

Studying the Effects of Levels of Perceived Social Support and Problem Solving Skills on Suicidal Tendencies among Patients with Suicidal Symptoms of Suicide Attempters in Tehran Emergency Center

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This study aimed at examining the varying features of crisis cases with suicide attempts as compared to those crisis cases with no suicide history and also with normal controls. This comparison was established not only on the basis of depression and anxiety symptoms but also on problem solving skills and perceived social support. The sample of the study was composed of 227 participants; 83 of whom were crisis patients who have attempted suicide (suicidal group), 64 were patients suffering from acute crises but had no suicide history (Crisis group), and 70 having no psychological problems of any kind (normal control group). Based on whether age was a control variable, as expected, suicidal cases had significantly more depressive symptoms than the other two groups. Furthermore, non-suicidal crisis cases reported more depressive symptoms than the normal controls. Regarding anxiety symptoms and perceived social support there were no significant differences between suicidal and non-suicidal crisis cases. However, both crisis groups suffered more from anxiety symptoms and perceived less social support as compared to the normal controls. Concerning the problem solving skills, crisis cases with no suicidal history did not significantly differ from the normal control group. Whereas, both of these groups as compared to the crisis cases with suicidal history, revealed better problem solving skills. Finally, according to MANOVA and regression analyses carried out for the suicidal cases, high anxiety symptoms, low level of perceived social support from family, and “impulsive problem solving style” emerged as important risk factors for suicide. These findings were discussed in relation to the relevant literature.

Keyword: suicide attempts, problem solving skill, perceived social support

Problem solving is defined as generating several alternative solutions for the exposed problem, which is followed by selecting the most

appropriate solution out of them and applying it (D’Zurilla & Goldfried, 2011). Researchers have revealed an important association between problem solving skills and depression symptoms, regardless of the level of exposed stress (Nezu & Ronan, 2008; Nezu, 2006; Siegel & Platt 2006).

As long as one can successfully cope with a problem situation he/she is not expected to experience a crisis; on the other hand, if one cannot cope with the problem situation by means of his/her usual coping skills a crisis situation may emerge. Crisis is not considered as a pathological event, all people experience crises at different periods of their lives (Cooper, 2009). As long as the person who is experiencing a crisis receives appropriate social support or professional help, he/she can cope with the problem, and this accomplishment may even lead to acquisition of some new skills that may successfully be used in the future (Aquilera & Messic, 2010).

In a crisis situation, people either cannot carry on their usual coping skills due to some situational factors or their attempts come out to be insufficient.

In most cases the people who attempt suicide are reported to be in a crisis situation, and usually beneath their attempts lies either seeking help or generating a communication opportunity, rather than a wish to die (France, 2010). On the other hand, most of the people who are in a crisis situation do not attempt suicide, while crisis patients who attempt suicide are mostly those who feel hopeless and out of control. Crisis patients also feel themselves socially withdrawn and helpless (Bonner & Rich, 2012; Folkman & Lazarus, 2012). Moreover, suicidal patients are reported to have lower problem solving skills than the other depressive patients (Schotte ve Clum, 2011).

Besides problem solving skills, social support also has important influences on psychological health (Cohen & Wills, 2005; Coyne & Downey, 2011; Kessler, Price, & Wortman, 2011). Since suicidal and crisis patients usually feel themselves alone and helpless, social support is quite crucial for these individuals. Researchers also proposed that there is

a link between social support and coping skills (Coyne & Downey, 2011; Kessler et al., 2011).

The aim of this study is to reveal the varying features of crisis cases that have suicidal attempts as compared to those crisis cases with no suicidal history and also with normal controls. This comparison will be established not only on the bases of depression and anxiety symptoms but also on problem solving skills and perceived social support. Moreover, suicidal risk factors will be examined for subjects who have suicidal history.

Method

The survey method in this research is using Beck standardized questionnaires. The target population in this study is all of the patients with the risk of suicidal symptoms (depression and anxiety).

Population

According to the relevant statistics the number of people who visited ER in 2012 was about 1000.

Methods of Sampling

Two hundred and twenty-seven participants were chosen by using Cochran's C test and were divided into three groups. Of this sample 83 were crisis patients who have attempted suicide within the last week (suicidal group), 64 were patients suffering from acute crises but had no suicide history (crisis group), and 70 participants were those having no psychological problem (the normal control group). The suicidal group had a mean age of 22.00 (*S.D.* = 5.31), 25.3 % males, and 74.7 % females. The mean age for the crisis group was 30.16 (*S.D.* = 10.56), 32.8 % males, and 67.2 % females. Finally for the control group the mean age was 23.11 (*S.D.* = 7.57), 31.4 % males and 68.6 % females.

Assessment Instruments

Problem Solving Inventory (PSI; Heppner & Petersen, 2012). Adapted for Iranians by Heppner, 2012).

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 2008). Adapted for Iranians by Biglu & Bagloo, 2012). The internal consistency of the scale and its subscales ranged from .92 to .77.

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 2001; Beck, Rush, Shaw, & Emery, 2009). Adapted for Iranians by Tegin, 2010; Hisli, 2008; 2009). It consists of 21 questions. The split-half reliability coefficient was .78 in the standardization of the inventory for Iranians. For the depressed patients it was .61.

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 2008). Adapted for Iranians by Biglu, and Erkmen (2012). This instrument consists of 21 questions. The Cronbach's alpha reliability coefficient of the test is 0.87.

Index of the Risk of Suicide. In addition to these measures, by using three items a Suicidal Risk Index was generated. These items were, Preparedness as rated on a three point Likert type scale from 1 (no preparation at all) to 3 (important preparations), certainty of the suicidal decision as measured by the time spend to take this decision on a three-point Likert type scale from 1 (attempted suicide immediately after having thought about it) to 3 (having thought about attempting suicide for at least 3 hours before actually engaging in the suicidal behavior), and finally the third item asked the number of total suicidal attempts. These three items constituted the Suicidal Risk Index with an internal consistency of .70. At the same time this index was utilized to establish the risk factors of the participants who had previous suicide attempts (i.e., suicidal group). Its correlation with the BDI index was .25 ($p < .05$), whereas, the correlation between BAI was .35 ($p < .00$)

Results

Participants of this study consist of three groups including "suicide attempt cases", "crisis cases" and "control group". Analyses of variance were conducted in order to determine symptoms of depression and anxiety of these three groups, also their problem solving attitudes; and to determine whether there are differences between social support perceived by the participants through 6 subscales of this measurement and through 3 subscales of the study. During all conducted analyses of variance, the age variable was controlled.

Differences between Suicide, Crisis and Control Groups in Terms of Symptoms of Depression

For the purpose of observing differences among suicide, crisis and control groups in terms of symptoms of depression, analysis of covariance (ANCOVA) was conducted by taking age as covariate through BDI measurements (Beck Depression Inventory), and group basic effect was found significant, $F(2, 213) = 37.02, p < .001$. For the purpose of determining which group differences were significant between groups, paired comparisons were applied among averages thanks to LSD. As per these comparisons, while suicide attempt cases show .05 alpha level more depressive symptoms than crisis cases, both groups complained about depressive symptoms .001 alpha level more than control group (see Table 1).

Differences between Suicide, Crisis and Control Groups in Terms of Symptoms of Anxiety

For the purpose of observing difference among suicide, crisis and control groups in terms of symptoms of anxiety, analysis of covariance (ANCOVA) was conducted by taking age as covariate through BAI measurements (Beck Anxiety Inventory), and the group basic effect was found significant, $F(2, 213) = 25.44, p < .001$. As per inter-average paired comparisons conducted via LSD, while there were not significant amount of differences between suicide attempt cases and crisis cases, both groups

complained about symptoms of anxiety .001 alpha levels more than control group.

Differences between Suicide, Crisis and Control Groups in Terms of Attitudes of Problem Solving

For the purpose of observing differences among suicide, crisis and control groups in terms of attitudes of problem solving, 3 (Group) x 6 (PSI subscales) the latest variable repetition-scaled ANCOVA was conducted by taking the common variable for PSI measurements (Problem Solving Inventory). For 6 types of problem solving approach in PSI-subscales, average values were attained by means of dividing sum of each approach type by item count under that factor. As a result of this analysis, the group basic effect ($F [2,213] = 13.17, p < .001$) was found significant. For this basic effect as per inter-average paired comparisons conducted via LSD method, as can be seen in Table 1, while any significant differences were not found between crisis cases and the control group regarding group basic effect; it was observed that both groups had more problem-solving abilities than suicide cases group (for crisis cases – suicide cases comparison $p < .005$; for control group – suicide cases $p < .001$).

Table 1
Beck Depression Inventory, Beck Anxiety Inventory, Problem Solving Inventory, Multidimensional Scale of Perceived Social Support

	Cases of Suicide	Cases of the Crisis	Control Group
BDI	23,482 _a (1.049)	19.749 _b (1.245)	10.658 _c (1.123)
BAI	23.453 _a (1.373)	22.634 _a (1.630)	10.383 _b (1.471)
PSI	16.787 _a (0.379)	14.932 _b (.450)	13.885 _b (.406)
MSPSS	19.759 _a (.501)	20.966 _a (.595)	22.755 _b (.537)

Not. BDI, Beck Depression Inventory. BAI, Beck Anxiety Inventory. PSI, personal problem-solving Inventory. MSPSS, Multidimensional Scale of Perceived Social Support

Differences between Suicide, Crisis and Control Groups in Terms of Perceived Social Support

For the purpose of observing differences among suicide, crisis and control groups in terms of perceived social support, 3 (Group) x 3 (PSI subscales) the latest variable repetition-scaled ANCOVA was conducted by taking common variable over 3-subcales obtained from MSPSS (Multidimensional Scale of Perceived Social Support). As a result of this analysis, the group basic effect ($F [2,213] = 8.60, p < .001$) and Group x MSPSS subscales interaction were found significant. For this significant effect as per inter-average paired comparisons conducted via LSD method, results are as follows: As can be seen in Table 1, while there was no significant amount of difference between suicide attempt cases and crisis cases; perceived social support for both groups were at lower levels than it was for the control group (for crisis cases – control group comparison $p < .005$; for control group–suicide cases $p < .001$). During paired comparisons conducted for Group x MSPSS subscales interactions, first group differences observed in social support perceived from each source and then differences in sources of perceived social support for each group were discussed (average and standard error values are given in (Table 2). By bilateral comparison, the same lower-case character of each row and each column share the same sub-number character averages significantly different from each other.

Table 2
MSPSS-(Multidimensional Scale of Perceived Social Support)
Average (Standard deviation) Values and Inter-Average Mutual
Comparisons for Subscales x Group Interaction

Perceived Social of the source	Cases of Suicide	Kris Cases	Control Group
Family	17.825 _{a1} (.621)	20.801 _{b12} (.738)	23.089 _{c12} (.666)
Friend	20.378 _{a2} (.624)	20.280 _{a1} (.741)	22.039 _{a1} (.668)
Significant other	21.073 _{a2} (.566)	21.819 _{ab2} (.673)	23.136 _{b2} (.607)

Note: All values are set according to the age, the values

According to group comparisons conducted for various social support sources, while social support from friends did not vary significantly for all of three groups, social support from family in suicide attempt group was lower than both crisis group ($p < .005$) and control group ($p < .001$). Additionally, social support from family in crisis cases was lower than control group ($p < .05$). While suicide group received less support from other important individuals ($p < .01$); support perceived by crisis group from this source varied from suicide cases and control group.

According to paired comparisons among sources of each group's perceived social support, while perceived support from family did not change in both control group and crisis cases group; support from friends was lower than support from other important individuals (for control group $p < .01$, for crisis cases group $p < .005$). However, as for suicide cases group, while perceived support from other important individuals and friends did not vary significantly; perceived support from family was lower than perceived support from both friends and other important individuals (respectively $p < .005$ and $.001$).

Determining Risk Factors for Suicide Cases

Following the variance analyses towards observing group differences conducted for each scale and subscales, regression analysis was applied for the purpose of determining risk factors for suicide cases. In this analysis, suicide risk index constituted for suicide cases was included as a dependent variable. In the regression equation, age variable was inserted through "enter" method for the purpose of controlling this variable at first step; as a second step BDI, BAI, MSPSS total and 3 subscales values were inserted and finally in the third step, PSI total and 6 subscales values were entered by means of stepwise regression method. In this way, after checking variables and age with the power of significant regression over suicide risk index, importance of problem-solving approaches was examined. Furthermore, it will be possible to emphasize the importance of significant predictors to be obtained during final step in terms of determining suicide risk. As can be seen in Table 3 prepared as a result of regression analysis carried out in such a way mentioned above, in the final step, level of anxiety symptoms ($pr = .38$, $t [80] = 3.66$, $p < .001$), perceived social support from family ($pr = .25$, $t [79] = 2.30$, $p < .05$) and "impatient approach" one of problem solving approaches ($pr = .22$, $t [78] = 2.01$, $p < .05$) were regressed the suicide index assessment in a statistically significant way.

Table 3
Predictors of Suicide Risk Index for Suicides

Login Equation Entered Order & Variable	STEP F the Difference Value	S	STEP F the Difference Value	Partial Correlation (pr)	Model R ²
1. ages	2.77	2.81	1.85	.20	.03
2.BAI	11.73**	1.80	3.66**	.38	.16
3.Family-PSS	4.00*	1.79	2.30*	.25	.20
4.PsI-hasty	4.04*	1.78	2.01*	.22	.24

Not: BDI, Beck Deprecation Inventory. PSS, Perceived Social Support. PSI-Hasty, personal problem-solving Inventory.

Discussion and Conclusion

In this study, we examined whether there were any differences between suicide attempt cases, crisis cases and normal in terms of symptoms of depression and anxiety, also in terms of problem solving capabilities and levels of perceived social support. Risk factors were researched for cases of suicide attempts. Findings of the study indicate the existence of significant differences between suicide attempt cases, crisis cases and normal controls. For evaluation of these results, first of all, problem-solving abilities and perceived social support levels will be examined; later on, differences observed with regard to depression and anxiety symptoms shall be discussed. In terms of problem solving abilities, while participants of suicide attempt group showed significant differences compared to participants of crisis and control groups, participants of crisis and control groups displayed similar characteristics to each other. Suicide attempt group had lower problem- solving abilities as different from crisis cases that did not show any suicide behaviors. This finding is compatible with the other studies informing that suicide attempted individuals have solid thinking habits and are limited individuals in terms of cognitive and problem-solving abilities (Bonner and Rich, 2012; McLeavey *et al.*, 2011; Orbach *et al.*, 2007; Rich and Bonner, 2012; Schotte and Clum, 2011).

With reference to this finding, lack of problem solving repertory in the face of problems, stress levels of an individual tend to increase. Consequently, an individual feeling overload, exhausted, ineffective and incompetent behaves highly maladjusted and disorganized different from other crisis cases and may consider the suicide as the only solution method (Edwards and Holden, 2012; Greenstone and Leviton, 2002). In the study, it was determined that suicide attempt and crisis groups were similar in terms of total perceived social support; however, social support level of both groups was detected as lower than perceived normal controls. It is clear that both groups of suicide attempts and crisis groups are in need of social support for the solution of problems faced individually and this finding is in line with the literature. Many studies, emphasizing the

importance of social interaction and the quality of this interaction, indicate that mental and physical health are associated with relations experienced with family, friends and other important individuals; and that disintegration and inadequacy in these relations are a risk factor for suicide behavior (Bjarnason 2012; Brugha, 2010; Eskin 2012). It can be observed in the study that social support perceived from various sources varies especially in terms of suicide attempt cases. Likewise, suicide attempt group perceived less support compared to both crisis group and normal control group. Again in parallel with this finding, support from family in terms of suicide attempts was lower than perceived support both from friends and other important individuals. However, support from family for crisis cases and normal control group differed from perceived support from friend and other important individuals. Impossibility to receive support from family as a first step of social support increases the risk of suicide. It may be expected that feeling of loneliness may reinforce feelings of hopelessness and despair and make usage of problem-solving abilities difficult. As is known from related literature, living in solitary and problems in interpersonal relations are important risk factors in terms of suicide behavior. Furthermore, it is clear that family environment is the first place where problem-solving abilities are obtained and where first learning takes place among family members. When perceived social support inside the family is low, an individual's problem-solving abilities may not advance correctly. Another finding of the research is the result that all of three groups differ in terms of symptoms of depression. Not surprisingly, the group with the most symptoms of depression is the suicide attempt group. This group is followed by crisis group and depression symptoms of both groups are significantly more than the normal controls. Much of the earlier studies related to problem-solving abilities were towards depression patients and within these studies, among individuals with higher levels of depression, problem-solving abilities were found lower than normal controls (Greenstone and Leviton, 2002). As for this study, although depression symptoms of crisis cases were

higher than normal controls, their problem solving abilities were found indifferent from those of normal controls. A psychiatric crisis is known to occur in cases where an individual is insufficient in solving a problem. Notwithstanding that problem solving abilities of this group is not different from normal controls, it is suggested that the crisis case does not refer to a psychopathology and is intrinsic to the hard period experienced (Hafen and Peterson, 2012). These cases, despite having adequate potential for problem solving, experience difficulty peculiar to that period. As mentioned by related literature on crisis, in cases of crisis, individuals response to the problem that they face, in accordance with their environmental conditions and characteristics of life events (France, 2010; Greenstone and Leviton, 2002; Hafen and Peterson, 2012). For instance, individuals may react differently against similar event in distinct periods. Consequently, the primary concern here is not lack of ability regarding an individual's coping with problems, but it is special to the current conditions experienced during the crisis.

Considering the symptoms of anxiety, it can be seen that crisis group and suicide attempt group are similar in results and anxiety levels of both groups are higher than the control group. It is an expected case that anxiety level is found higher during the first days after the suicide attempt and in this group, existence of symptoms of depression and anxiety have been reported in several studies (Greenstone and Leviton, 2002).

In cases of crisis, also, individuals consult to a clinic in a state with a new problem where they are devastated emotionally. This emotional upside-down state and current indefiniteness cause more symptoms of anxiety than symptoms of depression. As is known, sufficient level of anxiety is an assistant for an individual in coping with a faced problem effectively and in becoming more productive. However, high level of anxiety loses its functionality and plays an important role as a preventive tool through decreasing productivity. In this case, an individual may experience despair through perceiving himself/herself as incapable of solving problems and even become unsuccessful in perceiving and

utilizing social support in the environment. In addition to this, psychological pain resulted from higher level of anxiety may contribute to the fact that individual considers suicide behavior as an escape route from this pain.

Developed for the purpose of determining risk factors in cases with a suicide attempt, suicide index contains the number of suicide attempts. Among variables regressing this index, individual's level of anxiety, level of perceived social support from family and problem-solving approaches are prominent risk factors in which "impatient approach" is frequently used. The importance of anxiety level and perceived social support from family are discussed in detail previously. On the other hand, the fact that among problem-solving approaches, impatient approach was determined as a risk factor in terms of suicide attempt is an important finding to be discussed further. As is known, in cases of crisis, individuals tend to feel urgency for the solution of the problem (Greenstone and Leviton, 2002). This feeling, just like anxiety, may either be functional in terms of eliminating immediately the upside-down condition experienced emotionally by an individual, or transform into a preventive agent when it is severe enough to lose functionality. An individual feeling urgency cannot define a problem correctly cannot consider alternative solution methods and tries to solve the problem with the first option coming to mind. For suicide attempt cases/group for which we have determined frequent use of impatient approach, the first method coming to mind is the suicide attempt in a way to refrain from problem rather than solving it alternatively.

The only constraint of this study is the fact that it was a cross-sectional one. Therefore, it is necessary to be more careful while commenting over cause and effect relations in obtained results. Yet, a longitudinal study pattern may emphasize causal relations more powerfully. Additionally, a bigger sample may increase generalization power of results. Notwithstanding all restrictions, this study is considered to have strong aspects. The study is one of the few studies conducted regarding suicide

attempts and crisis cases in our country and it is important in a way to contribute to related literature. Participants of the study were chosen punctiliously among applications made in the only crisis centre in Iran. Moreover, suicide attempt group was not only compared with normal control groups but also with crisis group which bore similar attributes but did not demonstrate suicide behavior. This fact, thus, increases the importance of obtained findings. Furthermore, findings of the study give directive clues in terms of usage especially in clinic applications. While, studying suicide attempt cases, primarily studies should be planned towards increasing problem-solving abilities along with evaluation of social support and problem-solving abilities.

Providing necessary family support and developing problem-solving abilities are considered crucial in preventing suicide attempts and intervening in the whole process of suicide. Also, it is important to employ attempts such as relaxation techniques, drug therapy in controlling the anxiety without delay in cases of crisis. Therefore, it will be possible to control risk factors that are of capital importance in terms of suicide attempt cases.

A finding of the study in terms of the symptoms of depression is the result of three groups which differs from each other. As expected, the group with the greatest number of suicide attempts is a group of symptoms of depression. This group, followed by the crisis, and each signs of depression in the two groups were significantly higher than the normal controls.

Overall, these results revealed the importance of focusing on enrichment of problem-solving skills and social support for suicidal patients.

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