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# Impact of Financial Stress, Parental Expectation and Test Anxiety on Role of Suicidal Ideation: A Cross-Sectional Study among Pre-Medical Students

Mehdi Hassan<sup>1</sup>, Shuanghu Fang<sup>1,\*</sup>, Muhammad Rizwan<sup>2</sup>, Asma Seemi Malik<sup>3</sup> and Iqra Mushtaque<sup>4</sup>

<sup>1</sup>School of Educational Science, Anhui Normal University, Wuhu, 241000, China

<sup>2</sup>Department of Sociology, Islamia University Bahawalpur, Bahawalnagar Campus, Bahawalnagar, 62300, Pakistan

<sup>3</sup>Department of Sociology, Lahore College for Women University, Lahore, 54000, Pakistan

<sup>4</sup>Department of Psychology, University of Layyah, Layyah, 31200, Pakistan

\*Corresponding Author: Shuanghu Fang. Email: fsh9075@163.com

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## ABSTRACT

This study examined the effects of financial stress, parental expectation and test anxiety on suicidal ideation in pre-medical students. For this purpose, a cross-sectional research design was used, and data were collected through a non-probability sampling technique. The sample consisted of 425 pre-medical students. Our results indicate a strong and positive association between parental expectation and suicidal ideation ( $\beta = 0.272$ ;  $t = 3.573$ ;  $p < 0.000$ ). Likewise, entrance test exam anxiety has a positive association with suicidal ideation among pre-medical students ( $\beta = 0.394$ ;  $t = 3.933$ ;  $p < 0.000$ ). Lastly, there is a significant and positive association between financial threat and suicidal ideation ( $\beta = 0.185$ ;  $t = 2.539$ ;  $p < 0.011$ ). The findings of the study emphasize the importance of implementing preventative measures to address the mental health issues faced by pre-medical students, with the ultimate goal of creating an environment conducive to their comprehensive development and academic success.

## KEYWORDS

Financial stress; parental expectation; test anxiety; suicidal ideation

## Introduction

Over the past several decades, there has been an increase in the number of students enrolling in medical education, which has increased awareness of student mental health and wellbeing, as well as concerns regarding the impacts of financial stress. Financial concerns are particularly significant for first-generation college students [1]. College students faced challenging financial circumstances, which can be a source of stress and anxiety for them. As they transition from adolescence to adulthood, these students must contend with rising tuition costs that exceed the rate of general inflation,

heavy debt burden, and uncertain employment prospects [2]. Students frequently report insufficient savings, high credit card debt, and insufficient income to cover expenses, payment delays, and account overdrafts [3]. According to research [4], college students are more likely to experience financial anxiety, which can negatively affect not only on their financial behavior but also on their academic performance and overall well-being. According to research [5], a significant proportion of college and university students report experiencing financial stress. According to Heckman et al., 71% of students reported feeling anxious as a direct consequence of their personal financial difficulties



[5]. Another study revealed that financial concerns are among the leading sources of stress for college freshmen. Approximately 35% of students reported experiencing financial stress in the preceding year [6]. Increasingly, policymakers are concerned that rising financial pressures may be contributing to a parallel decline in student mental health. Mental health issues are expected to have increased between 2010 and 2021, peak from 2018 and 2021. During this time period, the prevalence of mental health issues among men increased from 27% to 41%, while among women it increased from 45% to 62% [7]. It appears that student mental health services are under pressure as a direct result of this trend. In addition to experiencing poor mental health, adolescent who reported inter-parental conflict also reported having suicidal ideation [8], a phenomenon that has been shown to negatively impact academic performance. A multisite study [9] found that 78% of college students who attempted suicide cited financial issues as a motivating factor in their decision. Students under significant financial stress tend to enroll in fewer classes, drop out of college at higher rates, and achieve lower academic performance [10,11].

A study showed a connection between psychological distress and the expectations imposed on children by their parents [12]. We hypothesized that suicide thoughts among pre-medical students may be influenced by their families' expectations. The term "parental expectations" (or "parental hopes and expectations") is used to describe the high hopes and high expectations that parents have for their children. Children's academic outcomes are profoundly affected by their parents' expectations for them [13], which are molded by a multifaceted evaluation of the child's ability, past academic performance, ideals, and family circumstances [14,15]. When it comes to shaping and influencing adolescents' academic success, parental expectations play an important role [16]. However, at times, these expectations can make it challenging for students to meet and fulfill what is anticipated of them by their parents. A previous study [17] suggested that high parental expectations may increase stress level among children about their academic performance. High parental expectations can also lead to a more controlling and overly involved relationship with children. In such scenario, students may spend more time to studying and experience greater academic pressure compared to their peers. High expectations from family members may also be a factor in exam anxiety [18]. This could be the reason, as parental expectations may make students more depressed and anxious [19].

According to the theory of ecosystems, an individual's environment has a significant impact on their development [20]. The family is essential for the development of children because it provides an essential environment for the process of personal growth. Parental expectations will motivate parents to make more decisions that will benefit their children, thereby providing them with a stronger foundation for life. Children can learn about themselves and develop self-efficacy by observing their parents' attitudes and actions [21]. Parents who have higher expectations for their children tend to allocate more attention to them. This dedication generally results in improved assistance [22].

Test anxiety is a sort of trait anxiety that is influenced by an individual's cognition, personality, and other qualities in the context of an examination [23,24]. Anxiety, physical symptoms, and increased arousal from both emotional and physiological sources describe this mental state. The effects of test anxiety on students' academic performance and mental health include difficulty in the classroom (eight), lower grades (twenty-four), and an increased likelihood of anxiety and depression. Anxiety over exams can manifest itself physically through issues with one's food, mood, and quality of sleep. Self-injury and thoughts of suicide are possible outcomes [25].

The epidemic caused by COVID-19 has had a severe impact on Pakistan's economy as well as the country's political stability [26]. The World Bank anticipated that Bangladesh's economy has grown by 8.1% in 2020, while Afghanistan's grown by 3.9% and India's grown by 4.2%. Pakistan's economic growth rate was projected to be 1.9%. The inflation rate in Pakistan grew from 35.4% in March to 36.4% in April 2023, compared to the previous month's rate of 35.4%. The price of food went up by 48.1%, while the cost of transportation went up by 56.8%, and the cost of education went up by 8.5%. In addition, the rate of core inflation, which removes the effect of fluctuating commodity prices, had a large increase in April, going from 18.6% in March to 19.5% in April [27]. Due to the economic challenges, 29 suicides were reported [28], and 22% of young adolescents reported suicidal tendencies due to parental conflicts [8].

The cost of medical education in Pakistan is exorbitant, poses a significant financial burden on many households. Unfortunately, this dedication to pursuing a medical career often goes unnoticed and unheard. The pressures to meet multiple parental expectations adds complexity to the situation, making the endeavor of passing the medical entrance examination more than just an academic pursuit; it becomes an attempt to gain societal approval and validation. In 2020, a remarkable 125,000 students registered for the examination, raising a pertinent question about the country's capacity to accommodate such a substantial number of aspiring physicians. This concern is particularly noteworthy when considering the apparent scarcity of applicants in other fields of study. Many young girls are taught that medicine is the sole respectable career for women and the only road to social acceptance. High-achieving children are expected to attend medical school; if they succeed, they are lauded; if they fail, their academic careers are considered over. Past research has revealed that 4.8% of Pakistani medical students committed suicide [29]. Research has shown that individuals under extreme financial pressure are approximately twenty times more likely to attempt suicide compared to those not facing such pressures [30]. Therefore, the purpose of the current study was to address these issues, assess whether financial stress causes suicidal ideation among pre-medical students, and examine the association between parental expectation and medical entrance test anxiety on suicidal ideation among pre-medical students.

In the conceptual model (Fig. 1), we examined the interconnectedness of financial stress, test anxiety and

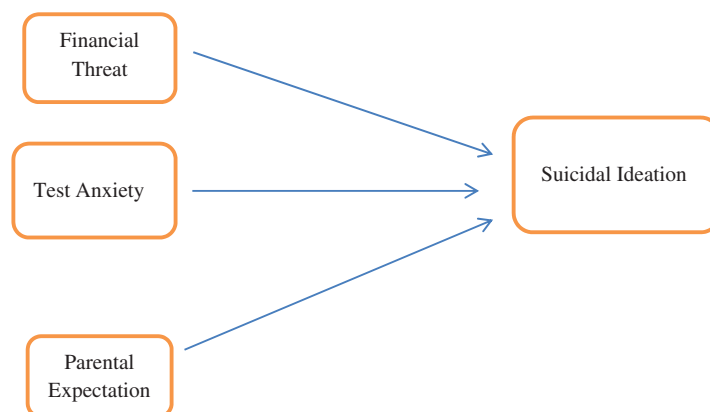


FIGURE 1. Proposed model of the study.

parental expectations, examining their combined influence on the emergence of suicidal ideation in pre-medical students, particularly in educational environment.

### Hypothesis

H1: Financial threat has a positive association with suicidal ideation among pre-medical students.

H2: Entrance test exam anxiety has a positive association among the pre-medical students.

H3: parental expectation has a positive association with suicidal ideation among the pre-medical students.

## Methods

### Participants

The current study makes use of a research design known as cross-sectional research. The MDCAT (medical and dental competitive aptitude test) preparation institutes in Multan city were selected as the present research population. The population of the research included pre-medical students at private and government colleges located in Multan, Pakistan. To cover the present research population, which was pre-medical students of colleges and academies in Multan, a non-probability sampling technique was used. To collect data, a list of MDCAT centers and academies was compiled. Students who participated in the study also gave informed consent. The first dataset for the study was comprised of the 504 returned questionnaires out of a total of 600 distributed. However, some students chose not to complete certain questions, specifically related to suicidal ideation. To maintain the integrity and reliability of the data, the study rejected incomplete questionnaires. Consequently, the current study has a sample size of 425.

The inclusion criteria for the study were pre-medical students from both private and government colleges and academies, specifically those preparing for the MDCAT examination. The study also included students who had taken the MDCAT exam and those who had passed the FSC pre-medical examination. Students aged between 17 to 22 years old were eligible. Data were also gathered from students retaking the MDCAT exam. The exclusion criteria for the study consisted of participants who refused to give consent. Students enrolled in other educational degrees

other than medical were also excluded. The demographic characteristics of the sample are shown in Table 1.

Table 1 shows that a total of 425 pre-medical students participated in this study. The mean family income among the study participants was 55,000 PKR, which, upon conversion, is equivalent to 191 US dollar. Moreover mean monthly fee for the examination preparation academies amounted to 4500 PKR.

### Measures

**Anxiety-Test Scale:** A scale of 10 items was utilized to assess the level of test anxiety experienced by pre-medical students. For the purpose of describing response items, a Likert scale with five points was utilized (1 = not at all, never true, and 5 = tremendously, always true). The range of possible scores is from 1.0 to 1.9 for “comfortably low test anxiety” and 4.0 to 5.0 for “extremely high anxiety.” It was determined that the Anxiety Scale had a reliability of 0.88 [31].

**Financial Threat Scale:** To measure the perceived financial threat among students, a five point Likert scale was

TABLE 1

Pre-medical students demographic characteristics (N = 425)		
Demographics variable	F (%)	Mean (SDV)
Boys	253 (59.5)	
Girls	172 (40.5)	
Age of the students		
17–19	280 (65.8)	
20–22	145 (34.2)	
1 <sup>st</sup> time medical entrance test	309 (72.7)	
2 <sup>nd</sup> time medical entrance test	116 (27.3)	
Rural areas	183 (43.1)	
Urban areas	242 (56.9)	
Monthly family income		55,000 (423.43)
Monthly entrance exam academy fee		4500 (121.23)

Note: F = frequency, % = percentage, N = population, SDV = standard deviation.

used. Each of the six items was rated on a five-point scale, with 1-being the least favorable and 5 being the most favorable. A high mean score indicated a high level of perceived financial risk. The reliability of the scale was 0.92 [32].

**Parental Expectation Scale:** In the current study, a five-item Likert scale was utilized [33] in order to quantify the amount of pressure exerted by parental expectations. The reliability of the scale was 0.83.

**Suicidal Ideation Scale:** It was a questionnaire that required self-reporting [34]. The scale consists of four items and a Likert scale with five points. The Cronbach alpha of the scale was 0.83.

### Statistical analysis

In order to verify the assumptions, the current research utilized both descriptive statistics and partial least square (PLS-SEM). During the first step, the measurement model, which is also referred to as the outer model, is used to evaluate the individual item reliability, internal consistency reliability, convergent validity, and discriminant validity. Examining the factor loading [35] allowed the researchers to determine the reliability of each individual item. By determining how much each variable in the measurement model contributed to the latent construct, this technique established the items' relative relevance. The study laid the groundwork for assessing the overall measurement model's validity and reliability through meticulous inspection and interpretation of these factor loadings. Cronbach's alpha and composite reliability (CR) were used to determine the degree to which the components in this investigation exhibited internal consistency reliability [36]. Both CR and Cronbach's alpha aim to evaluate internal consistency reliability, although CR has become much more popular in recent years [36]. Thus, we used CR as our method of choice when evaluating internal consistency. The AVE method was used to test for convergent validity. The AVE value needs to be greater than 0.50 [36], indicating good convergent validity. Table 2 displays the AVE values. Discriminant validity measures how noticeably different one construct is from another. The criterion for assessing discriminant validity is based on the AVE values [37]. In addition, one may show proper discriminant validity by employing the heterotrait-monotrait correlation ratio (HTMT) [38].

## Results

### Measurement model

Fig. 2 depicts the features of measurement model.

### Individual item reliability

Items with values between 0.40 and 1 can be retained. Moreover, items should be removed if their elimination results in increases in the value of composite reliability (CR) and average variance extracted (AVE) [34,35]. In our study we opted not to remove any items, as their removal does not impact the values of CR and AVE.

### Internal consistency reliability

According to the recommended guidelines, values below 0.60 are not acceptable. Likewise, values ranging from 0.60–0.70

TABLE 2

Loadings, composite reliability, and average variance extracted

Constructs	Items	Loadings	AVE	CR
Financial threat	FT1	0.864	0.735	0.943
	FT2	0.904		
	FT3	0.883		
	FT4	0.868		
	FT5	0.818		
	FT6	0.802		
Entrance test anxiety	TA1	0.791	0.628	0.944
	TA2	0.779		
	TA3	0.800		
	TA4	0.897		
	TA5	0.818		
	TA6	0.836		
	TA7	0.784		
	TA8	0.731		
	TA9	0.683		
	TA10	0.787		
Parental expectation	PE1	0.816	0.611	0.887
	PE2	0.712		
	PE3	0.773		
	PE4	0.809		
	PE5	0.794		
Suicidal ideation	SI1	0.858	0.669	0.890
	SI2	0.806		
	SI3	0.790		
	SI4	0.817		

Note: AVE = average variance extracted, CR = composite reliability.

show average internal consistency reliability, while values between 0.70–0.90 signify adequate internal consistency reliability. Table 2 displays the internal consistency reliability of the current study and exhibited that all values fall within acceptable range [36].

### Convergent validity

### Discriminant validity

Similarly, discriminant validity is measured by examining the values of cross-loadings [38]. Accordingly, the loading of each indicator must exceed its cross-loadings with other indicators. HTMT serves as a factor correlation that differentiates between two factors [38]. In the current study we employed these three methodologies to evaluate discriminant validity. Table 3 presents the results according to the Fornell and Larcker criterion [37], Table 4 depicts cross-loadings, and Table 5 exhibits the HTMT results of the study.

### Structural model

We followed the standardized bootstrapping procedure, utilizing 5000 bootstrap samples along with 425 original

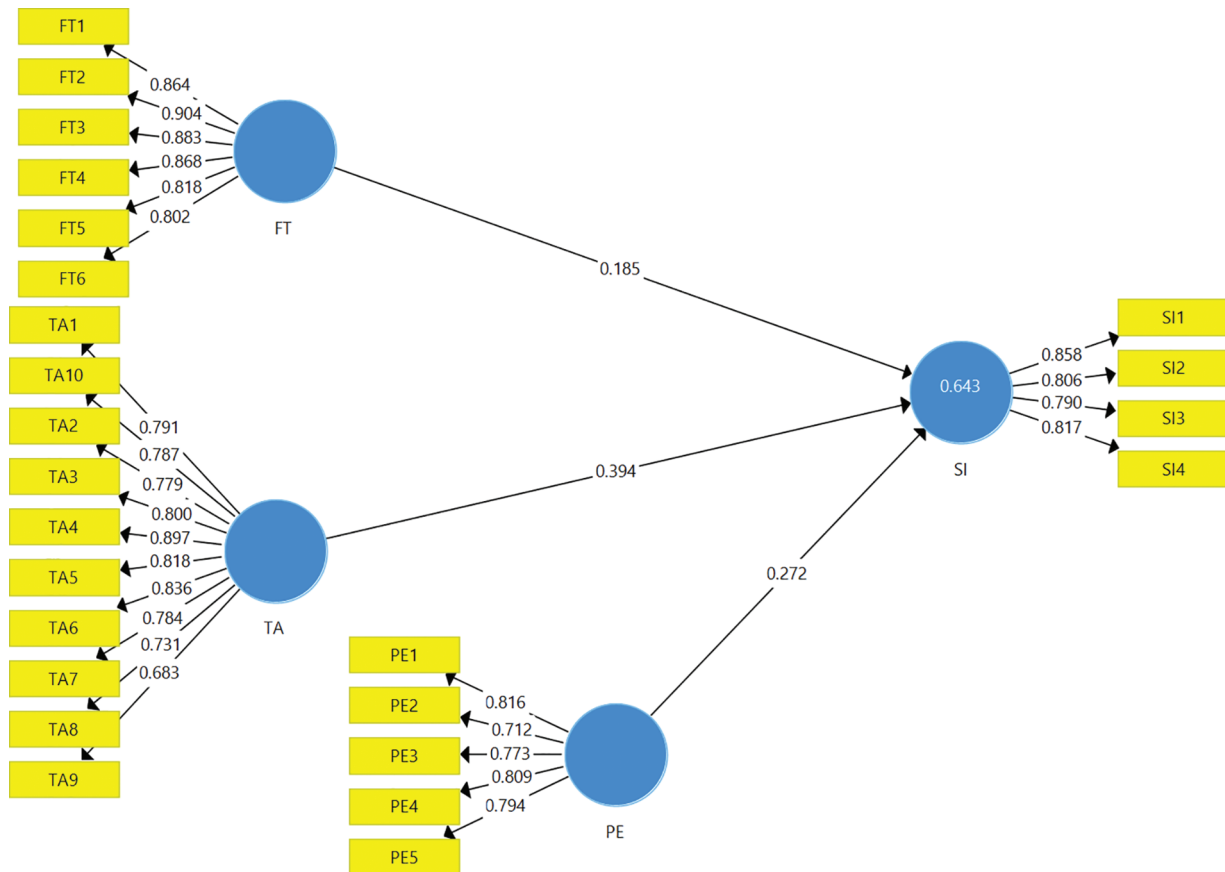


FIGURE 2. Measurement model: relationships between latent construct.

samples, to evaluate the statistical significance of path coefficients. Fig. 3 depicts the structural model of the study.

Structural model of our study shows the path coefficients corresponding to the hypothesized associations. Hypothesis H1 states that “Financial threat has a positive association with suicidal ideation among pre-medical students”. The results in Fig. 3 and Table 6 show a significant and positive association between financial threat and suicidal ideation ( $\beta = 0.185$ ;  $t = 2.539$ ;  $p < 0.011$ ). Likewise, hypothesis H2 depicts that “Entrance test exam anxiety had a positive association with suicidal ideation among pre-medical students”. The results in Fig. 3 and Table 6 represent that entrance test exam anxiety has a significant relationship with suicidal ideation ( $\beta = 0.394$ ;  $t = 3.933$ ;  $p < 0.001$ ). Hypothesis H3 illustrates that “Parental expectation has the

positive association with suicidal ideation among the pre-medical students”. Our results predict that there is a strong and positive association between parental expectation and suicidal ideation ( $\beta = 0.272$ ;  $t = 3.573$ ;  $p < 0.001$ ).

### Discussion

The current study investigated the relationships among parental expectations, test anxiety, and financial stress relate to suicide ideation. The findings indicated that parental expectation was the most significant predictor of suicidal ideation among pre-medical students within the sample of present study. The second leading cause of suicidal ideation was test anxiety, while financial stress was identified as the least common reason for suicide ideation among pre-medical students.

According to the findings of present study, test anxiety and suicide thoughts were significantly positively correlated, which is aligns with findings from earlier studies [39]. Suicidal thoughts were triggered by a various factors, including undiagnosed depression, student rivalries, the stress of preparing for multiple examination, and work-related challenges [40]. Long-term exposure to such stressors may heighten an individual’s anxiety levels [41,42]. Suicidal ideation can effect of an individual’s cognition processes, which may, in return have an indirect impact on test anxiety [43]. Notably, there has been no previous research that compared suicidal thoughts with test anxiety in pre-medical students. Suicide rates among young people

TABLE 3

Latent variable correlations and square roots of average variance extracted (AVE)

	FT	PE	SI	TA
FT	<b>0.857</b>			
PE	0.699	<b>0.782</b>		
SI	0.716	0.739	<b>0.818</b>	
TA	0.756	0.743	0.787	<b>0.792</b>

Note: Entries in the boldface represent the square root of average variance extracted (AVE).

TABLE 4

## Cross loadings

	FT	PE	SI	TA
FT1	0.864	0.615	0.644	0.755
FT2	0.904	0.648	0.660	0.796
FT3	0.883	0.620	0.632	0.761
FT4	0.868	0.617	0.608	0.754
FT5	0.818	0.568	0.597	0.683
FT6	0.802	0.518	0.527	0.691
PE1	0.603	0.816	0.599	0.712
PE2	0.454	0.712	0.482	0.603
PE3	0.578	0.773	0.560	0.662
PE4	0.585	0.809	0.629	0.718
PE5	0.503	0.794	0.605	0.650
SI1	0.644	0.643	0.858	0.696
SI2	0.572	0.605	0.806	0.620
SI3	0.554	0.570	0.790	0.636
SI4	0.568	0.599	0.817	0.621
TA1	0.841	0.591	0.597	0.791
TA2	0.770	0.621	0.621	0.779
TA3	0.670	0.613	0.617	0.800
TA4	0.788	0.708	0.704	0.897
TA5	0.764	0.684	0.697	0.818
TA6	0.689	0.648	0.655	0.836
TA7	0.601	0.736	0.605	0.784
TA8	0.572	0.754	0.577	0.731
TA9	0.498	0.714	0.537	0.783
TA10	0.618	0.752	0.603	0.787

in Pakistan are higher than in other nations [8], and there is a significant incidence of suicidal ideation, and suicidal attempts among Pakistani students.

This study identified a positive correlation between parental expectations and suicidal ideation, a finding that is consistent with previous research [44], indicating an association between parental expectations and suicidal ideation. In addition, earlier studies [45] revealed that high parental expectations are positively associated with both test anxiety and suicidal ideation. The beta value indicated that parental expectations serve as one of the factors influencing suicidal ideation. According to the relational development system theory [46], the interplay between the environment factor and individual interaction functions dually in the process of individual personal development. This theory posits that both the external environment and the unique characteristics of an individual can independently influence and predict their developmental outcomes. The combination of these factors can also produce a joint impact on an individual development [46]. When parental expectations were high, parents tend to employ more constructive

TABLE 5

## HTMT correlation matrix for discriminant validity

	FT	PE	SI	TA
FT	–			
PE	0.788	–		
SI	0.810	0.878	–	
TA	0.888	0.872	0.889	–

parenting techniques and fewer detrimental ones [47], which affected adolescents' attitudes toward academics. In contrast, low parental expectations can also result in individuals not treating life and school seriously, which can lead to poor academic performance and suicidal ideation [48].

In the current study, financial stress is associated with suicidal tendencies among pre-medical students. Beyond financial difficulties, students may experience stress due to academic pressure [49], family and social separation, emotional and interpersonal relationships, personal responsibility, and employment-related stress [28]. These stresses increase the likelihood of college students developing mental health issues [49]. Previous research has emphasized the influence of financial concerns on academic progress, notably in terms of students dropping out or not finishing their education. However, empirical data suggests an association between financial issues and mental health problems has caused suicidal ideation [50]. Contrary to what may appear to be common sense, pre-medical students are frequently perceived as being more vulnerable to the dangers of financial stress, particularly given the resources required to attend and study for the medical entrance exam [51]. Thus, it is possible to minimize or disregard the association between financial hardship and suicidal ideation among pre-medical students. Our findings corroborate the hypothesis that stressful financial situations are common among college students and can have substantial negative effects on mental health and academic performance [52].

*Limitations of the study*

The research conducted on pre-medical students has primarily focused on the anxiety associated with taking test and the expectations of their parents. On the other hand, there were some restrictions. Because this study was conducted using a cross-sectional methodology, it was not possible to determine whether or not there is a cause-and-effect link between academic stress and test anxiety. The influence of test anxiety, parental expectations, and financial stress on suicide ideation could be investigated in future study via longitudinal monitoring or controlled studies. In addition, future research can collect data from a variety of different points of view; for instance, the anticipation questionnaire for students can be filled out by their parents to prevent frequent technique biases, despite the absence of any such biases in this study.

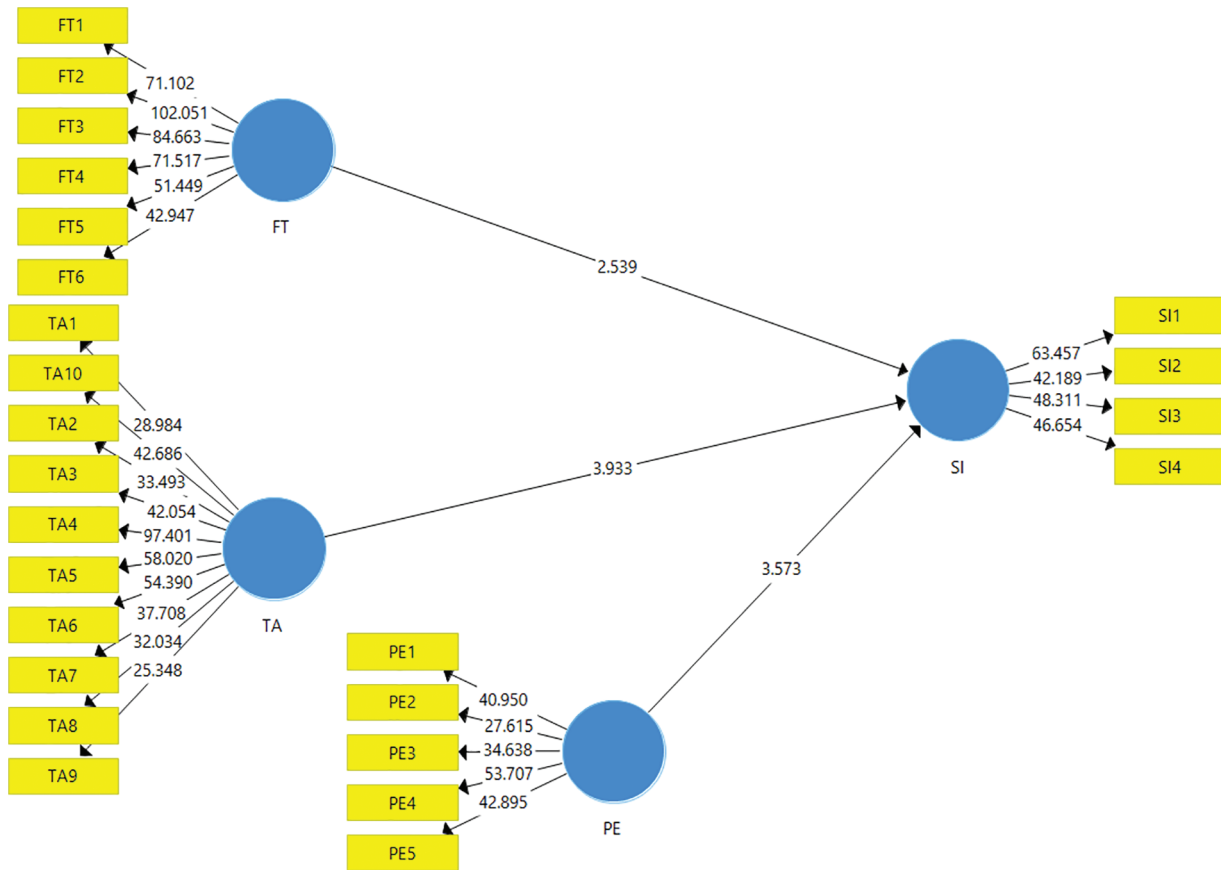


FIGURE 3. Structural model: assessment of path coefficients.

Recommendations

- The decision to engage in demanding field of study, such as medicine, should be more individualized and independent, with less influence from family and cultural tradition. It is also worth noting that this career decision is often closely link to narcissistic wounds which may subsequently generate reparative urges (“caring for others to care for oneself”) that manifest in the selection of a “helping profession,” particularly the medical one. It is recommended to start offering counseling services at the high school level to facilitate students’ making more informed decisions regarding their future career.
- When assessing depressed symptomatology and suicidal ideation from a clinical perspective, this study demonstrates the importance of taking into account

the patient’s familial relationship. Additionally, it is prudent to consider the possibility of gender disparities when focusing on this variable.

- In order to lessen the financial burden of education and alleviate financial stress, pre-med students from low socioeconomic backgrounds should be encouraged to apply for financial help and scholarships.
- In order to enhance parental awareness regarding the potential adverse impacts that excessive expectations may impose on the mental well-being of their children, educational seminars and workshops should be utilized to impart this knowledge. It is crucial to motivate parents to cultivate an environment that is supportive and empathetic towards the academic ambitions of their children.

Conclusion

The goal of this research was to examine whether or not pre-medical students’ suicide ideation is influenced by their parents’ academic expectations, test anxiety, and financial stress. Among pre-med students, there was a statistically significant relationship between test anxiety and suicidal ideation. We also looked for links between suicide thoughts and parental expectations. Furthermore, there was an increase in suicidal ideation when financial difficulties were present.

TABLE 6

Structural model hypothesis assessment

Hypothesis	Relationships	Beta	SE	T-value	p-value
H1	FT -> SI	0.185	0.037	2.539	0.011
H2	TA -> SI	0.039	0.100	3.933	0.001
H3	PE -> SI	0.272	0.076	3.573	0.001

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**Author Contributions:** All the authors have equally contributed.

**Availability of Data and Materials:** The datasets used and/or analyzed during the current study are available from the first author upon reasonable request.

**Ethics Approval:** All the methods were performed in accordance with the Declaration of Helsinki. The study was approved by the Ethical Committee of University of Layyah. All the participants provided informed consent.

**Conflicts of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The authors declare no conflict of interest.

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