

ORIGINAL ARTICLE

ACADEMIC STRESS AND SUICIDAL IDEATION IN MDCAT REPEATING CANDIDATES: MEDIATING ROLE OF DEPRESSION AND MODERATING ROLE OF AGE AND GENDER

Ahmad Bilal, Anum Riaz*

Department of Applied Psychology, The Islamia University of Bahawalpur,

*Department of Psychology, Government Degree College for Women, Yazman, Bahawalpur, Pakistan

Background: This study aims to find out the mediating role of depression and moderating role of age and gender in suicidal ideation in response to academic stress among Medical & Dental Colleges Admission Test (MDCAT) repeating candidates in Pakistan. **Methods:** This was a cross-sectional survey-based study conducted at campuses of Knowledge Inn Preparatory School (KIPS), at Bahawalpur and Multan from Feb to Jun 2018. The sample comprised of 102 MDCAT repeating candidates. Three questionnaires (a) Demographic Information Questionnaire (b) Depression, Anxiety, Stress Scale-21, and (c) Scale for Suicidal Ideation were administered to get the responses of MDCAT repeating candidates. **Results:** There was a significant mediating role of depression (IE=0.64, SE=0.12, 95% LL=0.40, 95% UL=0.88) in relationship between academic stress and suicidal ideation. There was a significant moderating effect of age (-0.36, SE=0.17, $p=0.04$, 95% LL= -0.71, 95% UL= -0.01) and non-significant moderating effect of gender (-0.19, SE=0.31, $p=0.52$, 95% LL= -0.82, 95% UL=0.42) on relationship between academic stress and suicidal ideation respectively. **Conclusion:** There is a mediating role of depression and moderating role of age in suicidal ideation in MDCAT repeating candidates. Psychological counselling for thwarting the risk of suicidal ideation in MDCAT repeating candidates on periodic basis is recommended.

Keywords: Academic Stress, Adolescence, Suicidal Ideation, Depression, MDCAT

Pak J Physiol 2020;16(3):7–10

INTRODUCTION

The profession of being a doctor is held in high esteem in Pakistan. The majority of adolescents try hard for admission in medical school. Unfortunately, only a handful of adolescents make it to medical school after meeting rigorous requirements of passing premedical exams and entrance tests. The number of candidates wishing to become doctors has grown considerably in recent years. Around 80,000 candidates appeared in Medical and Dental Colleges Admission Test (MDCAT) in 2019. This number has grown significantly in the last 5 years and has almost doubled since 2015. The number of aspirants was 46,885 candidates who appeared in MDCAT in 2015.¹ This includes candidates appearing for the entrance exam first time and those who were appearing second or subsequent times.

The desire to pursue a medical career is not without costs. The aspiring candidates go through the untiring and relentless efforts to prepare for the MDCAT. Often, candidates fail to get through the entrance exam in 1st attempt and decide to take the entrance exam 2nd or subsequent times. This puts further psychological pressure on the candidates. This pressure has certain psychological accompaniments.

Stress is the main consequence of this psychological pressure. Stress refers to the response of body to demands of physical environment on an individual. These responses may be physical,

psychological or emotional in nature.² Stress leads to experience of certain psychological disturbances. The depression is one such disturbance.³ The most vulnerable developmental group from depression is adolescents.⁴ Of these, girls are more likely to suffer from depression.⁵ The prevalence of stress and depression in the overall population of Pakistan is around 34%.⁶

Academic stress such as the preparation of MDCAT is one of the reasons of depression in medical aspirants.⁷ Depression is a kind of mental disorder characterized by low and sad mood and accompanied with feelings of hopelessness and impairment in psychosocial functioning.⁸ The most common and lethal outcome of depression is suicidal ideation among adolescents.⁹ Suicide is a devastating behaviour which exists along a continuum ranging from suicidal ideas, suicidal thoughts, death wishes, and suicidal communication which eventually lead to suicide attempt and may result in suicide.¹⁰ Academic stress is a leading cause to self harm in adolescents.¹¹

The suicidal ideation has increased in Pakistani students since 2010.¹² There are many factors contributing towards increasing trend of suicide in students. These factors include competitiveness, academic stress and pressure, exam stress and anxiety, and poor academic achievement.¹³ The presence of suicidal ideation is a manifestation of stress, anxiety and depression in students.³

Previous research has established a link between depression and suicidal ideation or attempt in students.¹⁴ Most of the studies have different results regarding the role of gender in depression in students. Some¹⁵ report no gender difference in rates of depression in students, while others¹⁶ have concluded gender to be significantly contributing towards the development of depression in students and report higher prevalence of depression in female students.

A number of studies equate greater amounts of stress, and depression in adolescents.⁴ Adolescents experience a number of physical, emotional, psychological and social stressors.¹⁷ Academic stress, and worries about the future life are the significant stressors experienced by the adolescents.¹⁸ These stressors could lead adolescents to experience stress, depression, and suicidal ideation.

The link of academic stress and suicidal ideation in adolescents is more pronounced in Asian countries. In Asian context, academic excellence is held in high esteem as it is considered a means for upward mobility in one's cultural status. Thus, the adolescents experience immense pressure to perform exceptionally well in academics domain. Failure to meet one's own expectations puts adolescents at increased risk to experience stress which could lead to feeling hopeless and develop suicidal ideation.¹⁹

Research on different aspects of suicidal behaviour is scarce in developing countries.¹⁴ The reasons for this lack of research mainly relate to the taboo and stigma attached to this very behaviour in developing countries such as Asian and African countries including Pakistan.²⁰ Suicide is seen as something to be hidden from others and is viewed as with shame and disgust. Similar behaviour is seen in a number of Pakistani families too. Suicide is a serious issue which needs to be detected and resolved as early as possible. According to WHO, a suicide attempt occurs every 3 seconds worldwide and death due to it occurs every 40 seconds.²¹ The present study was conducted to find out a possible link between academic stress and suicidal ideation among MDCAT repeating candidates through the mediating role of depression and moderating role of age and gender.

METHODOLOGY

Formal ethical permission was obtained from the Research Ethics Committee of the author's Department vide No. REC/MSc-05/2018S. Permission was taken from Head of Knowledge Inn Preparatory School (KIPS), Bahawalpur and Multan, for data collection. The cross-sectional, survey-based research design was used. The study was conducted from Feb to Jun 2018.

One hundred and two MDCAT repeating candidates were sampled conveniently from the KIPS campuses. The sample comprised of 47 male candidates

and 55 female candidates. Their mean age was 19.60 ± 0.94 years. Written informed consent was obtained from all participating MDCAT repeating candidates.

The study employed the Depression, Anxiety and Stress Scale 21 (DASS-21) and Beck Scale for Suicide Ideation (BSI) in Urdu versions. The DASS-21 is a brief, self report, 4 point Likert type scale designed to measure stress, anxiety and depression in general population. The scale has 3 subsets each having 7 items to assess the constructs of stress, anxiety and depression. The Cronbach Alpha reliability of the Urdu version is 0.84 for depression, 0.82 for anxiety, and 0.87 for stress.²² The BSI is a self report measure designed to assess suicidal ideation, intent and behaviours relating to suicidal attempt. The scale has 19 items. The Cronbach Alpha reliability of standardized Urdu version is 0.75.²³

The data was analyzed on SPSS-25, and Process Macro v3.4, and $p < 0.05$ was taken as significant.

RESULTS

One hundred and two MDCAT repeating candidates participated in the study, 47 (46.07%) were male and 55 (53.93%) were female. Eighty-six (84.3%) belonged to age group of 19–20 years and 16 (15.7%) belonged to age group of 21–23 years.

The results of mediation analysis of depression have been outlined in Table-1. The bootstrapping analyses with 10,000 samples revealed a significant indirect effect of academic stress on suicidal ideation via depression (LL=0.40, UL=0.88). The total effect of academic stress on suicidal ideation was also significant (TE=0.86, SE=0.17, $p=0.00$), whereas the direct effect was not significant (DE=0.21, SE=0.17, $p=0.23$). Depression fully mediated the relationship between academic stress and suicidal ideation (IE=0.64, SE=0.12, 95% LL=0.40, 95% UL=0.88) in MDCAT repeating candidates. Those candidates who experienced high levels of academic stress were more likely to experience depression, and through depression, more likely to experience suicidal ideation. Because zero was not in the 95% confidence interval of IE, the indirect effect was significantly different from zero at $p < 0.05$.

The results of moderation effects of age and gender have been outlined in Table-2. The bootstrapping analyses with 10,000 samples revealed a significant interaction effect of age on academic stress and suicidal ideation (-0.36 , SE=0.17, $p=0.04$, 95% LL= -0.71 , 95% UL= -0.01) while the moderating effects of gender on academic stress and suicidal ideation was not significant (-0.19 , SE=0.31, $p=0.52$, 95% LL= -0.82 , 95% UL=0.42). Age was found to moderate the relationship between academic stress and suicidal ideation in MDCAT repeating candidates. The negative value of interaction coefficient revealed an inverse

relationship. The lower the age, higher the academic stress and suicidal ideation and *vice versa*. Because zero

was not in the 95% confidence interval, the interaction effect was significantly different from zero at $p < 0.05$.

Table-1: Mediation Analysis with Depression as Mediator (with Process, v3.4) (N= 102)

Effect	Non Standardized Coefficients (Standardized coefficients)	SE	95% CI LL	95 % CI UL	t	p
a (academic stress-depression)	0.58 (0.58)	0.08	0.42	0.75	7.19	0.00*
b (depression-suicidal ideation)	1.10 (0.58)	0.17	0.74	1.45	6.20	0.00*
c (DE)	0.21 (0.11)	0.17	-0.14	0.56	1.19	0.23
ab (IE)	0.64	0.12	0.40	0.88		
c (TE)	0.86 (0.45)	0.17	0.52	1.19	5.06	0.00*

Model 4. Bootstrapping=10,000 samples. DE=Direct Effect, IE=Indirect Effect, TE=Total Effect, *Significant

Table-2: Moderation Analyses with Age and Gender as Moderators (with Process, v3.4) (N= 102)

Effect	Interaction Coefficients	SE	95% CI LL	95 % CI UL	t	p
Interaction 1 (Academic Stress×Age)	-0.36	0.17	-0.71	-0.01	-2.05	0.04*
Interaction 2 (Academic Stress×Gender)	-0.19	0.31	-0.82	0.42	-0.63	0.52

Model 2. Bootstrapping=10,000 samples. *Significant

DISCUSSION

The current study showed that the academic stress leads to depression and suicide ideation. The MDCAT repeating candidates experience constant stress especially in the days of MDCAT entrance exam. This stress puts bad impact on their psychological health and leads them to experience depression. Depression leads them to experience suicidal ideation. Same outcomes have been reported from previous studies too.¹⁴ The MDCAT repeating candidates are usually disturbed due to the hectic trials for getting admission in medical or dental colleges. That is the major source of their stress and subsequent psychological disturbances.

The mean score of suicidal ideation is 7.52 ± 7.03 . This shows the fair risk and presence of suicidal ideation in MDCAT repeating candidates when they are experiencing the stress of getting high scores in order to secure admission in medical school. The entrance exam of MDCAT poses a challenging situation for candidates and psychological stress of previous failures exacerbates the current stress. The fear of failing again puts candidates in a situation where they are more likely to experience helpless and develop hopelessness accompanied with mood swings. These depressive features may become the starting point of suicidal ideation. The link among stress, depression and suicidal ideation in this population has been found significant by this and other previous studies.¹⁹

The age appeared to moderate the relationship between academic stress and suicidal ideation in MDCAT repeating candidates. There is a negative moderating effect of age on the two variables. The lower the age, higher the chances of academic stress and suicidal ideation and *vice versa*. The MDCAT repeating candidates belong to age of adolescence which is marked with high levels of emotional and psychological stress. With the advancing age, the risk of suicidal ideation subsides as the candidates come out of this developmental period. This is in agreement with the previous studies.^{17,18}

In the current study, it was noted that male and female repeating candidates of MDCAT have no differences in levels of academic stress, depression and suicidal ideations, i.e., the gender does not significantly moderate the relationship between academic stress and suicidal ideation. This is because all of them suffer from the same competitive situations. Both male and female students are exposed to excessive examination stress and remain in a competitive environment for a long time which causes depression and leads them to suicide ideation. There are some studies showing no gender differences in suicidal ideation.²⁴ The current study shows similarity to these studies and proves that there are no significant differences among male and female MDCAT repeating candidates in Pakistan.

CONCLUSION

Academic stress could lead to both depression and suicidal ideation in MDCAT repeating candidates. The depression must be given dire attention so that it may not lead to severe consequences like suicidal ideation in adolescents.

RECOMMENDATIONS

Regular screening of MDCAT repeating candidates by a qualified psychologist for presence of depression and suicidal ideation is recommended. Regular screening and counselling should be carried out among the students. There is need for free mental health camps especially in days of announcement of MDCAT results so that counselling may be done for those who fail to obtain the targeted marks and go through the stress and trauma. Such candidates need to be taught stress coping skills.

LIMITATIONS

The current study did not differentiate between 2nd time or subsequent time repeating candidates of MDCAT to see the impact of academic stress on suicidal ideation. The mediating role of parents' wishes on adolescents'

career choice as a possible source of stress needs to be investigated. The sample was drawn from only two cities of South Punjab and it should have been done on a broader base to generalise the results.

ACKNOWLEDGMENTS

We acknowledge the cooperation of the participating MDCAT repeating candidates. We also like to acknowledge the support of the management of KIPS campuses for allowing us to collect data from the MDCAT repeating candidates.

REFERENCES

- University of Health Sciences. Available from: <http://uhs.edu.pk>. [Accessed 2 Sep 2019]
- Stress Definition. Available from: <http://dying.about.com/od/glossary/g/stress.htm> [Accessed 2 Sep 2019]
- Naseem S, Munaf S. Suicidal ideation, depression, anxiety, stress, and life satisfaction of medical, engineering, and social sciences students. *J Ayub Med Coll Abbottabad* 2017;29(3):422–7.
- Prasla M. Adolescence depression in Pakistan: A new horizon for research. *J Pak Med Stud* 2012;2(4):160–1.
- Bansal CP, Yamuna S. Mental health in adolescents. In: Anupam AK, Outta P, Jain P, Yadav RKG, (Eds). *Advances in Pediatrics*. New Delhi: Jaypee Brothers Medical Publishers Ltd.; 2012.
- Diagnostic and Statistical Manual of Mental Disorders: DSM-5. (5th ed). Washington DC: American Psychiatric Association; 2013.
- Centre for Disease Control and Prevention (CDCP). Violence Prevention: Suicide Prevention. [Available from: <https://www.cdc.gov/violenceprevention/suicide/index.html>] [Accessed 26 Aug 2019]
- Krishna KP, Geeta MG, Gopalan AV. Deliberate self-poisoning in children. *Indian Pediatr* 2005;42:582–6.
- Daily Times. Suicide Trends in Rich and Poor Countries. Available from: http://www.dailytimes.com.pk/default.asp?page=2010%5C09%5C28%5Cstory_28-9-2010_pg3_6
- The News International. The menace of student suicide finally grips Pakistan too. Available from: <https://www.thenews.com.pk/archive/print/622719-themenace-of-student-suicide-finally-grips-pakistan-too>
- Thapar A, Collishaw S, Pine DS, Thapar AK. Depression in adolescence. *Lancet* 2012;379(9820):1056–67.
- McFarlane S, Younger N, Francis D, Gordon-Strachan G, Wilks R. Risk behaviours and adolescent depression in Jamaica. *Int J Adolesc Youth* 2015;19(4):458–67.
- Consoli A, Peyre H, Speranza M, Hassler C, Falissard B, Touchette E, *et al*. Suicidal behaviors in depressed adolescents: role of perceived relationships in the family. *Child Adolesc Psychiatr Ment Health* 2013;7(8). DOI: 10.1186/1753-2000-7-8
- Norhayati I, Noh A, Melia W. Psychological factors as predictors of suicidal ideation among adolescents in Malaysia. *PLOS ONE* 2014;9(10). DOI: 10.1371/journal.pone.0110670
- Bayram N, Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Soc Psychiatry Psychiatr Epidemiol* 2008;43(8):667–72.
- Haldorsen H, Bak NH, Dissing A, Petersson B. Stress and symptoms of depression among medical students at the University of Copenhagen. *Scand J Public Health* 2014;42(1):89–95.
- Jayanthi P, Thirunavukarasu M, Rajkumar R. Academic stress and depression among adolescents: A cross sectional study. *Indian Pediatr* 2015;52:217–9.
- Mathew N, Khakha DC, Qureshi A, Sagar R, Khakha CC. Stress and coping among adolescents in selected schools in the capital city of India. *Indian J Pediatr* 2015;82:809–16.
- Ang RP, Huan VS. Relationship between academic stress and suicidal ideation: testing for depression as a mediator using multiple regression. *Child Psychiatry Hum Dev* 2006;37(2):133–43. DOI: 10.1007/s10578-006-0023-8
- Adetoun Olubanke Oladele, Isaac Taiwo Oladele. Depression and suicidal ideation among college students with and without learning disabilities in Nigeria. *Eur J Soc Behav Sci* 2016;2084–100. DOI: 10.15405/ejbsbs.187
- World Health Organization. Preventing Suicide. A resource for prison officers. *Mental and Behavioral Disorders*. Department of Mental Health; 2010.
- Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales*. (2nd ed). Sydney: Psychology Foundation; 2004.
- Ayub N. Validation of the Urdu translation of the Beck Scale for Suicide Ideation. *Assessment* 2008;15(3):287–93. DOI: 10.1177/1073191107312240
- Maya Z. Prevalence of suicidal ideations among first-year students at the university of the Western Cape. Thesis submitted for MA (Research) Psychology. Cape Town, South Africa: University of the Western Cape; 2016.

Address for Correspondence:

Ahmad Bilal, Department of Applied Psychology, The Islamia University of Bahawalpur, Pakistan. **Cell:** +92-300-8469524
Email: ahmadbilal4@gmail.com

Received: 9 Jun 2020

Reviewed: 22 Aug 2020

Accepted: 6 Sep 2020

Contribution of Authors:

AB: Concept, Study design, Data acquisition and analysis, Revision, Final approval

AR: Concept, Study design, Data acquisition and analysis, Drafting, Final approval

Funding source: None

Conflict of interest: None