine the relationship between loneliness and academic performance among medical students, with a specific focus on gender differences. The findings revealed a weak negative correlation between loneliness and academic performance among male students; however, this relationship was not statistically significant. Furthermore, independent t-test results showed no significant differences in levels of loneliness or academic performance between male and female students. These results suggest that, within this sample, loneliness does not have a significant impact on academic performance, and gender does not play a major role in influencing either variable. Future research with larger and more varied populations is recommended to explore these relationships further.

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