



## THE MEDIATION ROLE OF PROBLEM SOLVING SKILLS ON THE RELATIONSHIP BETWEEN LEARNED RESOURCEFULNESS AND LONELINESS

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### Abstract:

The aim of the study was to examine the mediation role of problem solving skills on the relationship between learned resourcefulness and loneliness. Mediation model tested using data collected from 211 Turkish university students. Rosenbaum's Self-Control Schedule, Problem-solving Inventory, and UCLA Loneliness Scale were used to collect the data in this study. The effect of learned resourcefulness on loneliness and the mediation role of problem solving skills in this relationship were analyzed by hierarchical multiple linear regression analysis. The significance of the mediation of problem solving skills was examined by the Sobel test. Analyses revealed that learned resourcefulness predicted loneliness significantly, and that problem solving skills showed full mediation in this relationship. When the effects of problem solving skills were controlled, learned resourcefulness could not predict loneliness, significantly. Findings of the study emphasized that the use of only cognitive strategies could relatively be less effective to reduce loneliness. However, using cognitive coping strategies, such as learned resourcefulness, along with behavioral processes could help weaken loneliness. Therefore, in the psycho-educational programs or counseling sessions, it would be useful to implement interventions that enhance problem solving skills whose behavioral aspect outweighs, and cognitive skills such as learned resourcefulness. The significance and limitations of the findings were discussed.

**Keywords:** learned resourcefulness, loneliness, problem solving skills

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## 1. Introduction

Loneliness, which can be experienced in many periods of life (Berman & Sperling, 1991; Compas, Wagner, Slavin & Vannatta, 1986; Kaasa, 1998; Doğan, Çetin & Sungur, 2009; Qualter & Munn, 2002; Wei, Russell & Zakalik, 2005), is one of the disturbing psychological experiences. Weiss (1973) refers to loneliness as a feeling resulting from the inadequacy of social relationships that one has or lack of familiarity, sincerity, and emotional sharing in the social relationships of the individual. Similarly, Peplau and Perlman (1982) describe loneliness as a subjective and unpleasant psychological condition resulting in an inconsistency between the person's actual social relationships and the desired social relationship.

Factors such as social skill deficits (Deniz, Hamarta & Arı, 2005; Wei et al., 2005), insecure attachment (Akbağ & İmamoğlu, 2010; Bogaerts, Vanheule & Desmet, 2006; İlhan, 2012; Özdemir & İlhan, 2012), inadequate social support (Duyan et al., 2008; O'Donovan & Hugbes, 2007), shyness (Booth, Bartlett & Bohnsack, 1992; Dill & Enderson, 1999), social anxiety (Ryan & Peterson, 1987), personality traits (Cheng & Furnham, 2002; Eryılmaz & Atak, 2011; Todd, Soderlind & Weiss, 2000), false cognitive attributions (Peplau, Russell & Heim, 1979; Vitkus & Horowitz, 1987) and inadequate social problem solving skills (Raikes & Thompson, 2008) are shown among the main causes of loneliness in the literature.

Studies have shown that loneliness is associated with various cognitive factors (Hoglund & Collison, 1989). Learned resourcefulness, one of these cognitive factors, is a skill learned in past experiences that makes it possible to control internal events (such as emotions, pain and cognition) impeding an individual's goal-oriented behavior (Rosenbaum, 1983; Rosenbaum & Jaffe, 1983; Rosenbaum & Ben-Ari, 1985; Kennett & Keefer, 2006; Menshadi, Bar-Tal & Barnoy, 2013). That a person has a high level of learned resourcefulness indicates that s/he intensively uses coping and self-control skills and therefore is less affected by stressful situations and may experience less psychological problems (Dağ, 1992). Learned resourcefulness, which is regarded as a coping skill with this respect, can help prevent loneliness or act as a buffer to reduce the negative effects of loneliness (McWhirter, 1997; McWhirter, Basett-Alesch, Horibata & Gat, 2002).

Problem-solving is another coping skill that is effective in reducing the negative effects of loneliness. According to Heppner and Krauskopf (1987), problem-solving is a complex interaction of cognitive, affective, and behavioral processes aiming to adapt to internal or external demands or compelling situations. Individuals who cannot manage this process successfully/rationally and are ineffective in solving their problems face issues such as depression (McFarland, Primosch, Maxson & Stewart, 2017), suicide (Speckens & Hawton, 2005), exclusion and loneliness (Raikes & Thompson, 2008) more often. On the other hand, research shows that individuals with effective problem-solving skills experience less loneliness (Hirsch, Chang & Jeglic, 2012; Karataş, 2014), while those who learn these skills cope with loneliness more effectively (Lerner & Clum, 1990).

Although learned resourcefulness and problem-solving are emphasized as effective strategies in coping with loneliness in the related literature, according to Heppner and Krauskopf (1987), problem-solving is a dynamic and complex mechanism that emerges not only through the interaction of cognitive skills but also by means of affective and behavioral skills. For this reason, whether the problem-solving skill is a stronger predictor on loneliness than learned resourcefulness, which is a cognitive weighted strategy, and whether it has a mediation role in the relationship between learned resourcefulness and loneliness make up the main objective of this study.

## **2. Material and Methods**

### **2.1 Study Group**

This study was carried out with 211 university students. The data were collected from individuals who studied in different departments of a state university in the Black Sea Region and who agreed to participate in the study. 137 of the participants were female (64.93%) and 74 were male (35.07%). 55 of the participants were first-year students (26.07%), 41 second-year (19.43%), 68 third-year (32.23%), and 47 were fourth-year students (22.27%).

### **2.2 Data Collection**

#### **A. The Rosenbaum's Self-Control Schedule**

The scale developed by Rosenbaum (1980) consists of 36 5-point Likert-type items that measure the extent to which individuals who encounter stressful situations use cognitive strategies while controlling themselves. While the Cronbach alpha internal consistency coefficient of the scale was .82, the test-retest reliability varied between .77 and .86 for different time intervals. The Turkish adaptation study of the scale was conducted by Dağ (1991) with a sampling group of university students. While the three-week test-retest reliability was found to be .80 in this study, the Cronbach alpha internal consistency coefficient was determined .85. The factor analysis conducted on the Turkish sample showed that a 12-factor structure explaining 58.2% of the total variance (Dağ, 1991). High scores on the scale indicate the individual's high level of self-control by using cognitive skills. In this study, the Cronbach alpha internal consistency coefficient of the scale was found to be .82, and the scale total score was used in the analyses.

#### **B. The Problem-solving Inventory**

The scale developed by Heppner and Peterson (1982) to measure the perceptions of individuals on their problem-solving abilities is composed of 35 6-point Likert type items. The Cronbach alpha coefficient of the scale, whose original form consists of three subscales, was found to be .90 for the total score, whereas it ranged from .72 to .85 for the subscales (Heppner, 1988). Şahin, Şahin and Heppner (1993) with a sampling group of university students, carried out the Turkish adaptation study of the scale. The factor analysis revealed that the scale contained six factors explaining 50.1% of the total variance and that the Cronbach alpha internal consistency coefficient was .88 for the

total score of the scale, while it varied between .69 and .78 for the subscales. High scores obtained from the scale indicate that the individual perceives himself/herself as inadequate in terms of problem-solving skills. In this study, the Cronbach alpha internal consistency coefficient of the scale was determined to be .81, and the scale total score was used in the analyses.

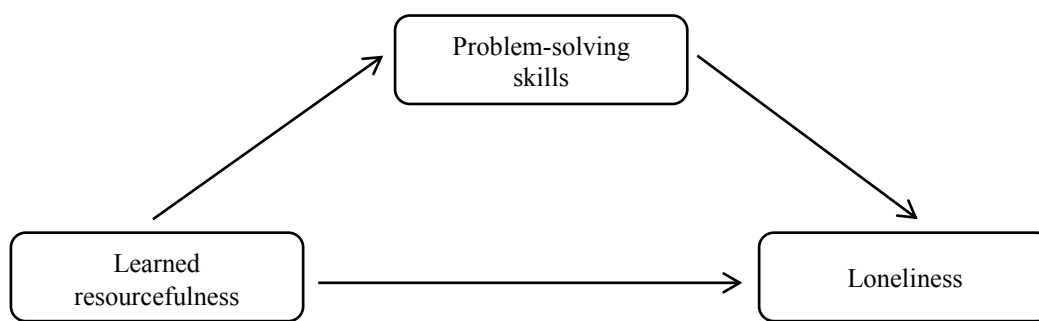
### **C. The UCLA Loneliness Scale**

The scale developed by Russell, Peplau, and Ferguson (1978) to measure the loneliness level of individuals consists of 20 4-point Likert type items. The Cronbach alpha internal consistency coefficient of the original form of the scale was found to be .94, while the two-month test-retest reliability was determined to be 0.73. The Turkish adaptation study conducted by Demir (1989) was carried out with a group of university students and adults. The Cronbach alpha internal consistency reliability coefficient was .96 and the five-week test-retest reliability was .94. High scores on the scale show that loneliness is experienced more intensely. In this study, Cronbach alpha internal consistency coefficient was found as .72.

## **2.3 Data Analysis**

The mediation role of problem-solving skills regarding the effect of learned resourcefulness on loneliness level was tested by hierarchical multiple linear regression analysis and Sobel test. To do this, first, the Pearson product moment correlation coefficients between variables were examined. In addition, the variables were analyzed in terms of normality, linearity, and multi-collinearity, and the data set was evaluated to find out whether it was appropriate for the regression analysis. The assumptions of normality and linearity were examined with histogram and scatterplot matrices. Correlations between variables and variance inflation factor [VIF], and tolerance values were used to reveal whether there was a multi-collinearity problem.

The mediation role of problem-solving skills was primarily examined by evaluating the four conditions suggested by Baron and Kenny (1986). According to Baron and Kenny (1986), the primary condition for mediation is the prediction of the dependent variable by the independent variable significantly. The second and third conditions are the prediction of mediating variable by the independent variable after the mediating variable is involved in the model and the prediction of the dependent variable by the mediating variable. The final condition for determining the mediation relationship is the occurrence of a decrease in the level of the relationship between the dependent and independent variables after the mediating variable is involved in the model or the relationship becoming insignificant. A decrease in the amount of the relationship between dependent and independent variables refers to the partial mediation, whereas the relationship becoming insignificant means full mediation. Sobel test was used to analyze the significance of the mediating role of problem-solving skills variable between the dependent and independent variables. The hypothesis model is given in Figure 1.



**Figure 1:** Hypothesis Model

### 3. Results

First of all, the mean and standard deviation values of variables and the Pearson product moment correlation coefficients between the variables were examined. As a result of the analysis, all of the variables were found to be significantly correlated with each other. The mean and standard deviation values of the variables and the correlation values between the variables are given in Table 1.

**Table 1:** Mean, Standard Deviation, and Correlation Values of the Variables

	Loneliness	Learned resourcefulness	Problem-solving
Loneliness	1		
Learned resourcefulness	-.18**	1	
Problem-solving	.22**	-.60**	1
Mean	38.91	121.51	85.53
Standard Deviation	6.41	15.11	15.96

\*\*p< .01

The histogram and scatterplot matrices of the variables were examined for normality and linearity from the assumptions of the regression analysis and no condition was observed to form a normality and linearity problem. The existence of multi-collinearity problem between variables was primarily investigated by examining the correlation coefficients. Kline (2011) notes that multi-collinearity problem may exist if the relationship between variables is .85 or over. When the correlation values given in Table 1 were examined, it was observed that the highest level of correlation was between learned resourcefulness and problem-solving with -.60. Other correlation values were below this level. Therefore, correlation values show that there was no multi-collinearity problem between variables. However, the variance inflation factor (VIF) and tolerance values of the variables were examined and the VIF and tolerance values were found to be 1.55 and .65, respectively. These values were also considered to indicate that no multi-collinearity problem existed in the dataset (Hair, Black, Babin & Anderson, 2010).

In the hierarchical multiple linear regression analysis, loneliness and learned resourcefulness were defined and included in the model as dependent and independent variables respectively. As a result of the analysis, it was found that learned resourcefulness predicted loneliness ( $\beta = -.18$ ;  $p < .01$ ) and explained 3% of the variance

related to loneliness [ $F_{(1-208)}= 7.26, p< .01$ ]. Then, problem-solving skills were added to the model. It was determined that problem-solving predicted loneliness ( $\beta = .17; p< .05$ ) and that along with learned resourcefulness, it explained 5% of the variance related to loneliness [ $F_{(2-207)}= 5.81, p< .01$ ]. The findings of the analysis are given in Table 2.

**Table 2:** The results of the regression analysis related to the prediction of loneliness

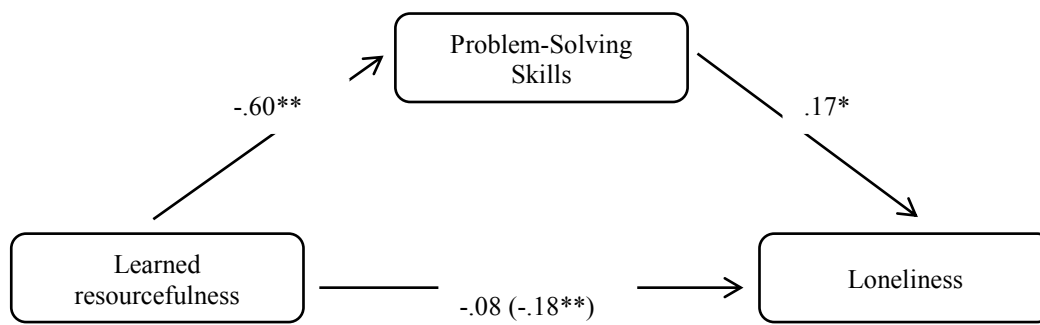
	Models	B	Standard Deviation B	$\beta$	T	R	R <sup>2</sup>	Standard Error R	F
Model 1	Constant	48.39	3.54		13.65**	.18	.03	6.32	7.26**
	Learned resourcefulness	-.08	.03	-.18	-2.69**				
Model 2	Constant	37.13	6.50		5.71**	.23	.05	6.27	5.81**
	Learned resourcefulness	-.03	.04	-.08	-.96				
	Problem-solving	.07	.03	.17	2.06*				

\* $p < .05$ , \*\* $p < .01$

The findings of the analysis presented in Table 2 revealed that the standardized Beta coefficient of learned resourcefulness decreased ( $\beta = -.08; p > .05$ ) with the inclusion of problem-solving in the model and that the relationship between learned resourcefulness and loneliness became insignificant. This finding, too, indicated the full mediation role of problem-solving skills in the relationship between learned resourcefulness and loneliness. The significance of mediation role of problem-solving skills was examined by Sobel test.

### 3.1 The Mediation Role of Problem-Solving Skills

The mediation role of problem-solving skills was examined by evaluating the four conditions proposed by Baron and Kenny (1986). The results of a number of regression analyses indicated that the conditions established by Baron and Kenny (1986) were all met. In the first analysis performed, learned resourcefulness predicted loneliness significantly ( $\beta = -.18; p < .01$ ). In the second analysis, learned resourcefulness significantly predicted problem-solving skills. In the final analysis, problem-solving skills were included in the model as a mediating variable. While problem-solving skills predicted loneliness significantly in this analysis, learned resourcefulness and loneliness relationship turned out to be insignificant. This finding suggested that problem-solving skills took up a full mediation role. The significance of the mediation was examined by Sobel test and it was found significant ( $Z = -3.15, sh = .02, p < .001$ ). Figure 2 shows the mediation role of problem-solving skills relating to the effect of learned resourcefulness on loneliness and Beta coefficients of relationships between variables.



**Figure 2:**The mediation role of problem-solving skills relating to the effect of learned resourcefulness on loneliness

**Note:** The value in parentheses shows the Beta value before the inclusion of the mediating variable in the model. \* $p < .05$ , \*\* $p < .01$

#### 4. Conclusion and Discussion

In this study, the mediation effect of problem-solving skills regarding learned resourcefulness and loneliness relationship was handled. In the first phase of the analyses conducted in the study, learned resourcefulness was found to negatively and significantly predict loneliness. In other words, it can be said that the loneliness decreased as the learned resourcefulness increased in university students. This result was in agreement with research findings (McWhirter, 1997; Zauszniewski, Bekhet & Suresky, 2009; Erözkan & Deniz, 2011) emphasizing that there was a negative relationship between learned resourcefulness and loneliness. Since learned resourcefulness is a cognitive skill, individuals whose this skill is high can benefit from clues on how to behave in a social setting by developing self-control behavior. This can make it easier for individuals to adapt to the social environment and be approved by others. It can also help individuals to manage the process well in uncertain situations, recognize group norms quickly, generate options which are reasonable for everyone in case of disagreements, hardly give up when facing difficulties and motivate themselves, and develop behaviors requiring social skills, such as starting a relationship. These skills can both prevent individuals from being alone and make it easier for them to cope with these situations when they are alone. However, it can also be considered that the cognitive skills brought by learned resourcefulness can help lonely people to deal with negative internal messages more effectively, and that this can partly affect the negative effects of social isolation (McWhirter, 1997).

The results of hierarchical multiple linear regression analysis and the mediation test revealed that problem-solving skills took up a mediation role between learned resourcefulness and loneliness. In other words, the effect of learned resourcefulness on loneliness was realized through problem-solving skills, and when problem-solving skills were controlled, the relationship between learned resourcefulness and loneliness became insignificant. While learned resourcefulness is largely a concept relating to cognitive processes, problem-solving emerges as a cognitive, emotional and behavioral process. When this basic difference between learned resourcefulness and problem-

solving skills was evaluated together with the findings obtained in the study, it can be said that the use of only cognitive strategies will relatively be less effective on loneliness. This finding suggests that levels of loneliness may fall when individuals use cognitive coping strategies, such as learned resourcefulness, along with behavioral processes. These findings also seem to be consistent with Rosembaum's (1983) views defining learned resourcefulness as self-help, self-control, and a *repertoire* for problem-solving. However, these skills in the repertoire of the individual are meaningful to the extent that the individual transforms them into behavioral outcomes. Studies have shown that individuals with high learned resourcefulness also need support for solving problems (Kennett, 1994; Kennett, Bleasdale, Pitt & Blom, 1990), and individuals with high and low learned resourcefulness obtain similar outcomes from various psycho-educational programs involving behavioral interventions (Kennett, 1994; Kennett & Ackerman, 1995). Also, studies showing that lonely individuals are prone to run away from problems instead of solving them (Hoglund & Collison, 1989) and that problem-solving skills are effective in loneliness level (Karataş, 2014; Yang & Clum, 1994) indicate the impact of problem-solving skills in reducing loneliness.

Findings obtained in this study can be explained in the context of Lazarus' stress model (Lazarus & Folkman, 1984). According to Lazarus' model, individuals use mainly two coping strategies when they encounter stressful situations (e.g. loneliness). The first of these is problem-focused coping, which means changing stressful situations (e.g. joining a social group). On the other hand, in cases where there is no appropriate method in individual's repertoire or these methods cannot be utilized for some reasons, emotion-based coping is introduced and the point of view taken against stressful situation is changed (e.g. admitting that loneliness is not a bad thing at all). When evaluated in this regard, it can be said that learned resourcefulness which has more cognitive contents a concept close to emotion-focused coping. On the other hand, problem-solving seems to be close to problem-focused coping. Although coping methods can change based on the nature of the stressful situation, there are several studies showing that problem-focused coping is generally an effective method (Amnie, 2018; Vitaliano, DeWolfe, Maiuro, Russo & Katon, 1990).

As a result, it can be said that learning cognitive strategies may not be adequate for coping with stressful situations such as loneliness and that it is important to transform learned strategies into behavior. For this reason, during psycho-educational and therapeutic interventions intended to reduce loneliness, it will be useful to have individuals acquire problem-solving skills whose behavioral aspect outweighs, as well as cognitive skills such as learned resourcefulness. Though the current study reached significant findings to contribute to the literature, these findings should be considered together with certain limitations. This study was conducted in a non-clinical group (i.e. university students). The study of the effects of learned resourcefulness and problem-solving skills on loneliness in individuals in different developmental periods may provide an insight into the effects of these skills on loneliness. Furthermore, since this study is based on a correlational analysis, it would not be appropriate to establish a true



cause-effect relationship between variables. For this reason, it may be practical to conduct experimental studies.

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