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Stress and Coping Strategies in Undergraduate Medical Students

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Abstract
The study aimed to assess level of stress and the association of coping strategies with perceived stress. The sample of 200 medical students participated in this cross-sectional study. The age of the participants ranged from 18 to 26 years old. Demographic questionnaire, perceived stress scale and brief cope scale were administered. Descriptive statistics, t-tests and multiple hierarchal regression was employed for statistical analysis. Findings indicated that 29% of the medical students were found to be less stressed, 26% were moderately stressed and 20% were highly stressed. There was no gender difference in the level of stress. Coping strategies of self-blame and denial emerged as significant positive predictors of stress. Beside healthy coping strategies, they are using maladaptive coping strategies. Findings highlighted the need to conduct stress management programs which help to strengthen the coping skills of student.

Key words: undergraduate medical students, perceived stress, coping strategies.

Introduction

Medical education entails many stressors that negatively impact academic performance and psychological well-being on broader level. In Pakistan, perceived stress seems to be considerably high among medical students (Shaikh et al, 2004) and frequent tests as well lack of time to study are found as major sources of stress (Manzuri, Javed, Ali, & Subhani, 2015). It is empirically confirmed that excess of stress has been associated with increased levels of depression, anxiety, use of illicit drugs and alcohol (Moffat, McConnachie, Ross, & Morrison, 2004; Newbury-Birch, Lowry, Kamali, 2002; Stecker, 2004, Shapiro, Shapiro, & Schwartz, 2000). Higher level of stress in medical students is also manifested by decreasing academic performance (Sohail, 2013). Stress also manifest itself by changes in personality such as decreased human's sensitivity (Wolf, 1994) increase frustration and irritability that negatively effect their relationships with faculty members and also with intimate relationships (Rodolfa, Chavoor, & Velasquez, 1995). It is also noted that stressful experiences in medical schools effect individual's ability to cope with stress in turn deteriorate overall well-being (Eley, Leung, Hong, Cloninger, & Cloninger, 2016).

Stress is inevitable in human life which emphasizes to explore and identify those cognitive and behavioural strategies that help to cope with stress. It becomes more important for future

doctors who thought of having obsessive, conscientious and devoted personalities (Riley, 2004). Empirically, coping skills play diverse role in professional life of future's doctor. For instance, coping strategies not only helps to appraise distressing events in positive way (Gomathi, Ahmed, & Sreedharan, 2013) improve dealing with depersonalisation (Prinz, Hertrich, Hirschfelder, & De Zwaan, 2012) as well as help to develop those characteristic which improve doctor-patient relationship (Ebrahimi, Atri, Ghavipanjeh, Farnam, & Gholizadeh, 2013). The significance of coping skills or strategies is also highlighted by findings of studies which emphasis to implement training programs as part of their courses for enhancement of positive coping strategies (Jones, Fellows, & Horne, 2011; Moffat , 2004, Naidoo, Wyk, Higgins-Opitz, & Moodley, 2014; Sreeramareddy et al., 2007). Therefore, there has been growing interest in recognizing attributes and strategies that help to enhance functioning, coping skills and ultimate physical and psychological well-being.

Growing interest in stress and coping strategies showed that culture and socio-demographic variables influence how students cope with stress. For example, religion is one of the mostly used coping strategy against stress by medical students of United Arab Emirates and Malaysia (Gomathi et al., 2013; Al-Dubai, Al-Naggar, Alshagga, & Rampal, 2011). Contrary, religion positively predict stress and substance is frequently using against stress by Indian medical students (Cherkil, Gardens, Soman, 2013;Madhyastha, Latha, & Kamath, 2014). Concerning gender, females use instrumental support and emotional support whereas males use humour and self-blame against stress predominantly (Madhyastha et al., 2014). Findings of these studies highlighted that uniqueness of human nature and effect of culture on the development of personality influence the choice and use of coping strategies in managing stress.

As highlighted above, world of medical profession specifically training period is demanding and stressful. Tomorrow's doctors have to deal with different sources of stressors like stressors in personal life, academic workload, communication and exposure with sufferings of patients and death. Due to these certain issues and its significance in healthcare, it is vital to study the personal and psychological resources that led to educational and vocational success of medical students. Having needed motive, objective of this study is to explore the level of stress and association of coping strategies with stress among undergraduate medical students.

Method

Participants

A total of 200 (65 males, 135 females) randomly selected undergraduate medical students participated in this study. Their age ranged from 18 to 26 with mean age of 21.9$\pm$1.9years.

Material

Following scales were administered to identify demographic characteristics, assess level of stress and coping strategies.

Demographic Questionnaire

The demographic questionnaire contains questions related to participant's age, gender, and education.

Perceived Stress Scale

PSS-10 is originally developed by Cohen, Kamarck, and Mermelstein (1983) to measure the degree of generalized perceive stress in individuals' lives. The PSS is rated on a 5-point answer

scale ranging from 0 (never) to 4 (very often). Urdu translation of perceived stress scale was used in current study (Sarwar et al., 2011).

Brief Cope Inventory

B-Cope inventory was developed by Carver (1997) to assess the coping strategies use in stressful situations. This scale consisted on 28 items. Scale was scoring on four point Likert scale. The higher scores on each subscale indicate higher use of that coping strategy. Urdu translation of brief cope inventory was used in this study (Akhtar, 2005).

Procedure

After obtaining consent of concerned authorities and students, questionnaires were administered. Students were informed that their participation was voluntary. Confidentiality was assured and participant's anonymity was maintained. They were also informed that they could withdraw from the study at any time during data collection.

Results

Descriptive statistics

More females (67.5%) than males (32.5%) participated in this study. Their age ranged from 18 to 26 years with mean age of 21.89 $\pm$ 1.91.

Table.1

Demographic Characteristics

Variables	N	%
Male	65	32.5
Females	135	67.5
Mean age $\pm$ SD for Total Sample	21.89 $\pm$ 1.9	
Mean age $\pm$ SD for Males	22.97$\pm$ 1.8	
Mean age $\pm$ SD for Females	21.32 $\pm$ 1.7	

Level of stress was determined by categorizing obtained scores into four groups on the basis of quartiles. Estimated rate of stress showed that 29.5% were mildly stressed, 26.5% were moderately stressed and 20.0% were highly stressed.

Table.2

Level of stress among medical students

Stress level	%
No Stress	24.0
Mildly stressed students	29.5
Moderately stressed students	26.5
Highly stressed students	20.0

Inferential statistics

As illustrated in Table 3, students frequently used religion (6.5$\pm$1.8), planning (6.3$\pm$1.7), acceptance (6.3$\pm$1.8), positive reframing (6.1$\pm$1.7), and self-distraction (6.0$\pm$1.6) as coping strategies to manage stress. Denial (3.7$\pm$1.8) and substance use (3.9$\pm$1.8) found to be least used coping strategies by targeted sample. Independent-samples t-tests were conducted to evaluate whether sex differences exist in study variables, shown in Table 3. With respect to coping strategies, sex differences were found as females relatively used more religion (6.7$\pm$1.7) than

males (6.1±1.7). Further, substance use was more common in males (3.6±2.2) compared to females (2.7±1.5).

Table.3
Mean, SD and t-tests of Total sample, Males and Females

Variables	*Total sample (M±SD)*	*Males (M±SD)*	*Females (M±SD)*	*t*	*df*	*Sig*
Self-distraction	6.0±1.6	6.9±1.7	6.0±1.6	-.243	118.458	.808
Active coping	5.6±1.7	5.6±1.8	5.6±1.7	-.141	121.942	.888
Acceptance	6.3±1.8	6.0±1.9	6.4±1.7	-1.224	108.448	.224
Positive reframing	6.1±1.7	5.9±1.7	6.2±1.7	-.827	124.487	.410
Planning	6.3±1.7	6.3±1.9	6.2±1.7	.061	111.550	.951
Emotional Support	5.1±1.7	4.9±1.6	5.2±1.7	-1.301	132.976	.196
Instrumental Support	5.8±1.7	5.7±1.5	5.8±1.7	-.325	144.548	.745
Humour	4.7±1.7	4.7±1.6	4.7±1.8	.103	135.304	.918
Venting	5.2±1.5	5.9±1.6	5.3±1.4	-1.141	114.513	.256
Religion	6.5±1.8	6.1±1.7	6.7±1.7	-2.410	128.741	.017
Denial	3.7±1.8	3.5±1.9	3.8±1.7	-1.177	116.600	.242
Behavioural Disengagement	4.1±1.7	4.1±1.8	4.1±1.7	.072	121.539	.942
Self-Blame	5.3±1.7	5.3±1.5	5.3±1.8	.080	150.559	.937
Substance Abuse	3.9±1.8	3.6±2.2	2.7±1.5	2.876	95.665	.005
Perceived Stress	18.6±6.3	17.6±6.2	19.1±6.4	-1.618	129.304	.108

Multiple hierarchal regression analysis was employed to examine association of study variables, as shown in Table 4, gender included in step 1 and coping strategies were included in step 2. Obtained results indicated that gender is not significantly associated with level of stress among students (sig=.110). Coping strategies found to significantly added to model ($R2 = .16$, $F [15, 184] = 2.447$, $p < .05$) and explaining 16.6 % of the variance in students level of stress.

Table.4
Multiple Hierarchal Regression: variables predicting perceived stress

	Variables	*B*	*SE B*	*B*
1.	**Demographic**			
	Gender	1.526	.952	.113
2.	Brief Cope			
	Gender	1.374	.961	.102
	Self-distraction	.438	.311	.112
	Active coping	-.236	.306	-.064
	Acceptance	-.801	.296	-.224**
	Positive reframing	.029	.314	.008
	Planning	-.243	.302	-.067
	Emotional Support	.451	.291	.120
	Instrumental Support	.134	.316	.035
	Humour	-.338	.275	-.092
	Venting	-.232	.349	-.055

Religion	-.130	.314	-.036
Denial	.519	.258	.144*
Behavioural Disengagement	.171	.252	.047
Self-Blame	.898	.284	.237*
Substance use	-.271	.258	-.077

*R^2 =.013 for step I: R^2 =.166 for step IIp < .01**, p < .05**

Discussion

The purpose of this study was to estimate the level of stress among targeted sample and to examine the association of coping strategies with stress. Obtained results indicated that a large number of students are experiencing stress which is in accordance with previous studies conducted in Pakistan (Sheikh, 2004; Sohail, 2013). Further, there is no gender difference found in level of stress. Around the world, academic pressures or workload and clinical practice are potent factors that produce stress among medical students (Elzubeir, Elzubeir, & Magzoub, 2010; Morrison, & Moffat, 2001; Yousafzai et al., 2009). Indeed, academic related pressures are equally stress producing for both males and females.

As shown, stress was significantly associated with use of coping strategies highly with self-blame and denial. These findings are consistent with idea that whenever students blamed themselves for occurrence of problem in their life, it definitely increases the potency of distressing emotions. Regardless of having stressors, sometimes people lighten the distress by refusing to accept its occurrence or by seeing situation as less distressing. Though, it help to sustain psychological equilibrium for shorter period of time and for less threatening issues but in long run prolonging the issue escalate burden and make situation worse. This is corroborated with existing literature which confirmed that those medical students are more prone to experience stress who look upon and approach issues by using emotionally focused and escaping strategies including self-blame and denial (Al-Dubai et al., 2011; Cherkil et al., 2013; Madhyastha et al., 2014; Sreeramareddy et al., 2007). On the other hand, less use of self-blame and denial by medical students decrease the level of depressive symptoms and academic stress (Yusoff, & Esa , 2014).

As concerned with common coping strategies employed by students, results showed that students are using emotion focused and problem focused strategies simultaneously including religion, acceptance, positive reframing and planning. Coping with stress by using strategies extracted from religion is highly used by overall sample and more by females than males. It is also evident by systematic review of studies that religion is also highly used coping strategy by medical students in Malaysia (Salam, Yousuf, Abu Bakar, & Haque, 2013). Acceptance and positive reframing are those coping strategies that help to deal with excruciating emotions resulted from stress. These strategies function in a way that help to accept the situation realistically and reappraising it in a positive way. Though, it may not help to resolve the situation but lessen the intensity of emotions and may restore the ability to take active steps to handle distressing situation. Another highly used strategy by sample of this study is planning, it led individual to think about various solutions of problems and also about actions to implement these solutions. Moreover, findings also indicated that use of acceptance is negatively associated with stress. Previous studies also ascertained that acceptance is one of the coping strategies that help to reduce stress (Al-Dubai et al., 2011; O'Brien, Mathieson, Leafman, & Rice-Spearman, 2012).

Another striking finding which needs to highlight is that students are using substance to cope with stress though it is least using strategy which is highly used by males then females. Likewise,

findings of another study concluded that majority of medical students are aware that other students are using alcohol as coping strategy against stress (Yousafzai et al., 2009).

Conclusion

In conclusion, high proportion of students is experiencing stress. Beside use of healthy coping strategies, study results documented that students are using number of maladaptive coping strategies including substance use which need to be focused. These findings pointed toward the urgent need of stress management and coping skills programs to strengthen the healthy coping strategies among medical students.

This study has certain limitation. It is based on cross-sectional correlational design, therefore, casual factors of stress cannot be drawn from findings of this study. Self-report questionnaire were used in this study which may minimalize actual information. Findings cannot generalizable to medical students of different medical colleges situated in different cities of country. Beside these caveats, obtained findings may provide basis for future studies that will aid in information and in turn help to formulate and implement stress management programs. Maladaptive and healthy coping strategies have been identified which can be incorporated in coping skill programs for medical student to acquire the ability of coping with challenges.

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