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Relationships between self-efficacy and personal hardiness and pain self-efficacy in university students

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Abstract

Self-efficacy beliefs are used to explain a range of behaviors and aspects of the pain experience. The aim of this study was to determine the relationship between academic self-efficacy, social self-efficacy, emotional self-efficacy and psychological hardiness with pain self-efficacy in students. 167 students of Persian Gulf university were selected randomly. The research tools consist of Nicholas pain self-efficacy questionnaire, Morris pain self-efficacy questionnaire and Kobasa psychological hardiness. Correlation coefficient results showed that there was a significant separate correlation between academic self-efficacy, social self-efficacy, emotional self-efficacy, and psychological hardiness with pain self-efficacy. The results of regression analysis showed that the best predictors of pain self-efficacy were psychological hardiness, emotional self-efficacy and social self-efficacy, respectively. Totally the results of regression analysis were significant and revealed that the multiple relationship of predictor variables with the criterion variable was approved. The results suggest that the psychological hardiness and emotional self-efficacy play very effective role in dealing with aches and pains for students.

Keywords: Pain, Personality, Self Efficacy

Introduction

Self-efficacy expectations determine how much effort people will expend and how long they will persist in obstacles and aversive experiences. Self-efficacy beliefs are used to explain a range of behaviors and aspects of the pain experiences. Among this pain self-efficacy beliefs are considered as a key factor which has regulatory functions to different domains of health [1]. Pain self-efficacy refers to a person's confidence in own ability to achieve a desirable outcome. According to Bandura's view, the importance of self-efficacy beliefs in the study of pain is the structure which determines how much effort people will expend and how long they will persist in obstacles and aversive experiences [2]. The concept of pain self-efficacy is able to explain many of observed behaviors and disability in patients with chronic diseases. For example, Woby, Roach, Urmston and Watson [3] have shown that lower levels of self-efficacy beliefs in patients with chronic low back pain is associated with more pain intensity and higher physical disability. Research results indicated that self-efficacy strongly was associated with fear, disability, school disturbance, and depression symptoms. Pain severity and self-efficacy were only moderately related to one another which indicating that pain had less effect on self-esteem due to pain. Self-efficacy somewhat mediates the relationship between fear of pain and functional disability and fear

of pain and functioning of the school, but does not mediate the relationship between fear of pain and depression syndrome [4].

In general, higher levels of self-efficacy play a useful role to induction and maintenance of favorable impact of rehabilitation [5] and has major influence on the utilization of coping strategies with pain, pain control and morbidity [6], and achieve the desired treatment outcome [7] in patients with chronic diseases. A study was conducted on cancer patients and results showed that self-efficacy of pain control was significantly were associated with the severity of the next pain. There was a significant relationship between pain control self-efficacy and pain intensity in the cancer patients who attended a coaching session, but there was no significant correlation between communicative self-efficacy and the severity of the next pain [8].

Assessing the structure of pain self-efficacy is considered as important factor [7] that summarizes the need to evaluate these structures in four factors: 1) Measurement of self-efficacy is helpful for planning patient education programs. 2) Measurement of changes in self-efficacy over time is important to evaluate the impact of patient education programs. 3) The measurement of self-efficacy is useful to detect individual differences between patients. 4) Measurement of self-efficacy may be an indicator to predict important health outcomes [9].

The study examined 27 studies and the results showed that higher self-efficacy was associated with higher physical activity, greater participation in physical activity, health status, work status, performance satisfaction, and higher performance beliefs and lower levels of self-efficacy were associated with severity of pain, disability, disease activity, depression symptoms, and fatigue [10]. Social anxiety and catastrophic pain are positively associated with each other and have a negative relationship with the ability to relate to pain-related needs. The findings did not support the role of social anxiety moderator [11]. School counselors' role in the formation and transformation of the education system is indispensable. The result revealed mastery experience has the strongest relationship with counseling self-efficacy [12]. In the study, women's greater sexual intimacy and women's greater relationship intimacy were associated with greater women's sexual function, beyond the effects of partners' sexual and relationship intimacy. Women's self-reported sexual and relationship intimacy in the couple relationship may promote higher sexual satisfaction, sexual function, and pain self-efficacy, as well as possibly foster greater sexual well-being among women with Physical vapor deposition [13].

However self-efficacy is discussed in various domains. According to Murris [14], specific domain of self-efficacy specifically associated with a variety of psychological disorders. For example, social self-efficacy is strongly associated with social phobia. Academic self-efficacy is associated with school phobia. Emotional self-efficacy is associated with generalized anxiety, panic anxiety and psychosomatic disorders. So investigation the issue of how academic, social, and emotional self-efficacy is associated with pain self-efficacy and how much is the role of psychological hardiness among these causes that the importance of this issue is twofold. Before long, the conceptualization of personality hardiness began to emerge [15]. Basically, hardiness was considered the specifics of what existentialists call existential courage [16]. In particular, hardiness emerged as a pattern of attitudes and strategies that together facilitate turning stressful circumstances from potential disasters into growth opportunities. In particular, there are the three Cs of hardiness attitudes [17]. If you are strong in the C of challenge, you will accept that life would be stressful by its nature, and see those stressful changes as an opportunity to grow in wisdom and capability by what you learn through trying to turn them to your advantage. In this, you think that you can learn from failures as well as successes. You do not think you are entitled to easy comfort and security. Instead, you feel that fulfillment can only be gained by having turned the stresses into growth opportunities.

Another C of hardy attitudes is commitment which involves the belief that no matter how bad things get, it is important to stay involved with whatever is happening, rather than sink into detachment and alienation and the third C of hardiness is control which leads you to believe that no matter how bad things get, you need to keep trying to turn the stresses from potential disasters into growth opportunities. It seems like a waste of time to let yourself sink into powerlessness and passivity [15]. Therefore, the aim of this study was to determine the relationship between academic self-efficacy, social self-efficacy, emotional self-efficacy and psychological hardiness with pain self-efficacy. The present research is the first time in Iran that various types of self-efficacy were investigated in relationship to pain self-efficacy. On the other hand, it evaluates the role of the anticipation of psychological hardiness with pain self-efficacy. Therefore, this research is a new and innovative research as different dimensions.

Method

The population of the present study was all students of Persian Gulf university. According to Morgan's table for this research population, 167 participants were selected by simple randomly method as sample. This sampling consisted of 131 female and 36 male.

In this research tools included:

Self-Efficacy Questionnaire (SEQ): This questionnaire at first was developed by Muris [14]. This questionnaire contains 21 items. The self-efficacy questionnaire consists of three subscales which were named as social self-efficacy, academic self-efficacy and emotional self-efficacy. Questions 1 to 7 of the questionnaire measure a person's social self-efficacy. A question 8 to 14 measures the person's academic self-efficacy. Questions of 15 to 21 measure the person's emotional self-efficacy. The questionnaire has five-degree range that is arranged from “I can not even" to “always I can". Exploratory factor analysis method was used to determine the reliability of Muris self-efficacy questionnaire [14]. Factor analysis result using Varimax rotary method and based on Scree test revealed the presence of emotional, educational and social factors. Factor loadings on the social factor varied between 0.64 to 0.78. In emotional factor was varied between 0.66 to 0.83 in academic factor was varied between 0.65 to 0.78. In total, they can explain more than 52% of test total variance. Test reliability using Cronbach's alpha on the whole self- efficacy questionnaire was 0.90, on social self-efficacy scale was 0.82, on academic self-efficacy scale was 0.84 and on emotional self-efficacy scale was 0.86. In general, the validity and reliability of the questionnaire is appropriate. Its reliability and validity was also examined by the investigators. Its validity was also examined through confirmatory factor analysis, and all articles have factor loadings higher than 0.40. Test reliability using Cronbach's alpha was reported 0.79. In general, the validity and reliability of instruments is appropriate.

Pain Self-Efficacy Questionnaire (PSEQ): This questionnaire was developed by Costa [18]. This questionnaire consists of 10 items. Articles were graded based on likert spectrum from absolutely certain (6) to absolutely uncertain (1). Questionnaire reliability is reported by Nichols [18] using simultaneous and diagnostic validity method that in both methods is optimal and desirable. Also its reliability based on Cronbach's alpha (0.84) and test-retest (0.62) has been reported favorable. In this study, its validity was examined by confirmatory factor analysis and factor loadings of all articles was higher than 0.40. Its reliability by Cronbach's alpha was reported 0.73.

Hardiness questionnaire: This questionnaire was developed by Najarian et al at the Shahid Chamran University of Ahvaz. This questionnaire consists of 27 items. This questionnaire is single factor. Articles were graded based on the likert spectrum from never to more often. Never is equal to 0 and more often is equal to 3. Therefore scores will fluctuate between 0 and 81. The questionnaire was constructed based on factor analysis and its factor loadings were considered above 0.40. Reliability of the questionnaire also has

been reported based on Cronbach's alpha [19]. Its reliability by Cronbach's alpha was reported 0.81. For data analysis, Pearson correlation coefficient and multiple regressions were used by SPSS-21 software.

Results

The statistical test of multiple regression analysis was used in order to investigate the hypotheses. But in the beginning, the assumptions of regression analysis were examined, including the fact that the data from the test run was normal distribution, using the Kolmogorov-Smirnov test with a significant level of 1.26 and more than the significance level Minimum error (0.05). Therefore, it can be concluded that the distribution of students' grades with the characteristics of normal distribution did not differ significantly. Descriptive findings and Pearson correlation coefficients would be presented in Table 1.

Table 1 *Mean, standard deviation and Pearson correlation coefficients of variables*

Variables	Mean	SD	Pain self-efficacy	Social self-efficacy	Academic self-efficacy	Emotional self-efficacy
Pain self-efficacy	38.22	11.45	-			
Social self-efficacy	23.16	4.76	0.41**	-		
Academic self-efficacy	24.12	4.31	0.22*	0.43**	-	
Emotional self-efficacy	21.32	4.54	0.48**	0.41**	0.37**	-
Hardiness	47.47	9.31	0.49**	0.47**	0.34**	0.41**

*p< 0.05 , **p< 0.01

The correlation coefficients results showed that there is significant relationship between social self-efficacy, academic self-efficacy, emotional self-efficacy and hardiness with pain self-efficacy.

Table2 *Regression analysis with hierarchical method between predictor variables and pain self-efficacy*

Criterion variable	Predictor variables	β	R^2	t	P
Pain self-efficacy	Hardiness	0.27	0.24	4.23	0.001
	Emotional self-efficacy	0.25	0.31	3.67	0.001
	Social self-efficacy	0.23	0.34	3.41	0.001

The results of the regression analysis indicate that the linear combination of predictor variables (social self-efficacy, academic self-efficacy, emotional self-efficacy and hardiness) with the criterion variable (pain self-efficacy) is significant. The results of regression analysis showed that hardiness explained 24% of pain self-efficacy variance with respect to the beta value of 0.27 and t= 4.23 , this relationship was significant at p<0.001. Emotional self-efficacy explained 31% of pain self-efficacy variance, with respect to the beta value of 0.25 and t= 3.67, this relationship was significant at p<0.001. Social self-efficacy explained 34% of pain self-efficacy variance, with respect to the beta value of 0.23 and t= 3.41, this relationship was significant at p<0.001 and the best predictors of pain self-efficacy are

hardiness, emotional self-efficacy and social self-efficacy, respectively.

Discussion

In this study, the relationship between different types of academic self-efficacy, emotional self-efficacy and social self-efficacy with pain self-efficacy was investigated. On the other hand, the relationship between psychological hardiness and pain self-efficacy was also studied. The results indicated that emotional self-efficacy, social self-efficacy and academic self-efficacy were correlated with pain self-efficacy. These finding are consistent with previous studies [9,14].

Prior studies have shown that a low level of self-efficacy are generally associated with high levels of anxiety, Anger and symptoms of depression are associated. Concerning the relationship between self-efficacy and mental disorders, the results of research have shown that social self-efficacy is related to social phobia, academic self-efficacy with school phobia, and emotional self-efficacy with Anxiety and panic disorder and somatic disorder [14].

Academic self-efficacy which is concerned with the perceived capability to manage one's own learning behavior, to master academic subjects, and to fulfil academic expectations. In academic self-efficacy, students can properly do their tasks and assignments. students with high academic self-efficacy are often well-suited teachers, managers, and parents, because they are doing their task well. students with high academic self-efficacy, well-behaved in managing their academic behaviors, are mastery in subject matters, are skill, meet their expectations and goals in academic disciplines. But students with low self-efficacy do not do their jobs well, Particularly in the field of education, Goals and expectations are low, and usually managers and employers are not happy about their work. Self-efficacy somewhat mediates the relationship between fear of pain and functional disability and fear of pain and functioning of the school.

Social self-efficacy which has to do with the perceived capability for peer relationships and assertiveness. In social self-efficacy, individuals can express their opinions, even if others oppose their views. Have a good social relationship with others and have the ability to be friends with different people. They work in harmony with others, and people are steadfast. These characteristics enable people to have broad social interactions, respect for themselves, and have an honest, sincere and transparent relationship with others and express their views comfortably. But those with low social self-esteem do not easily express their opinions, have low self-expression, fear of socialization, fear of evaluations of others, limited social interaction, and in general, passive and cowardly people.

Emotional self-efficacy which pertains to the perceived capability of coping with negative emotions. emotional self-efficacy, individuals can manage and control their emotions. In emotional self-efficacy, individuals can manage and control their emotions. For example, a person with high emotional self-efficacy, if she is upset or angry, can show and express her discomfort without being angry. Individuals with emotional self-efficacy can control their feelings or talk about it when they have unpleasant feelings. People with emotional self-efficacy also prevent their intrusive and negative thoughts, or they create optimism in their minds and never lose their optimism. Individuals with emotional self-efficacy do not engage their minds in problems that have not occurred, and about the problems that occur, albeit unpleasant, have a strong belief that they have a sense of mastery and control over events, and therefore they themselves manage to keep on the life events. Then, higher self-efficacy was associated with higher physical activity, greater participation in physical activity, health status, work status, performance satisfaction, and higher performance beliefs. And lower levels of self-efficacy were associated with severity of pain, disability, disease activity, depression symptoms, and fatigue.

Conclusion

The relationship between psychological hardiness and pain self-efficacy was also

studied. The results indicated that hardiness and pain self efficacy were correlated. These finding are consistent with previous studies [15,16]. Maddi [15] defined hardiness as "a constellation of personality characteristics that function as a resistance in the encounter with stressful events". Maddi [16] defined hardiness as "a broad personality style or generalized mode of functioning that includes cognitive, emotional and behavioral qualities." The personality possessing hardiness is marked by a way of perceiving and responding to stressful life events that prevents or minimizes the strain that can follow stress and that, in turn, can lead to mental and physical illness. It appeared that conceptually, the sense of commitment, control and challenge underlying hardiness are important cognitions that appear to moderate the impact of daily work and life stress on well-being. Hardy people tend to see change as an opportunity for personal growth. Rather than trying to preserve the status quo, hardy individuals strive for new challenges [15]. Judkins [20] conducted a study on hardiness, stress and coping strategies among mid-level nurse managers and found that the study supported the theoretical suppositions of lower stress if hardiness and specific coping strategies are high.

In the present study, we found that hardiness was positively related to pain self efficacy. As we know, hardiness contributes to potentially demanding situations and thus generates personal growth and development. It was found that there was a positive relationship between hardiness and pain self efficacy. As we know that hardy individuals are highly challenged, Those events that are painful or when they feel a lot of physical pain make these events challenging and use strategies to reduce their pain. In fact, this is a kind of personality trait that makes events a challenging one, and shows itself hard. Hardy individuals believe that they can control and influence the events of their experience. Hardy people rely on their own resources when facing challenging situations, perhaps considering the use of external resources as weakness [17]. There was a positive relationship between hardiness and problem solving. This may be due to the fact that high hardy individuals usually deal with the stressor directly and resolve issues. Hardy individuals tend to deal with the stressor directly by challenging the situation and they do not try to avoid thinking about the issue. Hardy individuals do not try to accept the situation immediately or take it as threatening. They challenge the situation and take control of it. Also, they try to be committed to the action plan and work it through. Hardy individuals are highly committed in their work. They do not try to avoid doing things that deal in solving the problem. Their control perceptually indicates that the consequence of any state is due to their actions. They generally take control of the situation in a calm manner. The personality style of hardiness is proposed to have a moderating effect on this process by encouraging effective mental and behavioral coping [16]. Research limitations include: Self-report questionnaires are susceptible to answers tinged with social desirability. Results of this study should, therefore, be interpreted with caution. Also the data presented here are correlational and a causal link between hardiness, self-efficacy and coping responses cannot be concluded from this study. The study did not include other positive psychological variables like optimism, hope, self-esteem etc. Therefore, it is suggested that experimental research should be used in the future studies and trained in hardiness. Based on the results it can be suggested that teachers with developing student's successful experience should try to raise their self-efficacy, and families with proper parenting practices, and respect for their children's tries to improve their social and emotional self-efficacy. And authorities also with minimizing stress, proper job creation and improving the quality of life should tries to have joyful, healthy and efficient community, therefore by this way such people will have high self-efficacy in various domains. It is also suggested that hardiness be considered as a moderating variable in relation between

types of self-efficacy and pain self-efficacy. In future research, social support and family communication variables are used to relate to the pain self-efficacy variable.

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Conflict of Interest

"The authors declare that they have no competing interests"

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