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Original Research Article

Role of Coping Strategies in Quality of Life among Undergraduate Medical Students

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Abstract

Medical education is challenging, as medical students have to confront varied stressors, which affect their academic performance and quality of life. Previous researchers reported that coping strategies decrease the level of stress and improves the quality of life among students. This study was designed to identify the role of coping strategies in quality of life among undergraduate medical students. A cross-sectional study was conducted among 196 (Male =106, Females = 90) undergraduate medical students in King Faisal University, Saudi Arabia. Quality of life was assessed by Short Form-12 Version 2, Health Survey. The validated Brief COPE inventory was used to assess coping strategies. The results showed a significant relationship between coping strategies and quality of life. The findings of the study revealed that substance abuse, self-blame, religion, venting, instrumental support, humor and planning coping were found significant predictors of quality of life among medical students. The findings point towards the crucial need for stress management programs in medical colleges. Though students used both problem coping and emotional coping, the evident role of emotional coping in increasing health problems warrants the need for coping skills training. Research on effectiveness of such programs in Saudi Arabia needs to be improved.

Keywords: Coping strategies; Quality of life; Medical students; Saudi Arabia

INTRODUCTION

There is extensive literature, which demonstrated effects of coping on quality of life in different population. However, it is observed that problem-focused coping strategies, such as plan of action and seeking information results positive health outcomes, while as other types of coping strategies, such as avoidance and confrontive coping, lead to negative health outcomes (Penley, et. al., 2002). Therefore, a very small literature addresses whether coping impacts quality of life in students population. Results from previous studies of coping's effect on quality of life in students vary based upon how coping and quality of life are conceptualized (Aldwin et. al., 2007).

An assessment of coping's impact on quality of life must be presented with a brief discussion of the concept of coping. Coping refers to "cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus and Folkman, 1984). There are broadly two main strategies of coping i.e., problem focused coping and emotional focused coping. Problem-focused coping include plans of action, such as trying to solve the core problem, or using strategies to avoid or eliminate the problem (Folkman and Moskowitz, 2004; MacCann et al., 2012). While as, emotional focused coping, refers to seeking emotional support, denial strategies or avoidant strategies, such as distracting oneself with activities to take the mind off from the stressor (Carver and Connor-Smith, 2010).

Majority of previous studies demonstrated that pro-

blem focused strategies are more productive than emotional focused coping in combating with stress. Problem-focused coping strategies are related to poor quality of life, while as emotional focused coping strategies are deeply associated with related to higher levels of hopelessness and distress (Billings and Moos, 1981). However, it is observed that emotional focused coping may be fruitful when the stressor cannot be changed, and in the immediate consequences of the stressor (Reynolds et al., 2000). Effective coping strategies can also help people expand their boundaries and test their limits.

Researches from the United Kingdom have confirmed that medical students frequently use alcohol as a coping strategy while combating the stress (Firth, 1986; Guthrie et al,. 1995; Guthrieet al., 1997; Guthrie et al., 1998), but other researches have reported that use of tobacco, and drugs as common coping strategies of medical students (Ashton &Kamali, 1995; Miller and Surtees, 1991). Another study conducted in Pakistan reported sports, music, hanging out with friends, sleeping, or going into isolation were used as coping strategies for stress (Shaikh et al., 2004). Medical students in Nepal used active coping strategies (positive reframing, planning, acceptance, and active coping) rather than avoidant strategies (denial, alcohol/drug use, and behavioural disengagement) (Sreeramareddy et al., 2007). Redhwan, et al., (2009), reported that Malaysian students adopted regular exercise, praying, counseling, watching cartoons or comedies, practicing meditation including yoga and tai chi, and listening to soft music. In Saudi Arabia, Medical students adopt different coping strategies like getting together with family and friends, getting out for dinner, eating well, and participation in leisure activities (Mona, Soliman, 2014).

There is tremendous research works on the relationship of stress to health and coping strategies of international student's. Empirical research on coping and quality of life has demonstrated conflicting results, as there is no obvious or consistent pattern of findings that can be identified, even taking into account the particular population being studied. Therefore, the present study aimed to assess the role of coping strategies in quality of life among undergraduate medical students as there is presently dearth of psychological research on coping strategies and quality of life among medical students especially in Saudi Arabia.

METHODS

Setting and participants

A sample of 196 medical students (Male =106, Females = 90) were randomly taken from students studying in college of medicine King Faisal University located in Al-Hassa, Saudi Arabia. The target sample was the undergraduate male and female students from first year to fifth year. Ages of these participants were ranging from 18 to 25 years.

Study design

A cross-sectional, multivariate research design was used to test the hypothesis of the present study regarding the relationship of coping strategies and quality of life among undergraduate medical students. The ethical approval was obtained from the ethics committee of the college. The study was carried out during January to June, 2018.

Measures

In order to achieve the goals of the present study, the different measures were used. Coping strategies was measured by using Carver's (1997) brief COPE inventory. Short Form-12 Version 2, Health Survey (Ware et al., 1996) was used to assess the quality of life. Demographic questionnaire prepared by the researcher was also included in the study.

Demographic Questionnaire: The information about demographic profile of the participants was collected with the help of questions related to their age, sex, marital status, and academic year. In addition, information about their family were include area of residence, family type, education level of parents, family occupation, income, housing status etc.

Brief COPE: Coping strategies of the students were measured by using brief Coping inventory. Brief coping is a multidimensional coping inventory designed to assess a broad range of coping strategies and responses to psychological stress (Carver, 1997). This measure is a shortened version of the original COPE inventory (Carver, et al., 1989). The Brief COPE has 28 items, with two items in each of the 14 subscales. The 14 subscales include: self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion and self-blame. Participants rated their use of coping mechanisms on a four-point Likert scale ranging from "not at all" (1) to "a great deal" (4). High scores in this measure indicate a greater use of any particular coping strategy. Estimates for the test-retest reliability of the COPE inventory ranged from .42 to .89 (Carver, et al., 1989). In the present study the internal consistency (Cronbach's alpha) of this measure was ranged from 0.43 to 0.86.

SF-12: Quality of life was measured by using Short Form-12 Version 2, Health Survey (Ware et al., 1996). The SF-12v2 is a 12-item, self-report measure that gives an indication of the degree to which physical or mental health issues interfere with daily functioning across various domains. This self-report questionnaire measures

eight dimensions including physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality, social functioning, role limitations from emotional problems, and mental health. The SF-12v2 shows very good psychometric properties and is a widely used outcome measure for mental health problems in the clinical and research setting. General Health is one of the four subscales that make up the Physical Health scale. Respondents rate their overall health on a five-point scale (excellent, very good, good, fair, and poor). Higher scores indicate better general health. Mental health was evaluated on a six-point scale (all of the time, most of the time, a good bit of the time, some of the time, a little of the time, and none of the time). Higher scores on this scale indicates better quality of life. The PCS-12 and the MCS-12 of the SF-12 demonstrated good internal consistency and reliability, with alpha coefficients of 0.89 and 0.76, respectively (Ware, Kosinski, Keller, 1994). In the present study the internal consistency (Cronbach's alpha) of this measure was found 0.80 and 0.76 respectively.

Procedure

After seeking required permission from concerned college authorities, the participants were personally contacted. They were briefed about the purpose of research and questionnaire used in the study. After seeking consent of the student, a suitable time and date was fixed for data collection. Before administering the questionnaire, the purpose of the study was again explained to the participants and they were assured that their responses would be kept confidential and would be used for research and academic purpose only. A good rapport was build with the participants for getting correct responses. Necessary instruction and guidelines were provided to them for properly filling the questionnaire. After this, the questionnaires were provided to them and they were requested to fill up the questionnaire as per the instructions given in the questionnaire, After completion of the questionnaire participants returned the questionnaire and they were thanked for their participation and cooperation.

Statistical Analysis of Data

The data were first exported to Microsoft Excel and then to Statistical Package for Social Sciences (SPSS version, 22) computer software used for quantitative statistical analyses. Prior to analysis, all variables were screened for possible code. To test the study research hypotheses, descriptive (mean, standard deviation, percentage etc.), and multivariate statistical method were used. Stepwise multiple regression analysis was applied to examine the role of coping strategies adopted by the participants in predicting their quality of life. For this, separate analysis was run for each aspect of quality of life.

RESULT

Role of Coping in Quality of Life

Stepwise multiple regression analysis was applied to examine the role of coping strategies adopted by the participants in predicting their quality of life. For this, separate analysis was run for each aspect of quality of life.

Results of stepwise multiple regression analysis presented in Table 1 clearly indicate that while predicting physical health from all the fourteen methods of coping substance abuse coping (β = -.61, t = -10.72, p < .01) could enter in the equation explaining 37% variance in the physical health R^2 = .37, F (1, 195) = 115.06, p <.01. At step 2, self-blame coping entered in the equation which significantly predicted change in the scores on physical health (β = .25, t = 4.54, p < .01). Thus, this variable explained 6% variance in the criterion variable and the two variables jointly explained 43% variance in the scores on the dependent measure which was statistically significant R^2 = .43, F (1, 195) = 73.65, p < .01. At step 3, the variable of planning coping significantly predicted change in the scores on physical health (β = .13, t = 2.41, p < .01) explaining 2% variance in the dependent measure and these three variables jointly explained 45% variance in the scores on physical health, R^2 = .45, F (1, 195) = 52.28, p < .01. At step 4, when venting as a coping entered in the equation which significantly predicted change in the scores on physical health (β = -.12, t = -1.99, p < .05), however, it could explain only 1% variance in the criterion variable. These four variables jointly explained 46% variance in the score on dependent measure R^2 = .46, F (1, 195) = 40.82, p < .01.

Negative relationship of substance abuse and venting as a coping with physical health indicate that with increasing use of substance abuse and venting coping physical health decreases significantly, whereas positive relationship of self-blame and planning coping to physical health was related to increase in physical health.

When predicting mental health from scores on various coping strategies, at step 1, substance abuse coping was found as significant predictor of mental health (β = - .37, t = -5.70, p < .01), which accounted for 14% variance in the scores on criterion variable R^2= .14, F (1, 195) = 32.56, p < .01. At step 2, when humor as a coping was entered in the equation it significantly predicted change in the scores on mental health (β = .27, t = 3.72, p < .01) explaining 6% variance in dependent measure. Both these variables jointly explained 20% variance in the score on mental health which was significant R^2 = 20, F (1, 195) = 24.29, p < .01. At step 3, the variable of

Table 1. *Result of Stepwise Multiple Regression to predict Quality of Life from Methods of Coping*

Criterion variables	Predictor	R^2	F (1,195)	b	SE-b	β	t	95% CI
Physical Health	SA	.37	115.06**	-1.37	.13	-.61	-10.72**	-1.63 – -1.12
	SA	.43	73.65**	-1.51	.12	-.67	-12.01**	0.45 – 1.14
	SB			.79	.17	.25	4.54**	-0.47 – 0.00
	SA	.45	52.28**	-1.53	.12	-.68	-12.30**	-1.78 – -1.29
	SB			.66	.18	.21	3.66**	0.30 – 1.02
	PL			.48	.20	.13	2.41**	0.08 – 0.87
	SA	.46	40.82**	-1.44	.13	-.64	-10.93**	-1.70 – -1.18
	SB			.71	.18	.22	3.94**	0.35 – 1.07
	PL			.64	.21	.18	3.01**	0.22 – 1.07
	VT			-.43	.22	-.12	-1.99*	-0.85 – -0.01
Mental Health	SA	.14	32.56**	-.67	.11	-.37	-5.70**	-0.91 – -0.44
	SA	.20	24.29**	-.89	.12	-.50	-6.94**	-1.15 – -0.64
	HU			.65	.17	.27	3.72**	0.30 – 0.99
	SA	.24	20.74**	-.93	.12	-.52	-7.35**	-1.18 – -0.68
	HU			.58	.17	.24	3.40**	0.24 – 0.92
	PL			.59	.17	.21	3.33**	0.24 – 0.94
	SA	.27	18.42**	-.87	.12	-.49	-6.99**	-1.12 – -0.62
	HU			.58	.16	.24	3.44**	0.24 – 0.91
	PL			.80	.18	.28	4.26**	0.43 – 1.17
	RE			-.51	.17	-.20	-2.98*	-0.85 – -0.17
	SA	.29	15.85**	-.81	.12	-.45	-6.36**	-1.06 – -0.56
	HU			.65	.17	.27	3.84**	0.32 – 0.99
	PL			.92	.19	.33	4.73**	0.54 – 1.31
	RE			-.39	.18	-.15	-2.18**	-0.75 – -0.03
	VE			-.43	.20	-.16	-2.07*	-0.84 – -0.02
	SA	.31	14.39**	-.84	.12	-.47	-6.62**	-1.09 – -0.59
	HU			.67	.16	.27	3.95**	0.33 – 0.10
	PL			.84	.19	.30	4.30**	0.45 – 1.23
	RE			-.46	.18	-.18	-2.54**	-0.81 – -0.10
	VE			-.58	.21	-.22	-2.69**	-0.10 – -0.05
	IS			-.37	.16	-.16	-2.29*	0.05 – 0.70

*p <.05.**p < .01. SA = Substance Abuse; SB= Self Blame; PL=Planning; VT= Venting; HU= Humor; RE= Religion; IS= Instrumental Support

planning coping entered in the equation which significantly predicted change in the scores on mental health (β = .21, t = 3.33, p < .01), however, it could explain 4% variance in the criterion variable. These three variables jointly explained 24% variance in the score on dependent measure R^2 = .24, F (1, 195) = 20.74, p < .01. When the variable of religion coping was entered in the equation at step 4, it significantly predicted change in the scores on mental health (β = -.20, t = -2.98, p < .05) explaining 3% variance in the dependent variable. These four variables jointly explained 27% variance in the scores on mental health which was significant R^2 = .27, F (1, 195) = 18.42, p < .01. At step 5, when venting coping was entered in the equation it significantly predicted change in the scores on mental health (β = -.16, t =- 2.07, p < .05) explaining 2% variance in dependent measure. Both these variables jointly explained 29% variance in the score on mental health which was significant R^2 = 29, F (1, 195) = 15.85, p < .01. When the variable of instrumental support coping was entered in the equation at step 6, it significantly predicted change in the scores on mental health (β = -.16, t = -2.29, p < .05) explaining again 2% variance in the dependent variable. These six variables jointly explained 31% variance in the scores on mental health which was significant R^2 = .31 F (1, 195) = 14.39, p < .01.

These results revealed that substance abuse, religion coping, venting and instrument support coping were negatively related to mental health whereas humor and planning coping were positively related to mental health.

This indicates that with increasing use of substance abuse, religion coping, venting and instrument support coping mental health of participants' decreases significantly, while greater use of humor and planning coping increased mental health of participants.

DISCUSSION

The present study examined the role of coping strategies in quality of life among undergraduate medical students.It was hypothesized that coping strategies adopted by students will significantly predict their quality of life. Results of stepwise multiple regression analysis revealed different coping methods as significant predictors of scores on the measure of quality of life where substance abuse, venting, religion and instrumental support coping was found negatively and significantly related to different measures of quality of life. This shows that participants who used substance abuse, venting, religion and instrumental support as coping method showed poor quality of life while participants adopting coping methods such as self-blame, planning and humor as a coping showed better quality of life. These findings clearly supported the hypothesis that coping methods determine the quality of life of undergraduate medical students. Altogether, results of the present study showed that problem focused coping and emotional focused coping strategies are predictor variable for quality of life. The above findings are consistent with the previous findings conducted in different socio-cultural contexts (Ayoob and Abdulrehman, 2017; Billings and Moos, 1984; Bouteyre et al., 2007; Crockett et al., 2007; Mohammad et al., 2012; Penland et al., 2000; Ramya and Parthasarathy, 2009; Wijndaele et al., 2007).

Present findings showed that students adopted both the problem-focused coping and emotional-focused coping for better quality of life. These findings are in line with some of the studies conducted recently (Ayoob et al., 2011; Hassan et al., 2017). Although previous studies have shown problem-focused coping consistently associated with better health (Black and Vandiver, 1998; Boutevre et al., 2007; Mohammad et al., 2012; Sherbourne et al., 1995; Smari and Valtysdottir, 1997; Wijndaele et al., 2007), whereas emotional-focused coping has been associated with poor health (Green, 2009; Klum, 2012; Smari and Valtysdottir, 1997). Present findings partially support the relationship of problem-focused coping observed in above studies. However, problem-focused coping strategies are very effective because this type of coping strategies reduces daily stressors. No doubt daily stressors have poor effect but are associated with lowered mood in university students (Wolf et al., 1989). It is obvious daily stressors have tendency to develop into major stresses, thus increasing the potential for increased stress, anxiety and depress-sion (Holahan et al., 2005). To reduce the rate of these stressors therefore decreases the probability of experiencing distress. Moreover, problem-focused coping may be negatively related to psychological distress as it needs individuals to set and accomplish goals. As a consequence individuals are provided with a sense of mastery and control, thus reducing their anxiety and stress (Folkman, 1997).

In the present study emotion-focused coping methods also have been found a significant relation with quality of life. Emotion-focused coping incorporates a number of diverse coping strategies that have been shown to be both adaptive and maladaptive (Billings and Moos, 1984; Bouteyre et al., 2007; Crockett et al., 2007; Penland et al., 2000; Wijndaele, et al., 2007). In general, the coping strategies that focus on negative emotions and thoughts appear to increase psychological problems, whereas coping strategies that regulate emotion i.e. seeking social support, affect regulation and acceptance appear to reduce distress. Emotion-focused coping appears to vary in its effectiveness as it incorporates a number of diverse coping methods. Coping strategies that regulate emotion are effective as they prevent people from dwelling on their negative emotions and ensure they take proactive steps to resolve their negative emotions (Carver et al., 1989). For example, seeking social support is effective as it encourages students to seek advice from others regarding suitable coping strategies in which to engage (Bouteyre et al., 2007).

Some limitations of the current study have to be addressed. First the data of the present study were collected from eastern region of Saudi Arabia only. Data gathered in this context may therefore be unique, and it is entirely possible that a replication of this study in a different part of the country might yield different findings. Second, the convenience sampling method of medical students in eastern region is not likely to be representative of all medical students studying in other parts of the country. Therefore, further study needs representative samples in order to establish the generalizability of findings on medical students studying in other parts of the country. Third, all measures used in the present study were based on the participant's self-reports. Self-report questionnaires are always susceptible to biased responses from individuals who prefer to endorse socially desirable answers. Fourth, the cross-sectional design used in the present study does not allow drawing conclusions regarding causality. Longitudinal research will be needed to support such conclusions. Fifth, sample size of the present study was relatively small and homogeneous which also limits generalization.

Despite the above limitations, the present study contributes substantially and uniquely to research on coping strategies and quality of life of medical students. Findings from this study have broadened our understanding of the coping strategies and its role in quality of life among students. This study also provided a comprehensive assessment of coping styles among

medical student, covering issues related to stress and health. Moreover, the study advanced knowledge of coping strategies adopted by medical students by testing numerous theoretical and empirically based hypotheses proposed by previous researchers. Thus, this study lays the groundwork for future research on coping styles of medical student.

Present findings also suggest a need for developing culturally effective outreach and intervention programs for all medical students. One approach is to eliminate, or at least reduce the sources of stress among medical students. Another approach is to conduct workshops on stress and effective coping strategies through the academic years. The presence of counselors and academic advisors among the faculty may help students overcome stressful conditions. In addition, it is important to maintain a well-balanced academic environment for improved learning experience. A focus on students' needs and problems can help prevent the harmful effects of stress on quality of life and academic performance. Finally, longitudinal studies may be another recommended research direction to study coping strategies and quality of life in medical students.

Conflict of Interest Statement

There are no potential conflicts of interest or any financial or personal relationships with other people or organizations.

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The funding sources did not play a role in the study conceptualization or design; collection, analysis, or interpretation of data; writing of the manuscript; or the decision to submit the article for publication.

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