

**The Relationship between Cognitive Appraisals and Social Problem Solving with Coping Styles with Stressful Factors in University Students**

Saghar Sahebamei<sup>1</sup>, Kamran Ganji<sup>2\*</sup>, Keyvan Kakabraee<sup>3</sup>

1. PhD Student of Educational Psychology, Department of Psychology, Saveh Branch, Islamic Azad University, Saveh, Iran.
2. Associate Professor, Department of Psychology, Malayer Branch, Islamic Azad University, Malayer, Iran.
3. Associate Professor, Department of Psychology, Kermanshah Branch, Islamic Azad University, Kermanshah, Iran

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**Abstract**

**Purpose:** The aim of this research was determining the relationship between cognitive appraisals and social problem solving with coping styles with stressful factors in university students.

**Methodology:** The present study was cross-sectional from type of correlation. The research population was all undergraduate students of Islamic Azad University of Saveh branch in 2019-2020 academic years. There were 418 of them the sample size was calculated according to Cochran's formula 220 people who were selected by multi-stage cluster sampling method. The research tools were the questionnaires of cognitive appraisals (Folkman & Lazarus, 1985), social problem solving (D'Zurilla & et al, 2002) and coping styles with stressful factors (Endler & Parker, 1990). Data were analyzed by structural equation modeling method with using path analysis in LISREL-8.8 software.

**Findings:** The findings showed that the primary appraisals had a significant negative effect on problem-oriented style and a significant positive effect on emotion-oriented and avoidance styles, secondary appraisals had a significant positive effect on problem-oriented style and a significant negative effect on emotion-oriented and avoidance styles, adaptive social problem solving had a significant positive effect on problem-oriented style and a significant negative effect on emotion-oriented and avoidance styles and maladaptive social problem solving had a significant negative effect on problem-oriented style and a significant positive effect on emotion-oriented style ( $P < 0.05$ ), but maladaptive social problem solving had no significant effect on avoidance style ( $P > 0.05$ ).

**Conclusion:** Based on the results, to improve coping styles with stressful factors (increase problem-oriented style and decrease emotion-oriented and avoidance styles) can be designed and implemented programs to increase secondary cognitive appraisals and adaptive social problem solving and decrease primary cognitive appraisals and maladaptive social problem solving.

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\* Corresponding author: gangikamran@yahoo.com



## 1. Introduction

Everyone's life is associated with stressful situations, and these situations cause stress, stress, stress and anxiety on the body and mind, and people reduce them and increase their health by using appropriate coping styles (Ozgundondu & Metin, 2019). Stress response styles are individuals' preferred ways of responding to stressful and challenging events (Lin & et al, 2020). Dealing with stressful events involves a series of complex transactions between the environment and the individual, and when people encounter them, they try to change their environment and internal processes and reduce the stress of events (Rodino & et al, 2018). There are generally three coping styles, including problem-oriented, emotion-oriented, and avoidance. Problem-oriented style describes the way in which a person calculates the actions he or she should take to reduce or eliminate the stressor, including seeking more information about the problem, changing the structure of the problem cognitively, and prioritizing steps to focus on. It becomes a problem. Emotional style describes the way in which a person focuses on him / her and tries his / her best to reduce his / her unpleasant feelings, and includes crying, angry and upset, engaging in faulty behaviors, mental occupation, and daydreaming. Avoidance style requires activities and cognitive changes that aim to avoid a stressful situation and include doing a new activity and engaging with it or changing the direction of society and individuals to avoid the main situation (Zhang & et al, 2018).

One of the factors related to coping styles is cognitive assessment (Kang & et al, 2018). Cognitive assessment of people's successes and failures increases or decreases effective behaviors in their development, and these assessments play a mediating role between stressors and the consequences of stress, and individuals choose and use the appropriate coping style according to interaction with the environment and others (Cheah & et al, 2019). This structure consists of two parts: primary and secondary assessment. The initial assessment reflects the degree of stress in the face of a stressful situation and the secondary assessment reflects through the initial assessment and refers to the individual's perception of available resources to meet situational demands (Helbig & Backhaus, 2017). A primary assessment is a person's initial judgment about the significance of a stressful event and whether it is positive, controllable, problematic, or generally unrelated, but a secondary assessment is a type of assessment that examines the sources of coping. Unlike the primary assessment, which emphasizes circumstances, the secondary assessment refers to the study of what can be done in these circumstances (Lopez-Navarro et al., 2016).

Another factor associated with coping styles is social problem solving (McCormick & et al, 2014). Problem solving is one of the most important thought processes and a vital skill for life in the present age that helps people to use appropriate coping strategies to solve problems and challenges (Li & et al, 2020). Social problem solving is a cognitive process based on which a person tries to find a suitable solution to a problem (Sharaf & et al, 2018). Social problem solving is a purposeful, diligent and conscious activity as well as a purposeful and effective cognitive consequence that is defined as a cognitive-behavioral process that helps people to face and deal with specific problems of daily life in relation to others (Keng & Tan, 2017). In general, there are two styles of social problem solving, including adaptive and non-adaptive problem solving styles. Adaptive style refers to a positive orientation towards the problem and effective application of logical problem solving skills and non-adaptive style refers to a negative orientation towards the problem and avoidance (Fuente & et al, 2019).

Little research has been done on the relationships between primary and secondary cognitive assessment and social problem solving with coping styles. For example, the results of Kang et al. (2018) showed that the initial evaluation had a significant negative effect on problem-oriented style and a significant positive effect on emotion-oriented style, and the secondary evaluation had a significant positive effect on problem-oriented style and a significant negative effect on emotion-oriented style. Alhurani, et al (2018) concluded that primary cognitive evaluation had a significant negative relationship with problem-oriented style and positively significant relationship with emotion-oriented style and secondary cognitive evaluation had a significant positive relationship with problem-oriented style and negatively significant relationship with

emotion-oriented style. In another study, Hermsen, et al (2016) reported that the primary assessment had a significant negative relationship with problem-oriented style, a positively positive relationship with emotion-oriented style, and the secondary assessment had a significant positive relationship with problem-oriented style and a significant negative relationship with emotion-oriented style. In addition, Goodarzi, et al (2015) in a study concluded that cognitive assessments (primary and secondary) had a significant effect on coping strategies. In another study, Shokri et al. (2014) reported that primary cognitive assessment had a significant positive relationship with stress and secondary cognitive assessment had a significant negative relationship with stress. Also, the results of Kakabarae & Ezzati (2017) showed that adaptive problem solving had a significant positive effect on perception of the quality of social relations and emotional well-being and non-adaptive problem solving had a significant negative effect on perception of the quality of social relations and emotional well-being. Jamali Gharakhanlou, et al (2016) in a study concluded that social dysfunction had a significant negative relationship with problem-oriented style and a positively positive relationship with emotion-oriented style. In another study, Abdolmanafi, et al (2015) reported that adaptive problem solving had a significant positive relationship with problem-oriented coping and significantly negatively related to emotion-oriented coping and non-adaptive problem solving had a significant negative relationship with problem-oriented coping and emotionally-oriented coping. In addition, McCormick et al. (2014) in a study concluded that social problem solving had a significant positive relationship with problem-oriented coping strategies and a significant negative relationship with emotion-oriented and avoidance coping strategies. In another study, D'Zurilla & Chang (1995) reported that adaptive problem solving had a significant positive relationship with problem-oriented style and a significant negative relationship with emotion-oriented and avoidance styles, and that non-adaptive problem-solving had a significant negative relationship with problem-oriented and avoidance styles. It was positive.

On the one hand, students are the future makers of society, and on the other hand, coping styles with stressors play an effective role in academic and non-academic success. Coping styles can help people solve challenges and reduce stress, so research is needed to identify the factors that affect it. Although some research has been done on the relationship between cognitive evaluation and social problem solving and coping styles, this research has been extensive and its population has been mostly non-students. Therefore, research is needed to decide on the relationship between variables and coping styles in students, and the present study can help professionals and planners to plan to improve student coping styles. As a result, the aim of this study was to determine the relationship between cognitive assessment and social problem solving with coping styles with stressors in students.

## 2. Methodology

The present study was a cross-sectional correlational study. The study population was all undergraduate students of Islamic Azad University, Saveh Branch in the academic year 2019- 20; whose number was 418 people. The sample size was calculated according to Cochran's formula of 220 people who were selected by multi-stage cluster sampling method. In this sampling method, first the number of faculties and then the number of courses from each faculty were selected and finally from each field, a number of classes were randomly selected and all class members were selected as a sample. To conduct this research, after coordination with the officials of Saveh Branch of Islamic Azad University, to conduct research, refer to the education unit and prepare a list of faculties, disciplines and students of each class, and then three faculties among the existing faculties and four disciplines from each faculty. For each field, a class was randomly selected and all members of the class answered the following questionnaire tools in addition to the demographic information form:

**Cognitive Assessment Questionnaire:** This questionnaire was designed by Folkman & Lazarus in 1985 with 66 items, 16 of which are not included in the scoring, and the primary assessment has 27 items and the secondary assessment has 23 items. Items are calculated based on a four-point Likert scale from zero

to three and the dimension score is calculated with the total score of the items after that, so the range of primary assessment scores is 0-81 and secondary assessment is 0-69, and a higher score means more of that feature. Folkman & Lazarus (1985) confirmed the validity of the instrument structure by factor analysis method and reported its reliability by Cronbach's alpha method for dimensions in the range of 0.59 to 0.88. In the present study, the reliability value was obtained by Cronbach's alpha method for the initial evaluation of 0.85 and the secondary evaluation of 0.81.

**Social Problem Solving Questionnaire:** This questionnaire was designed by D'Zurilla et al. In 2002 with 52 items, of which adaptive problem solving has 25 items and non-adaptive problem solving has 27 items. Items are calculated based on a five-point Likert scale from one to five scores and dimension scores with the total score of the items after that, so the range of adaptive problem solving scores is 125-25 and non-adaptive problem solving scores, and a higher score means more features. . D'Zurilla (2002) confirmed the construct validity of the instrument by factor analysis and its reliability by Cronbach's alpha in various studies ranging from 0.69 to 0.95. In Iran, Fatin et al. (2018) confirmed the validity of the questionnaire by factor analysis and the reliability of the dimensions above 0.70. In the present study, the reliability of Cronbach's alpha method for adaptive problem solving was 0.79 and non-adaptive problem solving was 0.72.

**Stress Management Styles Questionnaire:** This questionnaire was designed by Endler & Parker in 1990 with 48 items, which has three dimensions of problem-oriented, emotion-oriented and avoidance styles (16 items each dimension). Items are calculated based on a five-point Likert scale from one to five scores and dimension scores with the total score of the items after that, so the range of scores for each of the dimensions is 16-80, and a higher score means having more of that feature. Endler & Parker (1990) confirmed the construct validity of the instrument by factor analysis method and the reliability by Cronbach's alpha method for the dimensions of problem-oriented, emotion-oriented and avoidance styles were 0.87, 0.83 and 0.82, respectively. In Iran, Haghshenas et al. (2014) reported the reliability of Cronbach's alpha method for the dimensions of problem-oriented, emotion-oriented and avoidance styles of 0.90, 0.86 and 0.80, respectively. In the present study, the reliability of Cronbach's alpha method for problem-oriented style was 0.92, emotion-oriented style was 0.84 and avoidance style was 0.78.

After collecting the data with the above questionnaires, the structural equation modeling method was analyzed using path analysis in LISREL-8.8 software.

### 3. Findings

The participants of the present study were 220 students with a mean age of 21.35 years; So that 137 of them were girls (62.27%) and 83 of them were boys (37.73%). Also, 57 of them in the first year (25.91%), 62 in the second year (28.18%), 53 in the third year (24.09%) and 48 in the fourth year (21.82%) Percent) were studying. Mean standard deviation and correlation coefficients of cognitive assessment, social problem solving and coping styles with stressors in students were presented in Table 1.

**Table1.** Mean standard deviation and correlation coefficients of research variables in students

Variables	Average	Standard deviation	1	2	3	4	5	6
1. Initial cognitive assessment	35/27	4/32	1					
2. Secondary cognitive assessment	29/60	3/84	-0/14**	1				
3. Solve the adaptive problem	53/28	5/17	-0/25**	0/17**	1			
4. Solve non-adaptive problem	66/75	7/03	0/36**	-0/34**	-0/12*	1		
5. Problem-oriented style	31/46	4/25	-0/53**	0/66**	0/47**	-0/34**	1	
6. Exciting style	34/12	3/96	0/74**	-0/92**	-0/51**	0/23**	-0/31**	1
7. Avoidance style	27/59	3/31	0/75**	-0/63**	-0/66**	0/17*	-0/28**	0/25**

\*\*P<0/01, \*P<0/05

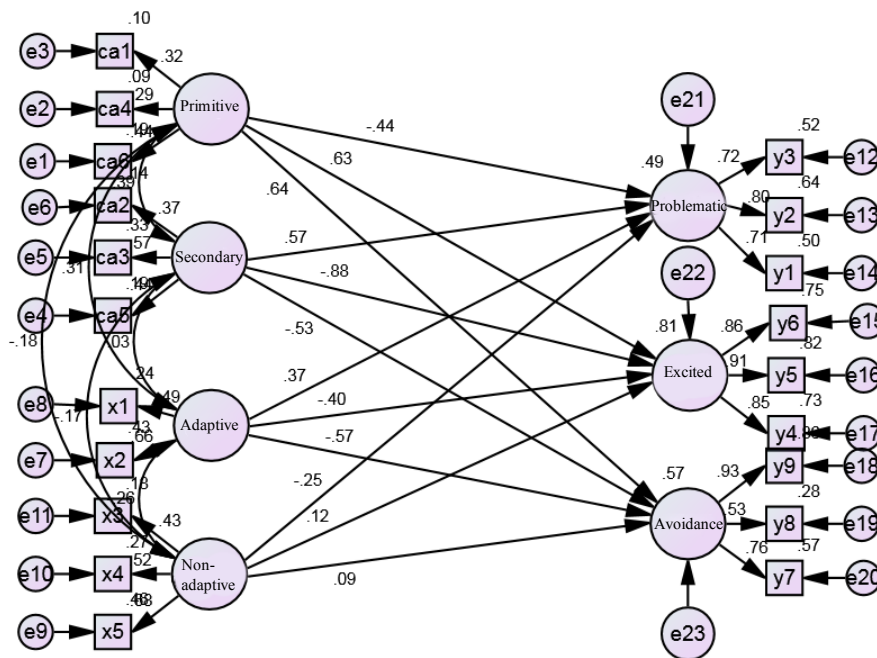
According to the results of Table 1, primary cognitive assessment and non-adaptive problem solving have a significant negative correlation with problem-oriented style and positively correlated with emotion-

oriented and avoidant styles. Has ( $P < 0.05$ ). Therefore, there is an assumption of sufficient correlation between research variables to perform path analysis. Also, the hypothesis of normality based on Kolmogorov-Smirnov test values for all variables was confirmed ( $P < 0.05$ ). Therefore, the use of path analysis method is allowed. Fitness indices of the model of coping styles with stressors based on cognitive assessment and social problem solving in students were presented in Table 2.

**Table2.** Fitness indicators of research model in students

Indicators	$\chi^2/df$	RMSEA	GFI	AGFI	NFI	NNFI	IFI	CFI
Statistics	2/35	0/056	0/94	0/93	0/91	0/91	0/92	0/92
Acceptance limit	Less than 5	Less than 0.08	More than 0.90	More than 0.90	More than 0.90	More than 0.90	More than 0.90	More than 0.90

According to the results of Table 2, the fitted model is due to the chi-square indices of degree of freedom ( $\chi^2 / df$ ), the root mean square error of the estimation error (RMSEA), the goodness-fit index (GFI), the modified goodness-fit index (AGFI), and the standardized fit index. (NFI), abnormal fit index (NNFI), incremental fit index (IFI) and comparative fit index (CFI) have good fit. The fitted model The model of coping styles with stressors based on cognitive assessment and social problem solving in students is presented in Figure 1 and the results of its effects are presented in Table 3.



**Figure1.** Fitted research model with standard coefficients of paths in students

**Table3.** The effects of the model of coping styles with stressors based on cognitive assessment and social problem solving in students

Effects	Standard coefficient	estimation error	Critical value	meaningful
The effect of initial cognitive assessment on problem-oriented style	-0/44	0/48	-3/56	$P < 0/05$
The effect of initial cognitive assessment on emotion-oriented style	0/63	0/83	4/09	$P < 0/05$
The effect of initial cognitive assessment on avoidance style	0/64	0/82	4/19	$P < 0/05$

The effect of secondary cognitive evaluation on problem-oriented style	0/57	0/46	5/20	P<0/05
The effect of secondary cognitive assessment on emotion-oriented style	-0/88	0/87	-6/00	P<0/05
The effect of secondary cognitive assessment on avoidance style	-0/53	0/65	-4/77	P<0/05
The effect of adaptive problem solving on problem-oriented style	0/37	0/08	3/44	P<0/05
The effect of adaptive problem solving on emotion-oriented style	-0/40	0/13	-3/38	P<0/05
The effect of adaptive problem solving on avoidance style	-0/57	0/14	-4/31	P<0/05
The effect of non-adaptive problem solving on problem-oriented style	-0/25	0/06	-2/57	P<0/05
The effect of maladaptive problem solving on emotion-oriented style	0/12	0/10	1/35	P<0/05
The effect of non-adaptive problem solving on avoidance style	0/09	0/09	0/89	P>0/05

According to the results of Figure 1 and Table 3, the initial evaluation has a significant negative effect on problem-oriented coping style and a positive effect on emotion-oriented and avoidance styles, a significant positive effect on problem-oriented coping style and a significant negative effect on emotion-oriented and avoidance styles, adaptive social problem solving It has a significant positive effect on problem-oriented style and has a significant negative effect on emotion-oriented and avoidant styles and has a significant negative effect on problem-oriented style and has a significant positive effect on emotion-oriented style ( $P < 0.05$ ), but non-adaptive social problem solving has an effect on avoidance style. Not significant ( $P > 0.05$ ).

#### 4. Discussion

Considering the role and importance of emotion coping styles in academic and non-academic success and performance, the aim of this study was to determine the relationship between cognitive assessment and social problem solving with coping styles with stressors in students.

Findings showed that primary cognitive evaluation had a significant negative effect on problem-oriented coping style and positively significant effect on emotion-oriented and avoidance styles and secondary cognitive evaluation had a significant positive effect on problem-oriented coping style and significantly negative effect on emotion-oriented and avoidance styles. These findings were consistent with the findings of Kang, et al (2018), Alhurani, et al (2018), Hermsen, et al (2016), Goodarzi, et al (2015) and Shokri, et al (2014). For example, Kang, et al (2018) showed that the primary evaluation had a significant negative effect on problem-oriented style and a significant positive effect on emotion-oriented style, and the secondary evaluation had a significant positive effect on problem-oriented style and a significant negative effect on emotion-oriented style. In another study, Goodarzi, et al (2015) reported that cognitive assessments (primary and secondary) had a significant effect on coping strategies. Explaining these findings based on the research of Kang et al. (2018), it can be said that cognitive evaluation influences the choice of coping strategy and a person's perception of their ability is associated with the continuation of mental pathology and positive or negative evaluation alone leads to reducing or increasing mental disorder. It is not possible. This may be because this type of cognition creates a sense of coping in the individual and leads to the use of problem-oriented strategies, but the persistence of anxiety leads to the formation of negative beliefs and overestimation of environmental challenges and underestimation of coping skills and anxiety. It becomes. Primary assessment has two pillars: understanding vulnerability to risk and understanding the severity of risk, and means judging the importance of stressful reality, but secondary assessment means judging how to use coping resources to deal with stressful events. Another important point based on the research of Goodarzi, et al (2015) is that in the cognitive evaluation model, the initial evaluation refers to

the degree of stress in the face of a stressful situation and a situation may be evaluated as unrelated, positive or stressful. Events that are considered stressful fall into one of the constructive, challenging, threatening, and damaging / missing semantic groups. When stress is associated with physical and psychological mobility, stress is assessed as dependent on a challenging situation, and in assessing the challenge; the individual sees the experience of the risk factor as an opportunity for self-affirmation, anticipation of progress, and individual mastery and growth. If the situation is assessed as pleasant, exciting and motivating, and the person is hopeful, confident and eager to face the demands of the situation. On the other hand, when a person feels in danger and is waiting for an injury or loss to occur, a threat is observed. In addition, secondary evaluations are reflected through primary evaluations. Secondary assessments refer to an individual's perception of the resources available to deal with situational demands. In the secondary evaluation, the individual evaluates and uses multiple coping resources in order to overcome the complex situation in front of him or to improve the existing situation. As a result, it makes sense that secondary cognitive assessment, unlike primary cognitive assessment, increases problem-oriented style and decreases emotion-oriented and avoidant styles.

Also, the results showed that adaptive problem solving had a significant positive effect on problem-oriented coping style and had a significant negative effect on emotion-oriented and avoidance styles, and non-adaptive problem solving had a significant negative effect on problem-oriented coping style and had a significant positive effect on emotion-oriented style. It had no meaning. These findings were in line with the findings of Kakabaraee & Ezzati (2017), Jamali Gharakhanlou, et al (2016), Abdolmanafi, et al (2015), McCormick, et al (2014) and D'Zurilla & Chang, (1995). For example, Abdolmanafi, et al (2015) reported that adaptive problem solving had a significant positive relationship with problem-oriented coping and significantly negatively correlated with emotion-oriented coping and non-adaptive problem solving had a significant negative relationship with problem-oriented coping and emotionally-oriented coping. In another study, McCormick et al. (2014) reported that social problem solving had a significant positive relationship with problem-oriented coping strategies and a significant negative relationship with emotion-oriented and avoidance coping strategies. Explaining the lack of effect of non-adaptive problem solving on avoidance style, it can be said that using appropriate solutions to solve problems sometimes avoids new problems and sometimes changes the direction of using avoidance style to both problem-oriented and emotion-oriented styles, which can justify the lack of The effect of non-adaptive problem solving on avoidance style. Explaining other relationships between adaptive and non-adaptive problem solving with coping styles based on research by Fuente, et al (2019) it can be said that adaptive style with a positive orientation towards the problem and effective application of logical problem solving skills and non-adaptive style with a negative orientation towards the problem and avoidance. It refers to. The nature of the problem and the success or failure in solving it can affect people's motivation, and when people face a problem, solving or not solving it affects their self-confidence and ability and causes them to tend or avoid the next problems. So problem solving is very effective in reducing stress and creating a safe environment and can play an effective role in using appropriate coping strategies. In contrast, the inability to solve the problem reduces self-confidence, which can play an effective role in avoiding new problems. As a result, it makes sense that adaptive problem solving increases problem-oriented style and decreases emotion-oriented and avoidance styles, and non-adaptive problem solving reduces problem-oriented style and increases emotion-oriented style.

Important limitations of the present study include the use of self-report tools to collect data, the limitation of the research community to undergraduate students of the Islamic Azad University of Saveh and the lack of control over intervening variables such as gender, cultural, social, and economic and other differences. Therefore, using interviews to collect data, repeating this research on students of other levels and even other free Islamic and governmental, non-profit and Payam-e-Noor universities and comparing their results with the results of the present study can give planners and policy maker's appropriate policy. Another suggestion, considering the existence of gender differences in most psychological characteristics, is



to conduct this research separately by gender, so that if the results are different in the two sexes, it would provide appropriate solutions for each to improve coping styles. Since planning is necessary to improve coping styles with stressful factors in students, therefore, student content planners should include coping styles in identifying coping styles, factors affecting them, and ways to improve them, or university officials should workshops to improve coping styles. Provide stressors for students and use the results of this study and similar research for this purpose. Based on the results of the present study, to improve coping styles (increase problem-oriented style and decrease emotion-oriented and avoidance styles), programs can be designed and implemented to increase secondary cognitive evaluation and adaptive social problem solving and reduce primary cognitive evaluation and non-adaptive social problem solving.

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