Depression and Anxiety among International Medical Students in Germany: The Predictive Role of Coping Styles

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Abstract

Objective: To explore the predictive role of dispositional coping styles in determining the level of depression and anxiety among international medical students in Germany.

Method: The cross-sectional study was conducted in Germany from September 2016 to February 2017 and comprised international students studying medicine in Germany. Data were collected through an electronic survey using reliable instruments, including Major Depression Inventory, Beck Anxiety Inventory, Problem-Focussed Styles of Coping Inventory, and a demographic sheet.

Results: Of the 122 subjects, 76(62%) were females. The overall mean age was 24.92±3.58 years. In terms of region, Europe was represented by 87(71.3%) of the total. Reflective coping was found to be a health-promoting coping style predicting a low level of depression and anxiety among international medical students. Suppressive and reactive coping were recognised to be dysfunctional since these styles turned out to be relatively stronger predictors of a high degree of depression as well as anxiety. Overall, 13(10%) subjects had moderate depression and 19(16%) were experiencing severe depression. The anxiety symptoms were seen in 32(26%) subjects at moderate level and 28(23%) had severe level of anxiety.

Conclusion: Counsellors need to address depression and anxiety symptoms of international medical students in Germany.

Keywords: Depression, Anxiety, International students, Medicine, Coping styles.
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Introduction

Study of medicine is perceived as being stressful and medical students are believed to experience greater incidence of depression than others.[1] In the course of pursuing studies abroad, stressors may aggravate culminating mental health issues among students.[2] For instance, high degree of stress, common among international students, can intensify psychological symptoms such as depression and anxiety.[1] In spite of being inter-related concepts, anxiety and depression in medical students have not been thoroughly explored. Anxiety is associated with an autonomic arousal and subjective experience of worry and tension, whereas depression is characterised by a general gloominess and loss of interest in previously enjoyable activities. A study[4] noted that when medical students commence their medical studies, they experience depression levels comparable to those of the general population, but their degree of depression increases significantly during their stay at medical school. Previous research demonstrated higher overall psychological distress and poorer mental health in terms of depressive symptoms, suicidal ideation or psychosomatic complaints among medical students compared to both the general population or age-matched peers.[5] With this background, it is imperative to further study the level of depression and anxiety among medical students having an additional identity being international students. Several studies identified common stressors among international students including language barriers,[6] cultural differences[7] and adjustment to a new educational system.[8]

Students employ different coping strategies as a natural response to deal with the stressors and survive the intense environment prevailing in medical colleges. It is

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expected that usual coping styles are predictive of depression and anxiety among international medical students. Coping is conceptualised as cognitive and behavioural efforts to manage situations appraised as taxing or exceeding a person's resources.[9] Coping efforts are broadly categorised into problem-focussed coping (PFC) and emotion-focussed coping (EFC). Preceding research has shown PFC as more effective in stressful situations while being positively associated with psychological wellbeing. In contrast, EFC is associated with depressive symptoms, phobic anxiety and somatisation.[10,11] This implies that EFC strategies are maladaptive in nature and may have unpleasant effects on health.[12]

Literature indicates a difference between dispositional and situational coping. Dispositional coping is the preferred set of coping strategies that remains relatively stable over time and situations. Hence, coping styles are general predispositions in dealing with stress that result from prior learning based on past experiences. In comparison, situational coping encompasses coping responses that may change from one situation to another across different stages of a stressful transaction.[13] The theoretical framework was developed earlier[14] for conceptualising a general dispositional style of coping by using a wide range of cognitive, affective and behavioural items.

Despite the potential effectiveness of coping, sparse research has examined its role in attenuating the negative outcomes of stress experienced during medical studies. Additionally, previous studies did not clearly establish the association between coping styles and different levels of depression and anxiety symptoms with reference to international students pursuing medical studies in a foreign country. The current study was planned to explore the relationship between coping style type and degree of depression and anxiety.

Subjects and Methods

The cross-sectional study was conducted in Germany from September 2016 to February 2017 and comprised international students studying medicine in different universities across Germany. Subjects included were of either gender aged 20-35 years who had been in Germany as students for a period between 4 weeks and 6 years. Data-collection tools employed for the study included Major Depression Inventory (MDI)[15] which is a 12-item self-reporting tool characterising symptoms of depression, designed on a 6-point Likert scale. The MDI identifies the symptoms faced by the respondents during the preceding 14 days. Scoring is done for 10 of the 12 items. From item 8a, 8b and 10a, 10b pairings, higher value is included in the total score. The raw score ranges between 0 (no depression) and 50 (severe depression). Scores between 20 and 24 indicates mild depression, from 25 to 29 represents moderate, and above 30 shows a severe level of depression which requires clinical attention. The inventory has good convergent validity.[16]

Another tool used was the Beck Anxiety Inventory (BAI)[17] which consists of 21 items measured on a 4-point scale, and is used to assess the level of anxiety. The participants were asked to rate according to the level of each symptom they had faced during the preceding week. The score ranges between 0 and 63. The minimum level of anxiety is considered for a score below 7, for 8 to 15 mild, 16 to 25 moderate, and 26 and above represents severe level of anxiety. These ranges have been validated in various studies with high reliability and internal consistency.[18] The coping styles were assessed using the Problem-focussed Styles of Coping Inventory (PF-SOC)[14] that consists of 18 items indicating strategies used to resolve a problem. It is based on a five-point Likert scale with the options ranging from 'almost never' (1) to 'almost all of the time' (5). The inventory consists of three subscales providing information about the use of reflective (REF), suppressive (SUP) and reactive (REA) style of coping.

REF indicates the propensity to examine causal linkages, plans and to be methodical in coping efforts (such as "I think ahead, which enables me to anticipate and prepare for problems before they arise"). Raw score ranges between 7 and 35 on this subscale. SUP has 6 items that measure the disposition to deny problems and keep oneself away from coping activities (e.g., "I have a difficult time concentrating on my problems i.e., my mind wanders"). It also includes the inability to sustain one's actions long enough to really solve one's problems. The raw score on this subscale ranges from 6 to 30. REA is the tendency to have strong emotional responses, distortion, impulsivity and cognitive confusion (such as, "I act too quickly, which makes my problems worse". The range of the raw score on this subscale is 5-25. Higher scores on each of the factors are suggestive of a more frequent endorsement of that particular coping style. The inventory has good psychometric properties with

Table-1: Descriptive Statistics of the Study's Variables (n = 122).

Scale	Items	a	M	SD	Score range		Skew	II	III	IV	V
					Potential	Actual					
MDI	10	.90	15.40	10.43	0 - 60	0-47	.86	.68**	-.27**	.58**	.43**
BAI	21	.91	16.60	11.01	0 -50	0-48	.78	-	-.21*	.34**	.37**
REF	7	.82	21.86	5.70	7 - 35	9-35	-17		-	-.29**	-.02
SUP	6	.81	12.74	4.48	6 - 30	6-29	.92			-	.50**
REA	5	.72	10.18	3.22	4-20	4-18	.15				

Note. MDI: Major Depression Inventory; BAI: Beck Anxiety Inventory; REF: Reflective coping; SUP: Suppressive coping; REA: Reactive coping, **p < .01

Cronbachs' alpha ranging between 0.73 for reactive style, 0.77 for reflective style and test-retest reliability of 0.65 for suppressive subscale and 0.71 for reactive subscale over a period of three weeks.[14] The questionnaires were in English language with the first part seeking information about demographics.

The international students studying in German medical universities were approached through their respective students' affairs section. The office of student affairs forwarded emails to their international students informing them about the purpose of the study and requesting them for participation. The students could participate through a web link provided in the email. The participation of the students in the study was entirely voluntary and anonymous.

Data was analysed using SPSS 21. Preliminary data analysis mainly consisted of reliability coefficient estimation for each scale using Cronbach's alpha. Intensity of symptoms of depression and anxiety was calculated according to the available cut-off scores on MDI and BAI. Linear regression analysis was used to find the habitual coping style that is predictive of a low level of depression and anxiety among international medical students. An alpha level of 0.05 was established for significance testing.

Results

Of the 122 subjects, 76(62%) were females. The overall mean age was 24.92±3.58 years. Among the subjects, 86(70.5%) were living alone. In terms of region, Europe was represented by 87(71.3%) of the total, primarily from Italy, Spain, France, Bulgaria, Romania, Poland, Ukraine, Czech Republic and Hungary. Minor participation was from Africa 7(5.7%), predominantly from Egypt, Ghana, Cameroon, Kenya, and Ethiopia. There were 20(16.4%) Asian students, primarily from India, China, Indonesia, Taiwan, Pakistan, Nepal and Vietnam. And 8(6.6%) students were from Latin America, primarily from Chile, Brazil, Mexico, Colombia and Argentina. There were 28 (22.95%) students who were in their first year of medical study. The major source of financial support was in the form of loans and saved amounts as reported by 56 medical students (45.9%).

Descriptive statistics and alpha reliability coefficients were worked out across various demographic variables (Table 1). The entire list of measures used in the study had an acceptable level of internal consistency (Cronbach's alpha) ranging from 0.91 (Anxiety) to 0.72 (REA).

Linear regression analysis was used to predict the intensity of depression and anxiety from different coping styles. A high degree of REF was found to be predictive of a low level of depression and anxiety among the subjects. SUP was seen as relatively a stronger predictor in comparison to other coping styles explaining 32% variance in depression scores and 33% of variance in anxiety scores. Higher score on SUP was predictive of an elevated level of depression as well as anxiety. On similar pattern, REA accounted for 18% variance in depression and 37% in anxiety scores reflecting this style to be associated with greater intensity of depression and anxiety (Table 2).

Overall, 13(10%) subjects had moderate depression and 19(16%) were experiencing severe depression. The anxiety symptoms were seen in 32(26%) subjects at moderate level and 28(23%) had severe level of anxiety (Figure).

Table-2: Linear Regression Analysis Predicting Depression and Anxiety from Coping Styles (n =122).

Predictor variable	R2	B	SE	β	t	p
Reflective coping[a]	.07	-.47	.17	-.26	2.75	.007
Suppressive coping[a]	.32	1.32	.18	.57	7.14	.000
Reactive coping[a]	.18	1.38	.28	.43	4.89	.000
Reflective coping[b]	.04	-.41	.18	-.21	2.20	.030
Suppressive coping[b]	.33	.83	.22	.33	3.67	.000
Reactive coping[b]	.37	1.26	.31	.37	4.07	.000

Note. Criterion Variables: [a]Major Depression Inventory, [b]Beck Anxiety Inventory

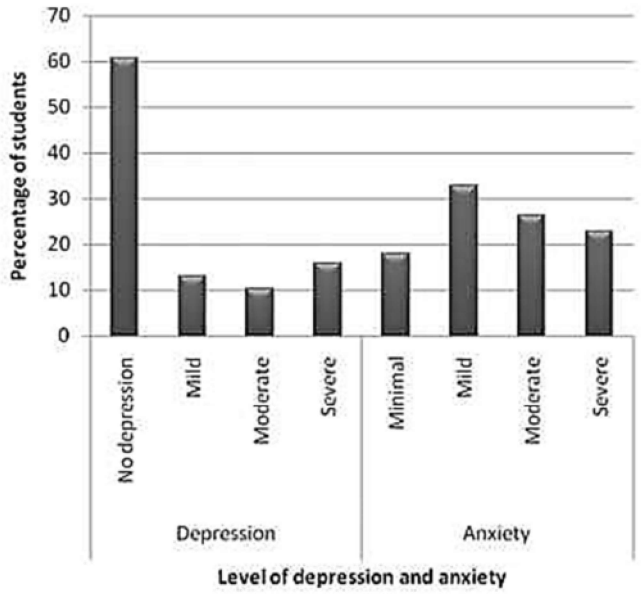

Figure: Percentage of international medical students experiencing varying intensity of depression and anxiety

Discussion

The current study found lower levels of depression and anxiety in international medical students where high use of reflective coping was seen, showing that keeping alternative arrangements is an effective strategy if the initial plan does not solve the problem at hand. However, it is important to take into consideration short-term and long-term consequences of each possible solution. Successful coping is also related to students' ability of being more organised and systematic. Studies have observed that problem-focussed coping is more productive and effective besides having a high correlation with psychological well-being.[19,20] Thus, the present findings lend support to the earlier studies with reference to the healthy role of reflective coping in the psychological adaptation and emotional well-being.

International medical students using suppressive coping indicated a high level of depression as well as anxiety that makes it evident as non-functional in managing the stress. Ignoring one's problem or not thinking about possible solutions, for it is a passive way of coping, consequently results in elevated levels of depression and anxiety, and lower well-being.[21] Students in the current study reported that they sometimes felt so disappointed that they simply refused to make any additional efforts in resolving their problems and therefore continued to feel strained about their prevailing situation. The tendency to deny problems and avoid coping activities is counterproductive in dealing with stressful situations. Research has shown that frequent use of passive coping may have debilitating mental health effects.[22] Within this context, one may speculate that poor coping leads to adverse effects on psychological health or, on the other hand, inadequate health condition result in dysfunctional coping.

The current study indicated that reactive coping style is associated with elevated level of depression and anxiety as the instantaneous and powerful emotional reaction to a stressful situation perverts the problem and creates confusion reducing the ability to find out the appropriate solution for it. The reactive coping is an emotion-focussed coping style with some features of cognitive confusion. Research has also shown that coping styles with a strong emotional element are linked with negative health outcomes and they are also found to be a major predictor of psychopathology.[23]

The present study found one-quarter of the sample demonstrating moderate to severe levels of depression. The mean-item analysis revealed that the international medical students had been experiencing a lack of energy, poor self-confidence, low spirit and sadness over a period of preceding two weeks, while some participants reported problems such as insomnia and an inability to concentrate. This distress can be attributed to the burden of studies, being in a foreign culture, and challenges related to adjusting to a new learning environment. The present finding was parallel to past research findings, e.g., in a Swedish study, the prevalence of depressive symptoms among medical students was found to be 12.9% and a total of 2.7% of students had attempted suicide.[24] A meta-analysis of 77 studies reported that depression affects almost one-third of medical students globally.1

It is well documented that depression has co-morbidity with anxiety either simultaneously or sequentially. Depression and anxiety share a reciprocal relationship. About half of the respondents in our study were found to have moderate to severe level of anxiety. These students reported that they could not relax besides feeling of nervousness, tension, losing control, feeling of choking, and numbness for the preceding week. This can be attributed to the stress of medical training which is intensive in nature with time-consuming workload. Students experience academic and non-academic pressure in the form of a competitive study environment, long

working hours, higher academic load, work-life conflict, lack of time for recreational activities, homesickness, and financial issues.[5]

Coping skills training could be effective in making them learn to mitigate the negative by-products of stress. Health promotion programmes can be initiated that have been reported effective in decreasing the harmful outcomes of stress among medical students. In addition, timely identifying the problem and providing intervention for medical students is required for physical, emotional and cognitive signs and symptoms of anxiety and depression.

Conclusion

International medical students were found to have emotional disturbances in the form of experience of anxiety and depression symptoms at an alarming rate. The findings have implications for counsellors addressing depression and anxiety symptoms for foreign medical students, and highlight the effectiveness of reflective style of coping. Suppressive and reactive styles of coping serve a maladaptive and counterproductive function.

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