



## THE EFFECT OF MOTIVATIONAL INTERVIEW BASED ON TRANSTHEORETICAL MODEL STAGES IN DEPRESSED PATIENTS WITH HIGH SUICIDE RISK ON SUICIDAL BEHAVIOR AND STRESS COPING STYLES

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**Abstract:** In this study, it was aimed to evaluate the effect of motivational interview based on transtheoretical model stages performed on suicidal behavior and stress coping styles of depressed patients with high suicide risk. This experimental study was conducted with 72 patients with a diagnosis of depression. The data were collected with "Personal Information Form", "Beck Suicidal Ideation Scale (BSIS)", "Stress Coping Strategies Scale (SCSS)". A total of six motivational interview sessions were held once a month for the patients in experimental group. After the motivational interviews, a significant decrease was observed in BSIS scores of the experimental group compared to the first application. No change was detected in control group. A significant increase was found in all SCSS sub-dimension scores of experimental group. In control group, only the scores of optimistic approach and seeking social support were significant. This study has shown that motivational interviewing practices based on transtheoretical model stages can be used in patients with depression to reduce the risk of suicide and strengthen coping.

**Keywords:** Depression, Suicide, Stress coping styles, Motivational interview, Transtheoretical model

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### 1. Introduction

Depression is considered as a disease that is characterized by the physical and behavioral symptoms and causes a change in the mood and thoughts of the individual (Köroğlu, 2012). In the individuals with depression, the emotions such as low self-esteem, self-guilt and inability to solve problems are experienced intensely, and the suicidal thoughts are observed in two-thirds of the patients (Basha, 2016; Black and Andreasen, 2014). The poor social support, living alone, alcohol or substance abuse history, past suicide history and the expression of suicidal thoughts are the risk factors for suicide (Black and Andreasen, 2014).

According to the data of World Health Organisation (WHO), suicide ranked the 15<sup>th</sup> among all causes of death in 2012. In the 15-29 age group, suicide ranks the second among the causes of death (WHO, 2014). The most important risk factor for suicidal behavior is the presence of a psychiatric illness (Latalova et al., 2013). In the presence of major depressive disorder, the risk of suicidal ideation and attempt increases (Gensichen et al., 2010).

The suicide rates have been shown to decrease when the high-risk groups for suicide are followed and receive active treatment. Therefore, it is important to identify the

risk factors for suicide in depressive patients and to make appropriate interventions. It should not be forgotten that suicide is an action that can be prevented, and the studies should be conducted to prevent the suicidal behaviors due to its high incidence and high morbidity and mortality (Özgüven and Hoşgören Alıcı, 2016).

The Transtheoretic Model (TTM) provides a framework for the nurses to classify the individual's behavioral stages (Van Nes and Sawatzky, 2010). Motivational interviewing techniques focus on creating the desired behavior using the change stages specified in the transtheoretical change model (Rosengren, 2009). Motivational interview is an approach that aims to change the counselee's behavior by trying and learning (Scott, 2010; Sommers-Flanagan and Sommers-Flanagan, 2015).

With the help of supporting positive coping styles in depression by using motivational interview (MI) practices, and realizing and changing the negative coping styles, can increase treatment effectiveness and suicidal behaviors can be prevented. One of the reasons why motivational interview is an ideal intervention is that most suicidal thinkers are indecisive, having reasons for thinking about suicide as well as reasons to continue



living (Jobes and Mann, 1999).

It has been supported by studies that the suicidal behavior has many functions and is also related to the coping styles with stress. In a research, it was determined that the participants who repeatedly exhibit self-harming behavior used more emotion-oriented and avoidance-oriented coping strategies (Jabłkowska et al., 2010). In another study, functional coping attitudes of individuals who attempted suicide were less than those who did not, and it has been reported that they use dysfunctional attitudes more (Konkan et al., 2014). Supporting the positive coping styles in depressive patients with suicidal tendencies and changing the negative ones during motivational interviews can make the treatment of patients more effective. Motivational interview clearly has the potential to improve depression treatment outcomes, both in terms of addressing the depressive symptoms with the short interviews and integrating motivational interview with the other psychotherapies (Naar and Flynn, 2019). In this study, the effects of motivational interviewing based on the stages of the transtheoretic model on suicidal behavior and coping styles were evaluated in depressed patients with high suicide risk.

## 2. Material and Methods

The research is an experimental study. This study was conducted with the depression patients with high suicide risks who were admitted to a Training and Research Hospital's Psychiatry clinic/service and emergency service. The study was conducted between 20 March 2019 and 16 October 2020.

In the power analysis, the sample size confidence interval was  $\alpha=0.05$ , the power of the test  $(1-\beta)$  was 0.95, and the effect size was  $dz=1.0668553$ , while 24 experimental and 24 control patients were calculated (Özer et al., 2015). The groups involved in the study were determined by simple random sampling method. The study was completed with 72 patients, including 37 experiments and 35 controls. The criteria for inclusion in the study were being admitted to the psychiatry unit or emergency unit, being diagnosed with depression according to DSM V, having attempted suicide in the last month or to having a score of 6 and above on the Beck Scale for Suicidal Ideation, being 18 years of age or older, being literate, speaking Turkish, being able to giving the informed consent.

### 2.1. Data Collection

The data were collected using the "Personal Information Form", "Beck Scale for Suicidal Ideation", "Stress Coping Styles Scale".

#### 2.1.1. Personal information form (PIF)

This form consists of 11 questions including the strains of sociodemographic, illness, and suicidal ideation.

#### 2.1.2. Beck scale for suicidal ideation (BSSI)

This scale investigating the concept of suicidal ideation was developed in 1979 by Beck et al. Its Turkish validity and reliability were made by Dilbaz et al. (1995) and

Özçelik et al. (2015). The total score obtained from the scale is the lowest 0 and the highest 38, and a high score means that suicidal ideation is prominent and severe. A score of 6 or more obtained from the scale in adults is considered to be the cut-off value for the presence of clinically significant suicidal tendency (Sokero, 2006). Özçelik et al. (2015), the Cronbach alpha value was found to be 0.84. In this study, it was determined as 0.80.

#### 2.1.3. Stress coping styles scale (SCSS)

It was developed by Folkman and Lazarus (1980); It was adapted into Turkish by Şahin and Durak (1995). The scale has 5 factors: "self-confident style, optimistic style, the seeking for social support (active/effective ways of coping); helpless style and submissive style (passive/ineffective ways of coping). In the validity and reliability study, Cronbach's alpha coefficients were reported to be between 0.49-0.68 for the optimistic approach, 0.62-0.80 for the self-confident approach, 0.64-0.73 for the helpless approach, 0.47-0.72 for the submissive approach, and 0.45-0.47 for the social support seeking factor. Similar to the validity and reliability study in this study, Cronbach's alpha coefficients were determined to be 0.67 for the optimistic style, 0.56 for the self-confident style, 0.62 for the helpless style, 0.56 for the submissive style, and 0.54 for the seeking for social support.

### 2.2. Data Analysis

The percentages, arithmetic means and standard deviations, Chi-square test, t-test in independent groups, and the analysis of variance in repeated measures were used in the evaluation of the data. The significance level was accepted as  $P<0.05$  and  $P<0.001$ .

### 2.3. Research Process

First of all, as a researcher who will implement the motivational interviews, the Motivational interview course organized by an expert team was attended to increase the knowledge on the subject. In addition, "The Guide for Increasing Life Motivation in Depression and Suicide and Motivational Interviews for Coping with Stress" was prepared for the patients. During the motivational interview process for the prepared guide experiment group; it was distributed to control group for their benefit at the end of the study (after post-test). All of the patients included in study continued their recommended routine medical treatment while the study continued.

The patients constituting the sample of the study were directed to the researcher by the physician. PIF, BSSI and SCSS were applied by the researcher to the individuals who met the inclusion criteria and their contact information was obtained. Each individual is unique and has his own particular life environment, values, social supports, perceptions and perspectives. For these reasons, each interview and each suicide risk assessment is also personal. For this reason, motivational interviews were held once a month, face-to-face and individually.

During the study, the patients in experimental group were evaluated by filling in BSSI and SCSS at the first

meeting and the 3<sup>rd</sup> and 6<sup>th</sup> months in addition to the motivational interviews. In control group, only scales were applied at the first interview, at the 3<sup>rd</sup> and 6<sup>th</sup> months.

In terms of transtheoretic model stages, the goals in suicide prevention are as follows:

- Not Thinking: Developing awareness,
- Thinking: Providing confidence and motivating the individual,
- Preparation: Preparing the change plan,
- Taking Action: Getting rid of negative thoughts about life, starting to use regular medication and using effective coping methods with stress,

- Continuation: Finding solutions to prevent the individual from returning.

### 3. Results

The descriptive characteristics of the patients are shown in Table 1. More than half (68.1%) of the patients in this study were female. The majority of the patients (40.3%) who participated in our study were between the ages of 18-27, and this rate was found to be high in experimental group. It was found that the patients in control group had a primary school education, while experimental group had a high school or above education. Motivational interviews vary according to the stage of the individual.

**Table 1.** Comparison of patient descriptive characteristics

Characteristics		Group				Total		Test and P Values (homogeneity)
		Control		Experimental		n	%	
		n	%	n	%			
Gender	Female	26	74.3	23	62.2	49	68.1	X <sup>2</sup> =1.216 P=0.270
	Male	9	25.7	14	37.8	23	31.9	
Age	18-27	8	22.9	21	56.8	29	40.3	X <sup>2</sup> =8.614 P=0.035
	28-37	10	28.6	6	16.2	16	22.2	
	38-47	9	25.7	5	13.5	14	19.4	
	48-57	8	22.9	5	13.5	13	18.1	
Educational Status	Literate	5	14.3	2	5.4	7	9.7	X <sup>2</sup> =13.948 P=0.003
	Primary School	15	42.9	4	10.8	19	26.4	
	Middle School	8	22.9	12	32.4	20	27.8	
Marital Status	High School and Above	7	20.0	19	51.4	26	36.1	X <sup>2</sup> =9.677 P=0.002
	Married	26	74.3	14	37.8	40	55.6	
Occupational Status	Single/Widow	9	25.7	23	62.2	32	44.4	X <sup>2</sup> =1.312 P=0.252
	Employed	8	22.9	13	35.1	21	29.2	
Income Level	Unemployment	27	77.1	24	64.9	51	70.8	X <sup>2</sup> =4.118 P=0.128
	Equal to Expenses	16	45.7	12	32.4	28	38.9	
	Less than Expenses	18	51.4	19	51.4	37	51.4	
Illness Duration	More than Expenses	1	2.9	6	16.2	7	9.7	X <sup>2</sup> =8.661 P=0.003
	0 month-3 years	18	51.4	31	83.8	49	68.1	
The Presence of Previous Suicide Attempts	More Than 3 Years	17	48.6	6	16.2	23	31.9	X <sup>2</sup> =4.698 P=0.030
	Existent	19	54.3	29	78.4	48	66.7	
Suicide Reason	Nonexistent	16	45.7	8	21.6	24	33.3	X <sup>2</sup> =7.823 P=0.251
	No Suicide	16	45.7	8	21.6	24	33.3	
	Mental Illness	4	11.4	5	13.5	9	12.5	
	Chronic Illness	2	5.7	3	8.1	5	6.9	
	Rape/Harassment	1	2.9	2	5.4	3	4.2	
	Domestic/cross-sex problems	6	17.1	11	29.7	17	23.6	
	Economic distress	6	17.1	5	13.5	11	15.3	
Suicide Type	Loneliness	-	0	3	8.1	3	4.2	X <sup>2</sup> =13.404 P=0.001
	No Suicide	16	45.7	8	21.6	24	33.3	
	Chemical Substance	15	42.9	10	27.0	25	34.7	
The Current Thought of Suicide	Other (Sharp Object, Jumping from upland, hanging)	4	11.4	19	51.4	23	31.9	X <sup>2</sup> =4.303 P=0.038
	Existent	23	65.7	32	86.5	55	76.4	
Total	Nonexistent	12	34.3	5	13.5	17	23.6	
		35	100.0	37	100.0	72	100.0	

Figure 1 shows the distribution of the experimental group in the stages of change in the first and last interview. The interviews were conducted with patients

diagnosed with depression who had suicidal thoughts or attempts at no contemplation, contemplation, and preparation stages. It was observed that the patients who

were in the stages of no contemplation, contemplation and preparation stages in the first interview took action for change in the last interview. In intergroup comparison of experimental and control groups, it was found that the BSSI averages of the

patients in experimental group were higher than control group in pre-test, and the BSSI averages of the patients in experimental group were significantly lower in post-test compared to control group ( $P<0.05$ ) (Table 2).

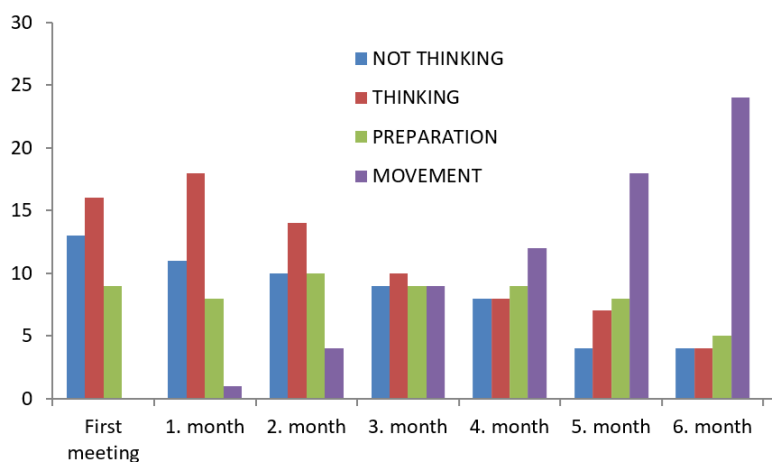


Figure 1. The stages of change of the experimental group in all interviews.

Table 2. The comparison of the experimental and control groups' beck scale for suicide ideation mean scores within and between the groups

BSSI				Between The Groups	Within The Groups Experimental	Within The Groups Control
	Group	n	X±SD	Test and p Values	Test and p Values	Test and p Values
Pre-test	Control	35	18.22±5.09	t=-4.162		
	Experimental	37	23.91±6.39	P=0.001		
Mid-test	Control	35	17.54±4.76	t=0.734	F=188.73	F=2.415
	Experimental	37	16.64±5.52	P=0.465	P=0.001	P=0.120
Post-test	Control	35	17.45±4.74	t=3.703		
	Experimental	37	13.51±4.29	P=0.001		

BSSI= beck scale for suicide ideation.

In the comparison of experimental group's BSSI mean scores within the group, it was found that there was a significant decrease in mid-test and post-test compared to pre-test ( $P<0.001$ ). Considering the comparisons of control group within the group; according to pre-test, it was observed that there was a decrease in the mean scores of mid-test and post-test BSSI mean scores, but as a result of the statistical analysis, this decrease was not found to be significant in mid-test and post-test compared to pre-test ( $P>0.05$ ). (Table 2).

While there was no significant difference between the groups in pre-test in terms of SCSS mean scores ( $P>0.05$ ), it was determined that there was a significant difference between experimental group and control group in mid-test and post-test ( $P<0.05$ ). While the mean scores of the "Self-Confident Style", "Optimistic Style" and "Seeking for Social Support", which are the sub-dimensions of the scale, increased significantly in post-test compared to pre-test, the "Helpless Style" and "Submissive Style" scores decreased (Table 3).

The Self-Confident Style, Optimistic Style, Seeking for

Social Support mean scores in experimental group increased significantly in post-test compared to pre-test ( $P<0.001$ ). In the experimental group, the Helpless style and Submissive Style mean scores decreased significantly in post-test ( $P<0.001$ ). In the control group, Self-Confident Style, Optimistic Style and Seeking for Social Support dimensions were significantly increased ( $P<0.05$ ) (Table 4).

#### 4. Discussion

People who show psychological symptoms and use non-authoritative coping styles have a higher risk of suicide (Avci et al., 2016). 5% of those who attempted suicide are sure that they want to die, 30% of them are ambivalent in this regard (Özgüven and Sönmez, 2017). At this point, it is known that the motivational interviews are effective in resolving ambivalence and creating change. Motivational interview directs the patient's motivation to change in the direction of life in order to make it worth continuing (Britton et al., 2008).

**Table 3.** The comparison of the experimental and control groups' stress coping styles scale (SCSS) mean scores between the groups

		SCSS				
Group		SCS	HS	SS	OS	SSS
		X±SD	X±SD	X±SD	X±SD	X±SD
Pre-test	Control	7.62±2.73	17.11±2.50	10.74±2.03	5.94±2.08	6.62±1.86
	Experimental	7.62±2.81	17.40±3.35	11.75±1.72	5.51±1.77	5.94±2.28
Test Value and Significance		t=.011	t=-.415	t=-2.287	t=.943	t=1.385
		P=0.992	P=0.679	P=0.025	P=0.349	P=0.171
Mid-test	Control	8.37±2.47	17.17±3.13	11.17±2.12	6.28±1.77	7.40±1.61
	Experimental	11.13±1.5	13.43±2.17	9.13±1.79	8.05±1.56	8.70±1.57
Test Value and Significance		t=-5.680	t=5.840	t=4.403	t=-4.493	t=-3.463
		P=0.001	P=0.001	P=0.001	P=0.001	P=0.001
Post-test	Control	8.77±2.21	17.25±2.45	11.57±2.06	6.97±1.61	8.20±1.51
	Experimental	13.32±2.4	9.94±2.04	7.56±1.67	10.40±1.7	9.24±1.34
Test Value and Significance		t=-8.241	t=13.777	t=-8.662	t=-8.662	t=-3.102
		P=0.001	P=0.001	P=0.001	P=0.001	P=0.003

SCSS= stress coping styles scale, SCS= self-confident style, OS= optimistic style, SSS= the seeking for social support, HS= helpless style, SS= submissive style.

**Table 4.** Within-group comparison of the experimental and control groups' stress coping styles scale's sub-dimensions' mean scores

		SCSS				
		SCS	HS	SS	OS	SSS
		X±SD	X±SD	X±SD	X±SD	X±SD
Experimental Group	Pre-test	7.62±2.81	17.40±3.35	11.75±1.72	5.51±1.77	5.94±2.28
	Mid-test	11.13±1.51	13.43±2.17	9.13±1.79	8.05±1.56	8.70±1.57
	Post-test	13.32±2.46	9.94±2.04	7.56±1.67	10.40±1.73	9.24±1.34
	Test and Significance	F=62.012	F=104.108	F=85.356	F=85.243	F=53.436
		P=0.001	P=0.001	P=0.001	P=0.001	P=0.001
Control Group	Pre-test	7.62±2.73	17.11±2.50	10.74±2.03	5.94±2.08	6.62±1.86
	Mid-test	8.37±2.47	17.17±3.13	11.17±2.12	6.28±1.77	7.40±1.61
	Post-test	8.77±2.21	17.25±2.45	11.57±2.06	6.97±1.61	8.20±1.51
	Test and Significance	F=4.033	F=.047	F=2.492	F=7.034	F=11.776
		P=0.034	P=0.955	P=0.090	P=0.002	P=0.001

SCSS= stress coping styles scale.

In the international literature, it is seen that there are seriously few studies on interventions involving motivational approaches that can be used to reduce the risk of suicide in high-risk suicide patients. In addition, it has been emphasized in the literature that there is a need for studies comparing the group in which a treatment including motivational interview for depression and suicide was given and a group that was given a treatment without motivational interview (Naar and Flynn, 2019). This study, the BSSI mean scores of experimental group before the motivational interviews were higher than the mid-test and post-test. The fact that the mean scores of the scale applied in 3<sup>rd</sup> and 6<sup>th</sup> months were found to be significantly low, indicates that the motivational interview method applied to patients with depression with high suicide risk was successful.

In a study conducted with veterans hospitalized with suicidal thoughts, it was found that the motivational interview practices caused a great decrease in the severity of the suicidal thoughts. It is also recommended

to use the motivational interviews in the patients with suicidal ideation in addition to the other treatments, rather than as an independent treatment (Britton et al., 2012). The findings obtained in this study have showed that the motivational interviews, which were provided in addition to the treatment of the patients, were a useful practice.

In the current study, when the stress coping styles of both the experimental and control groups were examined before the motivational interview, it was found that while the patients used less active/effective coping styles (self-confident style, optimistic style, seeking for social support) for solving the problems, they used more passive/ineffective coping styles (helpless style, submissive style), which are known for the emotions. The results of one study has showed that the active coping styles are associated with lower depression, and thus, they lessen the suicide risks (Chou et al., 2017). The current study has showed that the short interventions such as motivational interviews, which include protective



and preventive approaches, should be applied as well as the treatment of individuals who attempted suicide.

In the comparison of the mean SCSS scores of experimental and control groups before and after the motivational interviews, while there was no significant difference between the groups in terms of the SCSS in pre-test, it was determined that there was a significant difference in post-test. These results were an indication that the motivational interview interventions applied to the experimental group in the 6-months period were effective.

The previous studies have shown that the negative coping styles are associated with the suicidal behaviors (Sun and Zhang, 2015; Zhang et al., 2012). The current study has found that the patients benefited from motivational interview positively in coping with stress, and they used effective coping styles more, and emotion-oriented passive/ineffective styles less.

Statistically significant increases were observed in the dimensions of optimistic style, self-confident style and seeking for social support in control group. The measures aimed at increasing the social support and finding a meaning for life in the risk groups have been found to be protective (Aydemir, 2017). It has been emphasized that having close and supportive interpersonal relationships is a protective factor against the suicidal behaviors, and the interpersonal relationships with distressing, unpleasant and isolated characteristics have a significant connection with the suicide attempts (Arsel and Batgün, 2011). The presence of ineffective coping styles may cause individuals to think about committing suicide. One study reported that seeking for support directly predicts a decrease in the suicidal thoughts, even if it has no effect on the depressive symptoms (Khurana and Romer, 2012).

## 5. Conclusion

In present study, it was determined that the motivational interview practices are an effective method in reducing suicidal ideation/behavior. As a result, it was observed that providing effective coping strategies with motivational interviews to reduce the stress contributed to the management of the illness in the depressive patients with suicidal ideation.

The psychiatric nurses, who are always together during the treatment of patients, should be able to apply scientifically proven short interventions that can be used with high-risk patients. For these purposes, motivational interview training for the psychiatric nurses, in-service training about motivational interviews for all healthcare professionals, the integration of TTM, MI and other behavior change models into the curriculum of undergraduate education, the inclusion of motivational interviews based on transtheoretic model's stages in the therapeutic process in order to prevent the suicidal behaviors of depressed patients with high suicidal risk and to strengthen these patients' effective coping styles with stress, spreading motivational interview studies

over a longer period of time, and conducting studies with a larger sample group, the execution of the studies that use motivational interview practices with the sample groups which have different diagnoses are recommended.

## Limitations

Since these research data were collected only from a single center, they cannot be generalized to the whole population. Findings based on the data obtained on the mentioned dates are limited to this time period. One of the limitations of the study can be listed as the fact that it was studied with a small sample group, and another is that some patients could not be included in the study due to the negative impact of the physical health of the patients, especially the level of consciousness, after the suicide attempt.

## Author Contributions

The percentage of the author(s) contributions is present below. All authors reviewed and approved final version of the manuscript.

	A.B.	D.T.
C	40	60
D	40	60
S	50	50
DCP	100	
DAI	40	60
L	50	50
W	100	
CR	30	70
SR	90	10
PM	50	50

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

## Conflict of Interest

The authors declared that there is no conflict of interest.

## Ethical Approval/Informed Consent

Ethical approval was obtained from the Clinical Research Ethics Committee before the study (approval date: March 20, 2019, protocol code: 2019/134). In addition, written permission was obtained from the institution where the research was conducted. The individuals signed an "Informed Consent Form" about the study.

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