Brief Report

The relationship between blood types and anxiety, stress, and depression in university students

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Abstract

Introduction: Due to the lifestyle changes in societies, modern humans have been suffering from a wide range of mental pressures. The present study aimed to assess the relationship between blood types and anxiety, stress, and depression in university students.

Materials and Methods: This cross-sectional study was conducted on 315 students of Lorestan University of Medical Sciences. Research instrument included demographic checklist and Depression, Anxiety, Stress Scale (DASS-21). Data analyzed through descriptive statistics, multivariate test and SPSS.

Results: The highest and lowest frequencies are observed among the O and A blood types, respectively. The mean scores of stress, anxiety and depression among the students at Lorestan University of Medical Sciences fall within the normal range. There is not a significant relationship between the mean scores of stress, anxiety and depression in different schools ($P > 0.05$). The stress, anxiety and depression variables of students do not show a significant difference with regard to different blood types ($P > 0.05$). The mean score of depression and stress is higher in men than women, but women have a slightly higher anxiety score despite the non-significant difference between them ($P > 0.05$).

Conclusion: The above results are indicated a non-significant relationship between blood types and stress, anxiety and depression.

Keywords: Anxiety, Blood type, Depression, Stress

Introduction

Numerous studies have been conducted on the prevalent mental disorders, including stress, anxiety, depression, and their relationship with mental health (1-4). These studies have revealed a wide range of the mentioned mental disorders among students (5,6). A study conducted on male and female students indicated that the high prevalence of depression, anxiety, and stress in the students. Moreover, the higher rate of depression, anxiety, and stress among the male students compared to the female students was another finding. At the same time, the academic level also had no significant relationship with depression, anxiety, stress, and quality of life (7). Akbari et al. conducted a study on the students of Mashhad Dental School and reported

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that 52% of the students suffered from abnormal levels of stress while the level of stress in the fourth-year students was significantly higher. The level of stress did not differ significantly between the two genders, and academic stress factors had a more prominent role than the non-academic factors in the levels of stress in these students (8). Blood type is one of the proven congenital attributes, and human blood types are classified into type A, B, AB, and O blood types (9,10). There is a plethora of research on the role of blood type and its relationship with personal traits and mental disorders. Semnani et al. studied the relationship between blood type and Rh in cases with bipolar I disorder and reported the lack of any specific genetic link with bipolar disorder (11-14). The studies conducted to assess the relationship between blood type and the mixed anxiety-depressive disorder in students in Dezful city, did not produce relevant results (15,16). Cattell et al. demonstrate that the rate of depression is significantly higher in the type A and O blood types than the other two blood types, while it is higher in the type A blood type than type O (17). Given that the prevalence of blood types varies by society and the different natures of psychopathologies, there are many contradictions regarding the effect of blood types on the psychological attributes of individuals (16,17). This manuscript investigates the mean scores of stress, anxiety, and depression among Lorestan University of Medical Sciences students and their relationship with the blood type. In addition, the differences between the female and male genders concerning stress, anxiety, and depression in different schools of Lorestan University of Medical Sciences are also examined.

Materials and Methods

The statistical community of this descriptive-correlational study consisted of all students who studying in the 2016-2017 academic year at Lorestan University of Medical Sciences. Three hundred fifteen students were selected using the multi-stage method (stratified, quota, and random). The inclusion criteria for the participants were as follows: being in university, willingness to cooperate, lack of a history of mental disorders, and having a blood donation card, a Red Crescent card, or other cards accredited by the Ministry of Health and Medical Education for the confirmation of the blood type. The exclusion criteria for the participants were also biased and reckless answers and having acute physical conditions. It is worth noting that the participants wrote consent form. The authors ensured the participants about confidentiality of the information.

Research instrument
 A) Depression Anxiety Stress Scale-21 (DASS-21): It consisted of 21 questions, with seven questions for each subscale. The total score on each variable was obtained by summing the scores on the related questions. Each question had four options as the answer (never, slightly, sometimes, and always), which were ranked from 0 (never) to 3 (always). The severity of each item was also classified into normal, mild, moderate, severe, and highly severe based on the resulting scores. Numerous studies have been carried out in Iran to investigate the validity and reliability of the mentioned scale. Samani and Jokar demonstrated the validity of this scale using the test and re-test methods. They showed that this scale is acceptable for Iranian population (18).

Results

Table 1 presents the demographic variables of the participants. The mean scores related to depression, anxiety, and stress presented in Table 2.

Table 1. Frequency of the study variables in the university students

	Demographic variable	Percentage	Number
Gender	Female	57.5	181
	Male	42.5	134
School	Medicine	30.2	95
	Dentistry and pharmacy	9.5	30
	Paramedical	17.8	56
	Health and nutrition	13.3	42
	Nursing and midwifery	39.2	92
Blood type	A	31.4	99
	B	24.1	76
	AB	10.5	33
	O	34	107
Total		100	315

As seen in Table 2, the paramedical school students obtained the highest score of depression, while the medical school students obtained the lowest with score. The scores of depression in students of the medical, dental, and pharmaceutical schools were within the normal range, while the paramedical, health and nutrition, nursing, and midwifery schools indicated the mild depression.

The highest score of anxiety was seen in the students of dental and pharmaceutical schools, while the medical school students obtained the lowest score. The anxiety scores of the students of medical, nursing and midwifery, and health and nutrition schools were in the normal range, while those of the students at the paramedical, dental, and pharmaceutical schools reflected mild anxiety.

Also, the paramedical school obtained the highest score of stress, whereas the medical school obtained the lowest score. The stress scores of students in the medical, dental and pharmaceutical, health and nutrition, and nursing and midwifery schools are in the normal range, while the paramedical students presented the mild stress.

Table 2. The mean scores of stress, anxiety, and depression

		Depression	Anxiety	Stress
	Medical	7.15	5.53	12.4
	Dental and pharmaceutical	9.4	8.8	14.2
School	Paramedical	12.96	8.5	14.47
	Health and nutrition	11.04	7.66	16.53
	Nursing and midwifery	10.77	7.84	13.11
Total		9.97	7.33	14.01

The multivariate test was performed to determine the relationship between the stress, anxiety, and depression variables and the blood type. In the following, the significance level of the multivariate indices is presented in Table 3, followed by an examination of the relationship of the stress, anxiety, and depression variables with the blood type using the multivariate test as shown in Table 4.

Finally, comparing the mean scores of stress, anxiety, and depression by gender is shown in Table 4. There were not significant relationships between blood types and subscales of DASS.

Table 3. The significance level of multivariate indices

		Amount	F	df hypothesis	P	Partial Eta Squared
	Pillai's Trace	0.013	0.485	9	0.903	0.004
Blood	Wilks' Lambda	0.987	0.456	9	0.904	0.004
type	Hotelling's Trace	0.013	0.455	9	0.905	0.004
	Roy's Largest Root	0.009	0.967	3	0.409	0.009

Table 4. The relationship between stress, anxiety, and depression with blood types using multivariate indices

	Variable	N	Depression	Anxiety	Stress
	Blood type		Mean ± SD	Mean ± SD	Mean ± SD
	A	99	10.65 ± 4.56	7.21 ± 3.70	14.56 ± 5.30
	B	76	9.89 ± 4.89	7.34 ± 3.01	13.89 ± 7.97
	AB	33	8.84 ± 3.53	6.12 ± 3.38	12.54 ± 6.05
	O	107	9.75 ± 4.04	7.81 ± 3.17	14.04 ± 7.05
Gender	Woman	181	9.43 ± 4.13	7.48 ± 3.08	13.68 ± 5.34
	Man	134	10.71 ± 4.56	7.13 ± 3.11	14.46 ± 5.23
	F		0.785	0.492	0.394
	Partial η^2		0.472	0.451	0.641
	P		0.140	0.488	0.282

Discussion

In this study, the mean scores of stress, anxiety, and depression of students at Lorestan University of Medical Sciences are within the normal range. According to the findings, there were not significant relationship between blood types and the scores of stress, anxiety, and depression. Although the mean scores of

depression and stress are higher in men and the anxiety score of women is slightly higher than men, there is no significant difference between two genders. Finally, there is no significant relationship between the mean scores of stress, anxiety, and depression in different schools.

Another study conducted on students like our study, indicated that the scores of depression, anxiety and stress were normal. The rate of depression, anxiety, and stress in male students is higher than in female students, but there is no significant relationship between them (9). However, in a study conducted at Mashhad University of Medical Sciences, the mean stress scores for both genders were in the abnormal range (10).

In a study conducted at Fasa University of Medical Sciences to study stress, anxiety, depression, and self-concept, it was reported that the mean scores of stress and anxiety of the three degrees showed a statistically significant difference. However, there was no statistically significant difference between the associate, bachelor, and Ph.D. degrees regarding the scores of depression (8).

In this study, the multivariate test was used to determine the relationship between stress, anxiety, and depression variables and blood types. Finally, considering the results of the multivariate analysis and the significance level of the indices, there is not a significant difference between students with different blood types concerning stress, anxiety, and depression variables. Also, there is no significant difference between two genders in scores of depression, anxiety, and stress. This result is similar to the findings of a study on students in Dezful city, while there was no difference between the male and female genders in this regard (15). Moreover, another study conducted on 200 participants in Dezful city, indicated no significant relationship between blood type and depression (by gender) (16). However, unlike these studies, in some cases, there has been a link between the blood type and the study variables, which is contradictory to this study. In a study conducted by Cattell et al. the results indicated the rate of depression in the A and O blood types is significantly higher than the other two blood types, while this rate is higher in type A than type O (17).

Conclusion

According to the findings, blood type shows no significant relationship with stress, anxiety, and depression. Moreover, although the mean scores of depression and stress in men are higher than women and the anxiety score of women is slightly higher than men, there is no significant difference between them. Finally, there is no significant relationship between the mean scores of stress, anxiety, and depression in different schools.

Acknowledgments

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