Original Article

Correlation between Personality and Anxiety in Medical Students

Varun Anjarlekar[1], Shruti Parulekar[1], Sharon Thomas[1], Neel Lawande[1], Nayana Naik[2]

[1]3rd Year Part II Undergraduate Student, Goa Medical College, Bambolim, Goa, India, [2]Assistant Professor, Department of Psychiatry, Institute of Psychiatry and Human Behaviour, Bambolim, Goa, India

Abstract

Introduction: Medical education is known to be one of the most emotionally and academically demanding and draining field. This often leads to negative psychological effects on them leading to illnesses such as depression and anxiety which present with features such as impaired concentration, decreased attention span, poor memory, fatigue, headaches, and so much more. Different people react and cope with stress differently. These differences are due to various personality traits. The Big Five model classifies personality based on five traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness. This study aims to establish a correlation between personality and anxiety in each year of MBBS in Goan medical students.

Purpose: Certain personality types are more susceptible to the negative factors of stress than others. It is important to know which part of the personality plays a role in precipitating anxiety. Understanding this association can help to devise specific measures to aid, students predisposed to developing anxiety. This will in turn improve their quality of life and academic performance and also their work efficiency as students and in the future as doctors.

Materials and Methods: A cross-sectional study involving medical students of Goa Medical College from 1st to 3rd year Part II MBBS. The study was conducted over 2 months and was conducted as an online questionnaire. Total 289 participants out of whom 177 were female and 112 were male.

Results: (1) There were significant negative correlations between anxiety and extraversion and conscientiousness and agreeableness. (2) Significant positive correlation between anxiety and neuroticism. (3) Positive correlation each between extraversion, agreeableness, openness, and conscientiousness with each other. (4) All four traits had negative correlation with neuroticism.

Conclusion: Students with higher traits of neuroticism are more prone to develop anxiety. Extraversion, agreeableness, and conscientiousness were traits which proved useful in preventing and tackling anxiety.

Key words: Anxiety, Correlation, Medical students, Personality traits

INTRODUCTION

Background

Medical education, known to be one of the most emotionally and academically demanding fields, aims to create skilled and empathetic professionals who work to promote public health, enhance medical knowledge, and treat ill patients.[1,2] This demand often leads to a negative effect on the psychological state of medical students, causing mental illnesses such as depression and anxiety.[3,4] Anxiety leads to physical symptoms such as fatigue, dizziness, headache, nausea, abdominal pain, palpitations, shortness of breath, and urinary incontinence as well as psychological symptoms such as impaired concentration, decreased attention span, poor memory, and impaired perceptual motor function.[5-8]

The five factor model of personality, known as the "Big Five" model, one of the most well-known models of personality classifies personality based on five traits – neuroticism, extraversion, openness, agreeableness, and conscientiousness. The personality type of an individual affects all the aspects of human behavior including anxiety. Where certain personality types, such as Type A personality

Corresponding Author: Varun Anjarlekar, Goa Medical College, "Kesar," H. No. 4/100/F, Acoi Village, Mapusa, Goa, India.

as under higher levels of stress, Type B personalities are known to enjoy small achievements, as well as deal well with failures. They are overall associated with the lower stress levels.[9-11]

Each personality trait has individual facets within itself. Qualities such as gregariousness, assertiveness, activity, excitement, and warmth are found in an extroverted person whereas trust, straightforwardness, altruism, compliance, modesty, and tender mindedness are associated with agreeableness. Conscientiousness is associated with competence, order, dutifulness, achievement, self-discipline, and deliberation, while the facets under neuroticism include anxiety, anger, hostility, depression, impulsiveness, and vulnerability. Openness is associated with fantasy, aesthetics, feelings, and values.[12]

Duggan *et al.* studied the association between the Big Five personality traits and sleep patterns, among other factors such as sleepiness and sleep hygiene. They concluded that conscientiousness and neuroticism were good indicators to predict sleep patterns.[13] Sleep quality, in turn, affects academic performance and predisposes medical students to various mental illnesses. Personality traits are a known indicator of prediction of sleep pattern.[14]

Obtaining good grades and achieving academic success are one of the main goals of students at all levels. A study by Hayat *et al.* stated that personality traits, directly and indirectly, affected the academic performance of medical students. Conscientiousness, openness, and agreeableness were associated with superior academic performances as compared to neuroticism and extraversion.[15]

Identification of personality types in medical students and anxiety risk evaluation in the medical field is becoming a necessity as it has been found that anxious medical students have shown decreased levels of enthusiasm and empathy when catering to patients with chronic illnesses.[1] Not only this but quality of patient care takes a downfall as doctors with anxiety demonstrate poor work efficacy.[16]

By studying these personality traits and their association with anxiety in medical students, specific measures can be devised by which students predisposed to developing anxiety can be provided with mental care prophylactically in medical colleges. Based on configuration of personality traits in those medical students predisposed to anxiety, medical colleges suggest suitable postgraduate specialties to students interested in specialization.

Everyone tends to feel anxious to some extent but there are some personalities which seem more prone to anxiety. It is important to know which part of the personality contributes to maintain a higher than normal level of anxiety. Medical students are subjected to stressful circumstances such as academic excellence, full time commitment, and perfectionism, hence become increasingly vulnerable to anxiety. The study becomes an important in determining a relationship between certain personality types and anxiety in Indian medical students working according to the Medical School Curriculum affecting their quality of life. Moreover, it helps to catch a glimpse of the extent to which personality and anxiety are interrelated and influence an Indian medical student in each year of study. Any modifiable changes made to curriculum, if found to help in mental well-being of a student would amount to a very positive step taken.

Objectives
The objectives of the study are as follows:
1. To establish a correlation between personality and anxiety in each year of MBBS in Goan medical students
2. Analysis of different personality configurations and its relation to anxiety in medical students in each year.

MATERIALS AND METHODS

Study Design
This study was a cross-sectional study.

Setting
Study among 289 MBBS students of Goa Medical College over 2 months.

Participants
Inclusion criteria
Medical students above 18 years of age from 1st to 4th year MBBS in Goa Medical College were included in the study.

Exclusion criteria
Students who have already been diagnosed with psychiatric diseases were excluded from the study.

Variables
Given the generally higher levels of neuroticism among individuals with psychiatric disorders, those diagnosed with psychiatric disorders at the time of the study were excluded from analysis. Variables beyond personality traits and anxiety itself were not considered in the analysis.

Data Measurements
Approval from the IEC board was taken. An online questionnaire (as a Google form) was used to collect data from the students. Consent was taken electronically from all undergraduate medical students from 1st to 4th year before starting the questionnaire. The participants remained

anonymous and all collected data were kept confidential and no identifiers were used during the analysis.

The questionnaire contains the following parts:

Sociodemographic data = 12 questions

Questions relating to the symptoms of anxiety in individuals = 14 questions (Hamilton Anxiety Rating Scale). In the 14 questions relating to the symptoms of anxiety, participants are asked to scale their experiences, each ranged and correspondingly scored as follows: Not present (0), mild (1), moderate (2), severe (3), and very severe (4). The total scores are then classified into severity of anxiety as follows: Mild (<17), mild-to-moderate (18–24), and moderate-to-severe (25–30).

Questions relating to the personality traits of the individuals = 44 questions (Big Five Inventory). In the 44 questions relating to the personality traits of the individual, the five traits that have been taken into consideration for the study are extraversion, conscientiousness, agreeableness, openness, and neuroticism. The participants are asked to scale their themselves in regards to the questions using any of the following (scores in brackets): Disagree strongly (1), disagree a little (2), neither agree nor disagree (3), agree a little (4), and agree strongly (5). The scale contains eight questions corresponding to extraversion, nine to agreeableness, nine to conscientiousness, eight to neuroticism, and ten to openness. In total, 16 of these questions are reverse scored.

Bias
None.

Study Size
The study size was based on the number of students studying in the years from 1st year to 3rd year Part II at the time of the study.

Quantitative Variables
No groupings of quantitative data were made. Data of anxiety were correlated as a whole with each of the personality traits (Openness, conscientiousness, agreeableness, extraversion, and neuroticism).

Statistical Methods
SPSS was used to analyze the data. Data were analyzed through correlation.

RESULTS

Participants
From the students of Goa Medical College studying from 1st year MBBS to 3rd year Part II sampled, of which there were

a total of 574 students sampled, a total of 289 participants from a total of 292 responses were included in the study.

The main reason for non-participation in the study was non-response following requests to participate in the study. The 289 students included consisted of 83 students from 1st year MBBS (28.4%), 76 students from 2nd year MBBS (26%), 84 students from 3rd year MBBS Part I (28.8%), and 49 students from 3rd year MBBS Part II (16.8%). Of these, three students had been excluded having met exclusion criteria (1 from 1st, 2nd, and 3rd year MBBS Part I each).

Of the 289 students that answered, 177 were female and 112 were male, 120 had rural residence and 169 had urban, 170 had a parental income of more than 5 lakhs per annum, 95 between 1 and 5 lakhs, and 27 <1 lakh. Among the religions practiced, 212 of the participants practiced Hinduism, 55 practiced Christianity, five practiced Islam, one practiced Jainism, two practiced Sikhism, and 13 practiced miscellaneous religions, which are close to the 2011 census data regarding the distribution of religions in Goa, where Hinduism is the most widely practiced (66.08%) followed by Christianity (25.10%). Of the primary languages spoken, 62 spoke English, 154 spoke Konkani, 39 spoke Hindi, 16 spoke Marathi, two spoke Gujarati, seven spoke Malayalam, three spoke Kannada, one spoke Hebrew, one spoke Maithili, one spoke Marwadi, one spoke Punjabi, one spoke Rajasthani, and two spoke Urdu. Details are given in Table 1.

There were no participants with missing data in this study.

Main Results
Correlations were made between anxiety and the various personality traits of the Big Five Inventory as depicted in Table 2. It was found that at the 0.01 level, there were significant negative correlations between anxiety and extraversion and conscientiousness and agreeableness, whereas there was a significant positive correlation between anxiety and neuroticism. In addition, there were also correlations between the five personality traits themselves in the population, with positive correlations each between extraversion, agreeableness, openness, and conscientiousness with each other, and all four of these traits had a negative correlation with neuroticism.

DISCUSSION

Key Results
Our objective with this study was to address a relationship between personality traits and anxiety as well as to analyze the effects they may have on anxiety. Our primary findings were that neuroticism was positively correlated with anxiety

whereas extraversion, conscientiousness, and agreeableness were negatively correlated with anxiety.

Table 1: Sociodemographic table

Sociodemographic variables	Categories	Number (%)
Gender	Male	112 (38.8)
	Female	177 (61.2)
Academic year	1st year	83 (28.4)
	2nd year	76 (26)
	3rd year Part I	84 (28.8)
	3rd year Part II	49 (16.8)
Permanent residence	Rural	120 (41.5)
	Urban	169 (58.5)
Income	<1 lakh	27 (9.3)
	1–5 lakhs	95 (32.8)
	>5 lakhs	170 (58.8)
Religion	Hinduism	212 (73.4)
	Christianity	55 (19)
	Islam	5 (1.7)
	Jainism	1 (0.3)
	Sikhism	2 (0.7)
	Miscellaneous	13 (4.5)
Language	English	62 (21.4)
	Konkani	154 (53.3)
	Hindi	39 (13.5)
	Marathi	16 (5.5)
	Gujarati	2 (0.7)
	Malayalam	7 (2.4)
	Kannada	3 (1)
	Hebrew	1 (0.3)
	Maithali	1 (0.3)
	Marwadi	1 (0.3)
	Punjabi	1 (0.3)
	Rajasthani	1 (0.3)
	Urdu	2 (0.7)

Limitations

A number of limitations exist in this study. Primarily among them is the number of participants, which represent 50.35% of the total number of students sampled. In addition, the relatively smaller percentage of students participating from 3rd year MBBS Part II is also a limitation. Given these are students who are most prone for anxiety out of all 4 years given the stressful nature of the course at that point, this may have led to relatively weaker correlations between anxiety and the four main factors discussed above in terms of both positive and negative correlations.

Interpretation

From the outset, it is apparent from Table 1 that the number of female participants was more than male, accounting for 61% of our study population. This may reflect the rising trends of female involvement in the medical field.[17] Surprisingly, there was no significant difference in anxiety between male and female sex in our study, which was in contrast to the study by Gao *et al*.,[18] where females were significantly more affected by anxiety than males. This may be attributed to the fact that introversion also plays a role in the variation of anxiety in females and males as noted in the same study; however, there were no significant differences in the introversion between male and female students in our study either.

In addition, in contrast to the study by Schmitt *et al*.,[19] there were no significant differences in personality traits between either sex in our study where there generally is

Table 2: Correlations

	Mean Anxiety	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Mean Anxiety						
Pearson Correlation	1	−0.226**	−0.263**	−0.301**	0.604**	0.003
Sig. (2–tailed)		0.000	0.000	0.000	0.000	0.961
n	289	289	289	289	289	289
Extraversion						
Pearson Correlation	−0.226**	1	0.171**	0.377**	−0.358**	0.243**
Sig. (2-tailed)	0.000		0.003	0.000	0.000	0.000
n	289	289	289	289	289	289
Agreeableness						
Pearson Correlation	−0.263**	0.171**	1	0.324**	−0.264**	0.259**
Sig. (2-tailed)	0.000	0.003		0.000	0.000	0.000
n	289	289	289	289	289	289
Conscientiousness						
Pearson Correlation	−0.301**	0.377**	0.324**	1	−0.433**	0.307**
Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
n	289	289	289	289	289	289
Neuroticism						
Pearson Correlation	0.604**	−0.358**	−0.264**	−0.433**	1	−0.058
Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.324
n	289	289	289	289	289	289
Openness						
Pearson Correlation	0.003	0.243**	0.259**	0.307**	−0.058	1
Sig. (2-tailed)	0.961	0.000	0.000	0.000	0.324	
n	289	289	289	289	289	289

**Correlation is significant at the 0.01 level (2-tailed), *n*: Number, Sig.: Significance

a significantly higher level of neuroticism in females than males from the global perspective. This may be due to the fact that neuroticism itself may not be very high in Goan population, on account of the generally peaceful and serene nature of Goa itself, therefore, the differences between sexes may not be large enough to consider significant.

It was found that 58.8% of our study population came from families whose income exceeded 5 lakhs. This may reflect the fact that given the competition and relative paucity of medical seats in Goa, participants from higher income families would have better access to resources such as coaching classes, which improve their chances of getting higher scores and thereby ranks in competitive exams.

An interesting finding was that there were no significant differences in anxiety between income groups, at odds with the study by Rudenstine *et al.*[20] who had found that lower socio-economic groups especially during the COVID-19 pandemic were subject to significantly more anxiety due to the larger number of negative factors on mental health that are the concomitant of lower socio-economic groups. The lack of a significant difference may be attributed to the fact that despite the lockdown and the prevailing uncertainty regarding its length, even those in rural areas in Goa were still able to buy and receive necessary resources such as rations, and as such were not as adversely impacted by the COVID-19 pandemic lockdown measures as compared to residents of other states.

No significant difference in anxiety was found between academic years of MBBS, as in the study by Moutinho *et al.*[21] where their findings were that anxiety levels were higher among 1st year students. Given that at the time of collection of data for this study, the COVID-19 lockdown measures were in place, students of all years may be considered subject to the same anxiety with regard to uncertainty regarding the future of their course, and thus, there may not have been significant differences between the subgroups.

Another finding was that 58.5% of our population lived in urban areas. This is close to the 2011 census data of Goa where 62.2% of Goans live in urban areas. There were no significant differences in anxiety that could be found with respect to residence. We were unable to get any such data in other studies.

At the time when this study was conducted, the COVID-19 pandemic measures were being upheld in full, which included stay-at-home orders and social distancing among others which may have led to decreased social interaction, disruption in sleeping patterns, fear and worry about the health of their loved ones, and concerns regarding academic performance among the population of medical students, all of which may have contributed to anxiety.[22] It bears merit to examine if there is a variation in the impact of anxiety on the basis of personality traits among them, considering the already high predisposition to anxiety among medical students.

In this study, there were relationships established between four of the five personality traits and anxiety. Anxiety was found to relate positively with neuroticism which is corroborated by the study done by Shi *et al.*[23] where they found neuroticism to adversely impact mental health. It was also established that neuroticism predicted stress reactions and anxiety symptoms which was mediated by job stress,[24] which is in considerable amounts in medical students as measured in the study by Hisam *et al.*[11]

Neuroticism is also highly associated with stress,[25] and the relationship is due to a high inability of such individuals to have appropriate coping with stressors in their lives, and medical students are subject to several such stressors as a part of their education. Neuroticism was associated with maladaptive forms of emotional regulation rather than reappraisal,[26] which would result in more severe symptoms of anxiety and may have contributed to the higher scores obtained by such individuals. Neuroticism is also a good predictor of poor sleep, as in the study by Duggan *et al.*,[13] which may have also indirectly contributed to stress and anxiety mediated through rumination.[22] Neuroticism is also positively related to health anxiety and indirectly to anxiety symptoms itself.[27]

It was found that in the interaction between the personality traits themselves as well, neuroticism was negatively correlated with the extraversion, conscientiousness, and agreeableness. This is corroborated by the study by Fayombo,[28] where conscientiousness and agreeableness both were positive predictors of psychological resilience whereas neuroticism was a negative predictor of psychological resilience, which itself was responsible for general well-being, and thus had a protective factor on mental health. This was due to the fact that the former traits were more associated with healthy personalities, that is, individuals with these personalities are more hardworking, intellectually curious, easily get along with others, and assertive. The negative relationship with neuroticism is due to the fact that it is more associated with negative personality traits such as anxiety, anger, guilt, and depressed mood due to poor reactions to environmental stress and consequently had a more negative outlook on life which was why they likely had less resilience than their more agreeable and conscientious counterparts. In addition, the negative relationship between neuroticism and conscientiousness was believed to be due to the fact that neurotic individuals

find it difficult to resist temptation or delay gratification and those low on conscientious self-discipline had difficulties in motivating themselves.

Extraversion was negatively correlated with anxiety, as well as neuroticism, and positively correlated with conscientiousness and agreeableness. This corroborated the findings of Santesteban–Echarri *et al.*[29] which found that mental illness and anxiety symptoms were more in individuals with high neuroticism and low extraversion and conscientiousness. In addition, it was found that in the same setting, there was increased risk for generalized anxiety disorder even at the low levels of neuroticism.[30]

Extraverted individuals were found to be less affected by COVID-19-related anxiety, and indirectly anxiety itself as per the study by Nikcevic *et al.*,[27] where the positive relationship between agreeableness and extraversion was hypothesized to have contributed to better coping mechanisms to deal with such stresses. Extraverted individuals were found to suffer less under stress and would approach stressful events as challenges as they view them as potential sources of reward rather than punishment.[31] In addition, extraverted also have less perceived stress.

Agreeableness was negatively correlated with anxiety, which can be explained in the study by Wauthia *et al.*,[32] where the low levels of agreeableness were significantly associated with anxiety sensitivity, which indirectly affects the extent to which anxiety symptoms may be perceived by such individuals. Agreeableness was also found to be negatively associated with neuroticism,[31] where it was observed that highly agreeable, conscientious, and extraverted individuals had more self-efficacy, which was protective against depressive symptoms whereas neuroticism was associated with lower self-efficacy and was more associated with depression. This also falls in line with our findings of the interrelationship between neuroticism and extraversion and conscientiousness and agreeableness.

Conscientiousness was found to be negatively related with anxiety. Conscientiousness was associated with traits of orderliness, high self-efficacy, achievement-driven, self-discipline, and responsibility and individuals with high conscientiousness would find stressful situations less demanding as they would find adaptive coping strategies with which to resolve or handle stressors in their lives, thereby helping to reduce their anxiety.[25] Individuals with low conscientiousness were found to have poorer sleep than average, which contributes to anxiety as mentioned before, in addition to deficits in responsibility, motivation, and self-control.[33]

On the other hand, individuals with high conscientiousness have more health promoting behaviors which are more associated with good mental health. Both of these also explain the negative correlation with neuroticism where neurotic individuals were more likely to practice those behaviors associated low conscientiousness, as well as the low likelihood of neurotic individuals to practice healthy promoting behaviors.

Openness was positively correlated with extraversion, conscientiousness, and agreeableness. This result was also observed in a study done by Yanghang *et al.*, where extraversion, openness, and conscientiousness were all associated with improved social well-being and hence were positively linked to one another.[34] The correlations of openness with neuroticism and anxiety were not statistically significant in our study.

Generalizability

The question of the applicability of this study to other medical students is a valid one. To address this question, in this study, we had included both male and female students, students who were involved in the years of medical college dealing with both theoretical as well as practical medical education, we represented the years where students largely face varying levels of stress due to the differing academic demands of each year of medical college. As a result, enough representation overall exists to address the exposures that would lead to anxiety.

CONCLUSION

This study stated the relationship between the Big Five personality traits with anxiety and with each other, in medical students of Goa. It was observed that students with higher scores of Neuroticism were more likely to develop anxiety. On the other hand, students with high scores of Extraversion, Conscientiousness and Agreeableness were not only less likely to develop anxiety but also were capable of handling it better if at all they were anxious. These findings can prove useful to teachers and psychologists as well as students, not only to tackle anxiety in the hectic medical field, but also would serve as a guide to decide on their postgraduation career between high and low stress courses. A systematic psychological assessment would, therefore, prove useful in determining the career satisfaction of various medical students in the future.

ACKNOWLEDGMENT

REFERENCES

1. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U. S. and Canadian medical students. Acad Med 2006;81:354-73.
2. Wolf TM. Stress, coping and health: Enhancing well-being during medical school. Med Educ 1994;28:8-17.
3. Mosley TH Jr., Perrin SG, Neral SM, Dubbert PM, Grothues CA, Pinto BM. Stress, coping, and well-being among third-year medical students. Acad Med 1994;69:765-7.
4. Aktekin M, Karaman T, Senol YY, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: A prospective study in Antalya, Turkey. Med Educ 2001;35:12-7.
5. Testa A, Giannuzzi R, Sollazzo F, Petrongolo L, Bernardini L, Daini S. Psychiatric emergencies (Part I): Psychiatric disorders causing organic symptoms. Eur Rev Med Pharmacol Sci. 2013;17 Suppl 1:55-64.
6. Eysenck MW, Derakshan N, Santos R, Calvo MG. Anxiety and cognitive performance: Attentional control theory. Emotion 2007;7:336-53.
7. Moran TP. Anxiety and working memory capacity: A meta-analysis and narrative review. Psychol Bull 2016;142:831-64.
8. Runswick OR, Roca A, Williams AM, Bezodis NE, North JS. The effects of anxiety and situation-specific context on perceptual-motor skill: A multi-level investigation. Psychol Res 2018;82:708-19.
9. McCrae RR, Costa PT. Validation of the Five-Factor model of personality across instruments and observers. J Pers Soc Psychol 1987;52:81-90.
10. Peters WJ. The Relationship between Anxiety, Personality Characteristics, and Working Memory Performance. Ann Arbor, MI: ProQuest LLC; 2015.
11. Hisam A, Ur Rahman M, Mashhadi SF, Raza G. Type A and Type B personality in undergraduate medical students: Need of psychosocial rehabilitation. Pak J Med Sci 2014;30:1304-7.
12. John O, Robins R. Handbook of Personality. 2nd ed. New York: Guilford Press; 1999. p. 102-38.
13. Duggan K, Friedman H, McDevitt E, Mednick S. Personality and healthy sleep: The importance of conscientiousness and neuroticism. PLoS One 2014;9:e90628.
14. Rathi A, Ransing R, Mishra K, Narula N. Quality of sleep among medical students: Relationship with personality traits. J Clin Diagn Res 2018;12:VC01-4.
15. Hayat A, Kohoulat N, Amini M, Faghihi SA. The predictive role of personality traits on academic performance of medical students: The mediating role of self-efficacy. Med J Islam Repub Iran 2020;34:77.
16. Khuwaja AK, Qureshi R, Azam SI. Prevalence and factors associated with anxiety and depression among family practitioners in Karachi, Pakistan. J Pak Med Assoc 2004;54:45-9.
17. Khattar S. Women in modern medicine in India: Progression, contribution, challenges and empowerment. Australas Account Bus Finance J 2019;13:88-106.
18. Gao W, Ping S, Liu X. Gender differences in depression, anxiety, and stress among college students: A longitudinal study from China. J Affect Disord 2020;263:292-300.
19. Schmitt D, Long A, McPhearson A, O'Brien K, Remmert B, Shah S. Personality and gender differences in global perspective. Int J Psychol 2016;52:45-56.
20. Rudenstine S, McNeal K, Schulder T, Ettman CK, Hernandez M, Gvozdieva K, *et al*. Depression and anxiety during the COVID-19 pandemic in an urban, low-income public university sample. J Trauma Stress 2021;34:12-22.
21. Moutinho I, Maddalena N, Roland R, Lucchetti A, Tibiriçá S, Ezequiel O, *et al*. Depression, stress and anxiety in medical students: A cross-sectional comparison between students from different semesters. Rev Assoc Méd Bras 2017;63:21-8.
22. Du C, Zan M, Cho M, Fenton J, Hsiao P, Hsiao R, *et al*. Increased resilience weakens the relationship between perceived stress and anxiety on sleep quality: A moderated mediation analysis of higher education students from 7 countries. Clocks Sleep 2020;2:334-53.
23. Shi M, Liu L, Wang ZY, Wang L. The mediating role of resilience in the relationship between big five personality and anxiety among Chinese medical students: A cross-sectional study. PLoS One 2015;10:e0119916.
24. Gramstad T, Gjestad R, Haver B. Personality traits predict job stress, depression and anxiety among junior physicians. BMC Med Educ 2013;13:150.
25. Woon LS, Sidi HB, Ravindran A, Gosse PJ, Mainland RL, Kaunismaa ES, *et al*. Depression, anxiety, and associated factors in patients with diabetes: Evidence from the anxiety, depression, and personality traits in diabetes mellitus (ADAPT-DM) study. BMC Psychiatry 2020;20:227.
26. Du C, Zan MC, Cho MJ, Fenton JI, Hsiao PY, Hsiao R, *et al*. Increased resilience weakens the relationship between perceived stress and anxiety on sleep quality: A moderated mediation analysis of higher education students from 7 countries. Clocks Sleep 2020;2:334-53.
27. Nikčević AV, Marino C, Kolubinski DC, Leach D, Spada MM. Modelling the contribution of the big five personality traits, health anxiety, and COVID-19 psychological distress to generalised anxiety and depressive symptoms during the COVID-19 pandemic. J Affect Disord 2021;279:578-84.
28. Fayombo G. The relationship between personality traits and psychological resilience among the Caribbean adolescents. Int J Psychol Stud 2010;2:105-16.
29. Santesteban-Echarri O, MacQueen G, Goldstein B, Wang J, Kennedy S, Bray S, *et al*. Personality and risk for serious mental illness. Early Interv Psychiatry 2020;15:133-9.
30. Naragon-Gainey K, Simms LJ. Three-way interaction of neuroticism, extraversion, and conscientiousness in the internalizing disorders: Evidence of disorder specificity in a psychiatric sample. J Res Pers 2017;70:16-26.
31. Shi M, Liu L, Wang Z, Wang L. The mediating role of resilience in the relationship between big five personality and anxiety among Chinese medical students: A cross-sectional study. PLoS One 2015;10:e0119916.
32. Wauthia E, Lefebvre L, Huet K, Blekic W, El Bouragui K, Rossignol M. Examining the hierarchical influences of the big-five dimensions and anxiety sensitivity on anxiety symptoms in children. Front Psychol 2019;10:1185.
33. Akram U, Gardani M, Akram A, Allen S. Anxiety and depression mediate the relationship between insomnia symptoms and the personality traits of conscientiousness and emotional stability. Heliyon 2019;5:e01939.
34. Yu Y, Zhao Y, Li D, Zhang J, Li J. The relationship between big five personality and social well-being of Chinese residents: The mediating effect of social support. Fronti Psychol 2021;11:613659.