Research Article

The Prevalence of Depression, Anxiety and Stress among Rehabilitation Students in Iran

Mehrnoosh Karimi[1,2] , Khadijeh Kazemi[1,2] , Fatemeh Rahimi[1,2] , Maryam Sadat Mousavi[3] , Mohammad Jafar Shaterzadeh Yazdi[1, 2*]

1. Musculoskeletal Rehabilitation Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Department of Physical Therapy, School of Rehabilitation, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Department of Psychology, Faculty of Humanities, Islamic Azad University of Naeen, Esfahan, Iran.

ABSTRACT

Introduction: The students' mental health is a global concern. To reduce mental health problems, it is necessary to have adequate knowledge about their prevalence before any intervention. Therefore, this study aims to investigate the prevalence of psychological disorders in rehabilitation students in Ahvaz, Iran

Materials and Methods: In this cross-sectional study, 213 students (172 undergraduate, 26 graduate, and 15 postgraduate students) from the Faculty of Rehabilitation Sciences at Ahvaz Jundishapur University of Medical Sciences (AJUMS) participated. They completed a demographic form, Beck's Anxiety Inventory, Beck's Depression Inventory, and Depression, Anxiety and Stress Scale-21 Items.

Results: The results showed that 54.4%, 19.3%, and 15.5% of students had moderate to severe stress, anxiety and depression, respectively. The students' psychological status had a significant positive correlation with the family history of psychological disorders and comorbidity. Furthermore, there was a significant negative correlation between the students' psychological status and weekly study hours.

Conclusion: The university authorities can help reduce stress, depression, and anxiety of students by encouraging them to increase their study time.

* Corresponding Author:
Mohammad Jafar Shaterzadeh Yazdi, PhD.
Address: Musculoskeletal Rehabilitation Research Center, School of Rehabilitation, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Tel: +98 (61) 33743106
E-mail: shaterzade.pt@gmail.com

1. Introduction

According to the World Health Organization, health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [1]. This definition represents the importance of mental health. Mental health is defined as the ability to establish proper communication with others, to change and modify individual and social environments, and to resolve conflicts in a logical, judgmental, and appropriate manner [2]. Therefore, the level of depression and anxiety is a special indicator of a person's mental health status [3]. The students' mental health is a global concern; neither in developing countries nor in developed countries they are immune to mental health problems [4, 5]. To improve the students' mental health, it is necessary to have relevant knowledge before any intervention and to provide adequate and appropriate support for them [5]. Overall, a society that is concerned about the health of future generations should take effective steps by examining and eliminating the underlying factors that cause psychological problems [6].

Several factors can influence the college students' mental health, which can be divided into three groups: Personal factors, university-related factors, and social factors [7]. Problems such as being away from the family, exposure to new environments, concerns about their future career prospects, or starting a new life, inevitably cause anxiety and stress in college students [8-10]. In the long term, these factors can be risk factors for disruption of coping strategies and individual function; therefore, special attention should be paid to the mental health of this group [10]. High levels of stress and anxiety can have serious negative effects on their academic performance, leading to academic failure and even drop-out. On the other hand, due to the slight increase in people's educational level in Iran over the past decades as well as the growing youth population and poor employment status of graduates, many college students are exposed to stress. Major attention should be paid to medical students, who experience a lot of stress following transition from pre-clinical to clinical training [11] and becoming responsible for the health of people in the future [9, 12].

Some studies have been conducted on the prevalence of anxiety, stress, and depression among physiotherapy students in other countries including India [13] and Pakistan [14], while no study has investigated them among students in different rehabilitation fields in Iran. Therefore, the current study aims to investigate the prevalence of psychological disorders in students of the Faculty of Rehabilitation Sciences at Ahvaz Jundishapur University of Medical Sciences (AJUMS), Ahvaz, Iran.

2. Materials and Methods

Study design and participants

This cross-sectional study was conducted on 213 college students (132 females and 80 males) studying at Faculty of Rehabilitation Sciences at AJUMS from November to December of 2019. Of 213 students, 172 were undergraduate students, 26 were graduate students, and 15 were postgraduate students. The study protocol was approved by the ethics committee of AJUMS (Code: IR.AJUMS.REC.1398.247).

All students signed an informed consent form. They were assured of the confidentiality of their information. The sample size was calculated based on Krejcie & Morgan's table. This table is generally used to determine the sample size based on the size of the study population [15]. The exact number of students in all fields and levels was determined based on the departments of the faculty. Since the total number of students in the Faculty of Rehabilitation Sciences was 383, the sample size was estimated at 181. Finally, 213 students completed the questionnaires. The inclusion criteria were: Studying at AJUMS in different fields (e.g., audiology, physiotherapy, sports physiotherapy, rehabilitation management, occupational therapy, and speech therapy), and willingness to participate in this study for one month or more after the beginning of the semester. The students who used sedatives were excluded from the study.

Data collection tools

The tools used for data collection were a demographic form, beck's anxiety inventory (BAI), beck's depression inventory (BDI), and Depression, Anxiety and Stress Scale-21 Items (DASS-21). The BAI consists of 21 items scored from 0 to 3. The total score ranges from 0 to 63; a score of 0-7 indicates no anxiety; a score of 8-15 represents mild anxiety; a score of 16-25 represents moderate anxiety, and a score of 26-63 represents severe anxiety. The psychometric properties of its Persian version have been previously studied in Iran [16]. The BDI consists of 21 items, each rated from 0 to 3. The total score ranges from 0 to 63. A score of 0-9 indicates no depression; a score of 10-20 represents mild depression; a score of 21-30 represents moderate depression; a score of 31-40 represents severe depression, and a score of 41-63 represents severe depression. The validity and reliability of its Persian version have been previously approved [17].

Karimi M, et al. Rehabilitation Students' Psychological Distress. JMR. 2022; 16(3):228-234

229

The DASS-21 has 21 items, 7 related to anxiety, 7 related to depression, and 7 related to stress. Each question is scored from zero (did not apply to me at all) to three (applies to me very much). Since this questionnaire is a short form of the original scale with 42 items, the final score of each subscale needs to be doubled. For the anxiety subscale: score 0-7 indicates normal state; score 8-9, mild anxiety; score 10-14, moderate anxiety; score 15-19, severe anxiety; and score >20, very severe anxiety. For the depression subscale, score 0-9 indicates normal state; score 10-13, mild; score 14-20, moderate; score 21-27, severe; and score >28, very severe depression. Finally, for the stress subscale, score 0-14 indicates normal state; score 15-18, mild; score 19-25, moderate; score 26-33, severe; and score >33, very severe stress. The validity and reliability of its Persian version have been confirmed [18]. In this study, only the stress subscale of DASS-21 was used.

Statistical analysis

For descriptive variables, mean, standard deviation, frequency, and percentage were used. The normality of data distribution was investigated using Kolmogorov-Smirnov test. Spearman's correlation test was used to investigate the correlation between dependent and independent (demographic) variables. Chi-squared was used to investigate the relationship of educational levels and study fields with stress, anxiety and depression. Moreover, Mann-Whitney U test was used to compare stress, anxiety, and depression between the undergraduates and graduate students of speech therapy, while Kruskal-Wallis test was used to compare undergraduates with gradu-

ate and postgraduate students of physical therapy. Statistical analysis was performed in SPSS v. 20 software. A P<0.05 was statistically significant.

3. Results

The participants' demographic information are presented in Figures 1 and 2. Quantitative variables (age and weekly study hours) did not show a normal distribution (P<0.001). The prevalence of student's psychological status in different educational levels and study fields are shown in Tables 1 and 2, respectively. The student's psychological status had a significant positive correlation with family history and comorbidity. On the other hand, there was a significant negative correlation between the student's psychological status and weekly study hours, according to Spearman's test results (Table 3). Other demographic variables had no significant correlation.

At the undergraduate level, there was no significant difference in depression, anxiety, or stress scores among students in audiology, occupational therapy, physical therapy, and speech therapy (P>0.05). Also, at the graduate level, there was no significant difference between the students in physical therapy, speech therapy, sports physical therapy, and rehabilitation management in terms of depression, anxiety, and stress (P>0.05). In the Faculty of Rehabilitation Sciences, there was only one PhD. course in physical therapy; therefore, it was not possible to compare different study fields at postgraduate level.
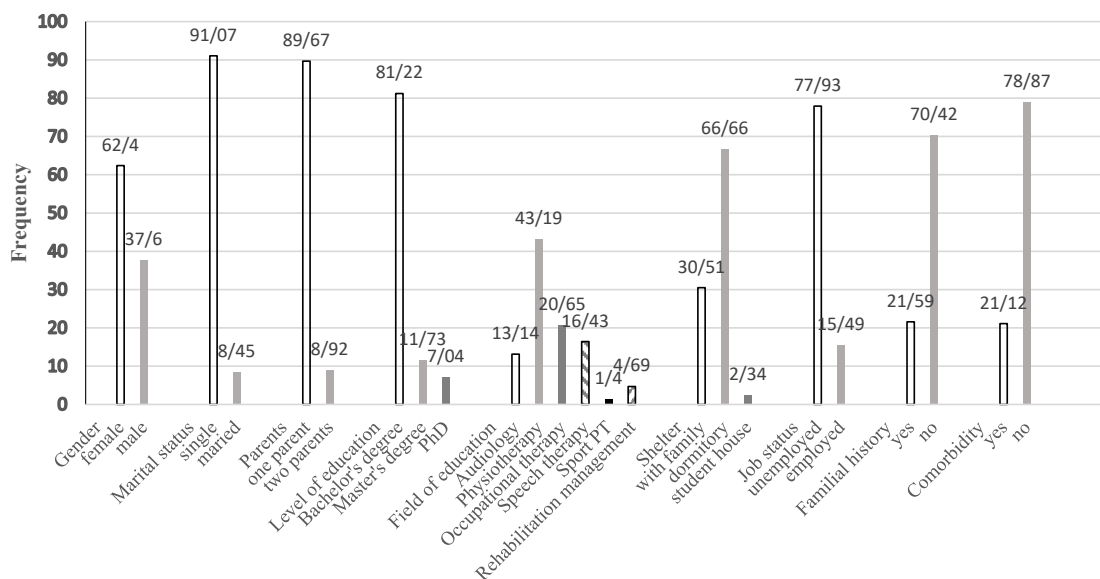

Figure 1. Demographic characteristics of participants(n=213)

JMR

Karimi M, et al. Rehabilitation Students' Psychological Distress. JMR. 2022; 16(3):228-234
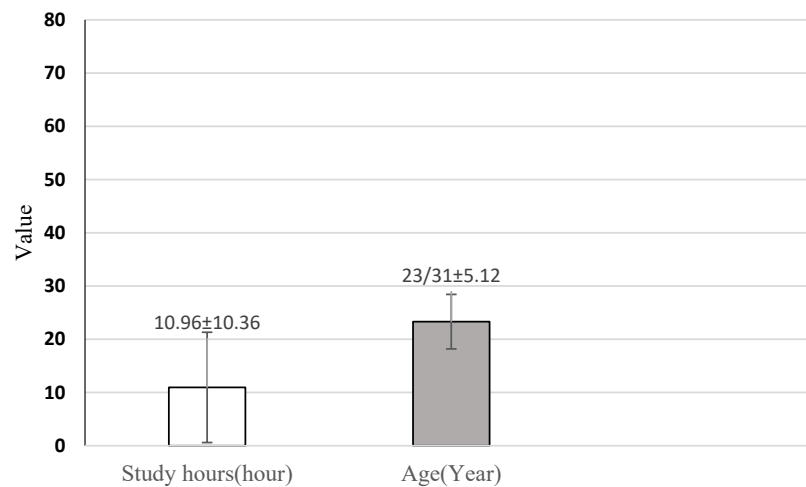
Figure 2. Mean age and weekly study hours of participants (n=213)

4. Discussion

This study aimed to investigate the prevalence of stress, anxiety, and depression among students of Faculty of Rehabilitation Sciences at AJUMS. The results showed that 39.4%, 5.6%, 9.9%, 7.0%, and 37.6% of students had normal, mild, moderate, severe and very severe stress levels, respectively. In terms of anxiety, 54.5%, 25.8%, 14.1% and 5.1% of students had normal, mild, moderate and severe anxiety, respectively. Moreover, 57.3% 26.8%, 10.8% and 4.7% of students had normal, mild, moderate severe depression, respectively.

The findings of the present study are consistent with the results of Syed et al. [14] on Pakistani undergraduate students in physical therapy. They reported the prevalence of normal, mild, moderate, severe and very severe stress as 46.8%, 17.6%, 24.7%, 8.9% and 1.9%, respectively. The prevalence of normal, mild, moderate, severe and very severe anxiety was reported 31.5%, 13.9%, 24.6%, 16.5% and 14.2%, respectively. Moreover, normal, mild, moderate, severe and very severe depression were prevalent in 52%, 16.5%, 20.97%, 8.6% and 1.87% of students, respectively. The results of the present study are almost consistent with the results of Shah et al. [13]

Table 1. Prevalence of psychological disorders in students based on educational level

Variables	Category	No. (%)			Total
		Educational Level			
		Bachelor's Degree	Master's Degree	PhD	
Stress	Normal	68(39.5)	9(34.6)	7(46.7)	84(39.4)
	Mild	9(5.2)	2(7.7)	1(6.7)	12(5.6)
	Moderate	19(11.0)	1(3.8)	1(6.7)	21(9.9)
	Sever	13(7.6)	-	2(13.3)	15(7.0)
	Extremely severe	62(36.0)	14(53.8)	4(26.7)	80(37.6)
Anxiety	Normal	96(55.8)	13(50.0)	7(46.7)	116(54.5)
	Mild	41(23.8)	8(30.8)	6(40.0)	55(25.8)
	Moderate	25(14.5)	4(15.4)	1(6.7)	30(14.1)
	Severe	9(5.2)	1(3.8)	1(6.7)	11(5.2)
Depression	Normal	97(56.4)	17(65.4)	8(53.3)	122(57.3)
	Mild	46(26.7)	4(15.4)	7(46.7)	57(26.8)
	Moderate to	19(11.0)	4(15.4)	-	23(10.8)
	Severe	9(5.2)	1(3.8)	-	10(4.7)

JMR

Karimi M, et al. Rehabilitation Students' Psychological Distress. JMR. 2022; 16(3):228-234

231

Table 2. Prevalence of psychological disorders in students based on the study field

Variable	Category	No. (%)					
		Study Field					
		AUD	PT	OT	SLP	Sport PT	RM
Stress	Normal	8(27.6)	45(48.9)	18(40.9)	9(25.7)	1(33.3)	3(30.0)
	Mild	-	6(6.5)	3(6.8)	1(2.9)	-	2(20.0)
	Moderate	3(10.3)	6(6.5)	3(6.8)	8(22.9)	1(33.3)	-
	Severe	3(10.3)	7(7.6)	3(6.8)	2(5.7)	-	-
	Extremely severe	15(51.7)	27(29.3)	17(38.6)	15(42.9)	1(33.3)	5(50.0)
Anxiety	Normal	10(34.5)	54(58.7)	26(59.1)	18(51.4)	2(66.7)	6(60.0)
	Mild	8(27.6)	22(23.9)	11(25.0)	10(28.6)	1(33.3)	3(30.0)
	Moderate	9(31.0)	10(10.9)	5(11.4)	5(14.3)	-	1(10.0)
	Severe	2(6.9)	5(5.4)	2(4.5)	2(5.7)	-	-
Depression	Normal	12(41.4)	56(60.9)	26(59.1)	17(48.6)	2(66.7)	9(90.0)
	Mild	10(34.5)	27(29.3)	8(18.2)	12(34.3)	-	-
	Moderate to severe	5(17.2)	6(6.5)	8(18.2)	3(8.6)	-	1(10.0)
	Severe	2(6.9)	2(2.2)	2(4.5)	3(8.6)	1(33.3)	-

JMR

AUD: Audiology; PT: Physical therapy; OT: Occupational therapy; ST: Speech therapy; RM: Rehabilitation management.

on Indian undergraduate students in physical therapy. Of 246 students, 159(64.6%), 35(14.2%), 31(12.6%), 20(8.1%) and 1(0.4%) reported normal, and very severe stress, respectively; 125(50.8%), 34(13.8%), 49(19.9%), 20(8.1%) and 18(7.3%) of students had normal, mild, moderate, severe, and very severe anxiety, respectively; 145(58.9%), 52(21.1%), 35(14.2%), 10(4.6%) and 4(1.6%) had normal, mild, moderate, severe, and very severe depression, respectively. The high prevalence of psychological disorders in rehabilitation students were reported, may be due to their painful experience in contacting with disabled patients.

In tour study, the college students' psychological disorders had no significant relationship with their age, study field, gender, marital status, or family history of psychological disorders. These findings are in agreement with the results of Khodadadi et al. on students of different medical fields (e.g., medicine, nursing, laboratory sciences, dentistry, and pharmacy) at Lorestan University of Medical Sciences, Khorramabad, Iran. They showed that, although the prevalence of depression and stress was higher among females than males, stress, anxiety, and depression had no significant association with age, gender, marital status, family history of psychological

Table 3. Correlation between dependent and independent variables (Spearman's correlation test)

Variables		Depression	Anxiety	Stress
Family history	Correlation coefficient(r)	0.06	0.19	0.15
	P	0.36	0.005*	0.02*
Comorbidity	Correlation coefficient (r)	0.24	0.30	0.23
	P	0.000*	0.000*	0.000*
Weekly study hours	Correlation coefficient (r)	-0.20	-0.08	-0.20
	P	0.004*	0.21	0.003*

*Significant difference (P<0.05)

JMR

disorders, or study field [19]. Khan et al. also found no any significant gender differences in Pakistani medical students, although females had lower levels of stress than males [20]. However, our results are against the results of some studies on medical students that showed gender (higher in female students than males) had a significant relationship with stress and anxiety and psychological distress [21-24]. The results of the present study did not show any significant relationship between gender and three psychological disorders. The high number of female students in the Faculty of Rehabilitation Sciences can cause less anxiety and depression in females, and their better performance in coping with anxiety and stress [20]. Economic, cultural and social problems are the reasons for students' high stress and depression. Increase in working pressure and stress level can cause students to drop out of college [19]. Since in Iran, rehabilitation students can start working immediately after graduation to earn an income, they experience lower levels of anxiety about their economic status and future career prospects. Therefore, it seems that financial issues are not the main stressors in this group.

In the present study, the weekly study hours showed a significant negative relationship with the students' stress (r = -0.20, P = 0.003) and depression (r = -0.20, P = 0.004). It seems that the students' stress, depression, and anxiety can be reduced by encouraging them to study; however, further research is required in this field. We found the weak significant relationship of the family history of psychological disorders with stress (r=0.15, P=0.02) and anxiety (r=0.19, P=0.005) in students; comorbidity was also correlated with stress (r=0.23, P<0.001), anxiety (r=0.30, P<0.001), and depression (r=0.24, P<0.001). These correlations are important, as they can help prevent more severe disorders by providing timely treatment and counseling for students with a family history of psychological disorders or medications. These factors have not been studied in previous studies; therefore, it was not possible to compare in the results.

This study was performed in the Faculty of Rehabilitation Sciences at AJUMS; therefore, it is recommended to examine other rehabilitation schools in Iran. Moreover, this study did not address different predictors of stress, anxiety, and depression among students; it is recommended that future studies find their predictors. Moreover, this study did not survey the students' satisfaction with their study fields. Therefore, future studies need to examine the students' satisfaction with their field of study and to determine its relationship with their anxiety, stress, and depression.

5. Conclusion

The students in the Faculty of Rehabilitation Sciences at AJUMS have relatively high levels of stress, anxiety, and depression. The university authorities can encourage students to increase their study time to help reduce their stress, depression, and possible complications following these disorders.

Ethical Considerations

Compliance with ethical guidelines

Authors' contributions

All authors equally contributed to preparing this paper.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgments

References

[1] Gunathilaka HJ, Vitharana P, Udayanga L, Gunathilaka N. Assessment of anxiety, depression, stress, and associated psychological morbidities among patients receiving ayurvedic treatment for different health issues: First study from Sri Lanka. BioMed Research International. 2019; 2019:2940836. [DOI:10.1155/2019/2940836] [PMID] [PMCID]

Karimi M, et al. Rehabilitation Students' Psychological Distress. JMR. 2022; 16(3):228-234

233

[2] Hosseini H, Sadeghi A, RajabZadeh R, Rezazadeh J, Nabavi S, Ranaei M, et al. [Mental health and related factor in students of North Khorasan University of Medical Sciences (Persian)]. Journal of North Khorasan University of Medical Sciences. 2011; 3(2):23-8. [DOI:10.29252/jnkums.3.2.23]

[3] Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. Journal-Pakistan Medical Association. 2003; 53(2):44-7. [PMID]

[4] Stallman HM. Psychological distress in university students: A comparison with general population data. Australian Psychologist. 2010; 45(4):249-57. [DOI:10.1080/00050067.2010.482109]

[5] Bayram N, Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. Social Psychiatry and Psychiatric Epidemiology. 2008; 43(8):667-72. [DOI:10.1007/s00127-008-0345-x] [PMID]

[6] Rezaee Adriani M, Azadi A, Ahmadi F, Vahedian Azimi A. [Comparison of depression, anxiety, stress and quality of life in dormitories students of Tarbiat Modares University (Persian)]. Iranian Journal of Nursing Research. 2007; 2(5):31-8. [Link]

[7] Retteck S. The mental health of student in higher Education. Journal of Psychology. 2003; 5(4):80-9.

[8] Gilavand A, Espidkar F, Fakhri A. [A comparative evaluation of depression and anxiety rate among native and non-native students of dentistry school at Ahvaz Jundishapour University of Medical Sciences (Persian)]. Educational Development of Jundishapur. 2015; 6(2):185-90. [Link]

[9] Zamanian Z, Riaei Sh, Kaveh N, Khosravani A, Daneshmandi H, Sayadi M. [Prevalence of depression and its correlations in students of Shiraz University of Medical Sciences (Persian)]. Health System Research. 2016; 12(1):38-43. [Link]

[10] Soltanifar A, Moharreri F, Abdollahian E, Tanbakoochi B. [Assessment of anxiety symptoms among medical and paramedical students (Persian)]. Journal of Health. 2010; 1(1):7-13. [Link]

[11] Javaherian M, Dabbaghipour N, Mafinejad MK, Ghotbi N, Khakneshin AA, Moghadam BA. The role of simulated patient in physiotherapy education: A review article. Journal of Modern Rehabilitation. 2020; 14(2):69-80. [DOI:10.18502/jmr.v14i2.7704]

[12] Najafi Kalyani M, Pourjam E, Jamshidi N, Karimi S, Najafi-Kalyani V. [Survey of stress, anxiety, depression and self-concept of students of Fasa University of Medical Sciences, 2010 (Persian)]. Journal of Fasa University of Medical Sciences. 2013; 3(3):235-40. [Link]

[13] Shah T, Patel MD, Shah H. A study to evaluate depression, anxiety and stress among undergraduate physiotherapy students-an institution based pilot study. International Journal of Current Research and Review. 2016; 8:20-4. [Link]

[14] Syed A, Ali SS, Khan M. Frequency of depression, anxiety and stress among the undergraduate physiotherapy students. Pakistan Journal of Medical Sciences. 2018; 34(2):468-71.] [PMID] [PMCID]

[15] Rahi S. Research design and methods: A systematic review of research paradigms, sampling issues and instruments development. International Journal of Economics & Management Sciences. 2017; 6(2):1-5. [DOI:10.4172/2162-6359.1000403]

[16] Hossein Kaviani H, Mousavi AS. [Psychometric properties of the Persian version of Beck Anxiety Inventory (BAI). (Persian)] Tehran University Medical Journal. 2008; 66(2):136-40. [Link]

[17] Ghassemzadeh H, Mojtabai R, Karamghadiri N, Ebrahimkhani N. Psychometric properties of a Persian-language version of the Beck Depression Inventory-Second edition: BDI-II-PERSIAN. Depression and Anxiety. 2005; 21(4):185-92. [DOI:10.1002/da.20070] [PMID]

[18] Moghadam MA, Saed F, Dibajnia P, Zangeneh J. [Preliminary evaluation of the validity and reliability of the Depression, Anxiety and Stress Scale (DASS) in non-clinical specimens (Persian)]. Scientific Journal of Clinical Psychology and Personality. 2008; 15(31):23-38. [Link]

[19] Anbari K, Khodadadi B. Evaluation of anxiety, stress and depression among students of Lorestan University of Medical Sciences, 2016. Journal of Research in Medical and Dental Science. 2018; 6(1):258-94. [Link]

[20] Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. Journal-Pakistan Medical Association. 2006; 56(12):583-6. [PMID]

[21] Saravanan C, Wilks R. Medical students' experience of and reaction to stress: The role of depression and anxiety. The Scientific World Journal. 2014; 2014:737382. [PMID] [PMCID]

[22] Wahed WYA, Hassan SK. Prevalence and associated factors of stress, anxiety and depression among medical Fayoum University students. Alexandria Journal of Medicine. 2017; 53(1):77-84. [Link]

[23] Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. Academic Medicine. 2006; 81(4):354-73. [PMID]

[24] Ahmed I, Banu H, Al-Fageer R, Al-Suwaidi R. Cognitive emotions: depression and anxiety in medical students and staff. Journal of Critical Care. 2009; 24(3):e1-7. [PMID]

234

Karimi M, et al. Rehabilitation Students' Psychological Distress. JMR. 2022; 16(3):228-234