

Trait Mindfulness, Reasons For Living and General Symptom Severity as Predictors of Suicide Probability in Males with Substance Abuse or Dependence

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Objective: The aim of this study was to evaluate suicide probability in Iranian males with substance abuse or dependence disorder and to investigate the predictors of suicide probability based on trait mindfulness, reasons for living and severity of general psychiatric symptoms.

Method: Participants were 324 individuals with substance abuse or dependence in an outpatient setting and prison. Reasons for living questionnaire, Mindfulness Attention Awareness Scale and Suicide probability Scale were used as instruments. Sample was selected based on convenience sampling method. Data were analyzed using SPSS and AMOS.

Results: The life-time prevalence of suicide attempt in the outpatient setting was 35% and it was 42% in the prison setting. Suicide probability in the prison setting was significantly higher than in the outpatient setting ($p < 0.001$). The severity of general symptom strongly correlated with suicide probability. Trait mindfulness, not reasons for living beliefs, had a mediating effect in the relationship between the severity of general symptoms and suicide probability. Fear of social disapproval, survival and coping beliefs and child-related concerns significantly predicted suicide probability ($p < 0.001$).

Discussion: It could be suggested that trait mindfulness was more effective in preventing suicide probability than beliefs about reasons for living in individuals with substance abuse or dependence disorders. The severity of general symptom should be regarded as an important risk factor of suicide probability.

Keywords: *Suicide Probability, Substance Abuse, Mindfulness, Reasons for Living*

Iran J Psychiatry 2015; 10:1: 56-63

Suicide attempt is the one of the most important causes of death in the world. Previous studies showed that rates of suicide attempt in individuals with substance abuse or dependence were 14 times higher than in the general population (1). It has been suggested that the association between substance abuse and dependence with subsequent suicide attempt remained stable after controlling the effects of socio demographics and comorbid mental disorders variables (2). Findings of a study on a large sample of individuals with substance use disorders ($n = 5,671$) showed that the prevalence of suicide attempt was 18% in a 30-day period. (3). Furthermore, previous studies showed that suicide risk remains stable after detoxification (4). Epidemiological studies revealed that 50% of the prisoners in the USA have a history of suicide attempt (5). Previous studies have shown that

psychiatric disorders, prior suicide attempt and stressful events were significant predictors of suicide attempt in prisoners (6).

Most of the etiological models of suicidal behaviors in substance use disorders were focused on identification of possible psychosocial predictors of history of suicide attempt (7, 8), and we have little information about predictors or correlates of suicide probability. Suicide probability has been defined as a general tendency to kill oneself that represented as a novel severity for conceptualizing and measuring suicide risk. This construct was operationally defined by scores that patients achieved in such subscales as suicide ideation/punishment, negative self-evaluation, Hostility-impulsivity and hopelessness (9).

Identifying the predictors of suicide probability can help design preventive programs to decrease the rates of suicide attempt in individuals with substance abuse

or dependence. From many correlates of suicide risk in substance abusers, mental disorders or psychiatric symptoms increase the risk of suicide (10). Furthermore, co-occurrence of other mental disorders with substance use disorders increases the rate of relapse after treatment (11). However, the association between the psychiatric symptom and the suicide risk is not a complete relationship. In other words, all substance abusers with a mental disorder do not engage in suicide behaviors. Therefore, some factors may have a protective role in the relationship between these two variables. In a cognitive behavioral model (12) a protective model for suicidal behaviors has been proposed which focused on beliefs about reasons for living. Reasons for living consisted of beliefs regarding domains such as coping and survival, family responsibility, child-related concerns, moral objection and fear of social disapproval.

Previous results showed that this belief can predict suicide attempt after 2 years in female college students (13). Most of the studies about reasons for living were conducted on individuals with mood disorders with and without suicide attempt, and they showed that some of the reasons for living contents have an association with a history of suicide attempt (14, 15, 16). However, we have enough information about the role of reasons for living in mood disorders, but we have not found any research on the role of reasons for living against suicide probability in individuals with substance use disorders (abuse or dependence). One of the aims of this study was to determine which kind of reasons for living beliefs predicts suicide probability in individuals with substance abuse or dependence disorders.

Although in clinical psychology mindfulness was regarded as a kind of awareness that was cultivated by nonjudgmental, purposeful attention (17), it could be conceptualized as a personality trait. Trait mindfulness has been defined as a state of being characterized by more frequent receptivity to internal and external stimuli as they occur, which differ from a maladjusted process like rumination and worry (17). Prior findings showed that trait mindfulness has a negative association with indexes of psychopathology and has a positive effect on mental health (18). Some studies conducted in a clinical context confirmed the effectiveness of training mindfulness on suicidal behaviors (19). Findings of another study on college students indicated that trait mindfulness had a protective role against depression in individuals with high neuroticism (20). Indeed, it may be hypothesized that trait mindfulness has a mediating and protective role in a relationship between the severity of psychiatric symptoms and suicide probability.

Therefore, the aims of this study was to explore and estimate suicide probability in Iranian individuals with substance abuse or dependence disorders in a prison and outpatient setting and to test a meditational model to predict suicide probability based on general symptom severity, trait mindfulness and reasons for living beliefs.

Material and Methods

Participants

The sample consisted of 348 participants with substance abuse or dependence in a prison setting ($n = 233$) and an outpatient setting ($n = 115$). Participants in the prison setting were selected from individuals who participated in the methadone maintenance treatment (MTT). This program was performed by social workers of the prison. We selected samples based on convenience sampling method. Participants were prisoners of Ghezelhesar prison and substance abusers who referred to the outpatient drug dependency centers in Tehran province. Inclusion criteria were as follows: Diagnosis of substance abuse or substance dependency; ability to read and write; having a history of relapse. Psychotic patients and those unable to complete the assessment tools were excluded from the study. All the participants in the outpatient setting signed a consent form.

Instruments

Brief Symptom Inventory: The Brief Symptom Inventory is a short form of SCL-90 with 54 questions in a 4-likert-type scoring system (0 = never to 4 = always). In this study, we calculated the whole raw score of BSI as the general severity of the symptoms severity. Previous studies confirmed the factor structures and validity of BSI (21). The finding of the psychometric study of BSI in an Iranian sample showed that the internal consistency reliability for the subscales ranged from 0.71 to 0.87, and the internal consistency of the general symptoms severity was 0.96; confirmatory factor analysis revealed a nine factor solution like other studies (22).

Suicide Probability Scale: The Suicide probability scale consists of 36 statements, rated on a four-point scale based on how often they feel the statement is true for them (ranging from “none or a seldom” to “most or all the time”). These ratings are then weighted selectively by item and totaled to achieve a Total Weighted Score and four subscale scores (9). Excellent internal consistency for the Total Scale with an alpha coefficient of 0.93 and internal consistency ranging from fair to good for the remaining scales was reported by scale developers (9). This scale was administered on Iranian adolescents and findings showed that scores on this scale can discriminate suicidal adolescents from the non-suicidal (23). In this study on people with substance abuse or dependence, alpha coefficient has been obtained 0.83 for total scale.

The Mindful Attention Awareness Scale (MAAS): It is a 15-item trait measure assessing the frequency of open attention to and awareness of internal states and external events in the present. Question scored in 7 likert-type method (0 = almost always to 6 = almost never). MAAS have one factor and alpha coefficient was reported .89-.93 (18). The results of the administration of MASS in Iranian samples indicated a positive association between scores of trait mindfulness and mental health; and internal consistency for the Total Scale with an alpha coefficient of 0.82 was

reported (24). Based on the results of this study on people with substance abuse or dependence, the alpha for the whole scale was 0.96.

Reasons for Living questionnaire (RFL): Responses on this 48-item scale load onto six main factors that include survival and coping beliefs (e.g., I believe I can learn to adjust or cope with my problems), responsibility towards family (e.g., I have a responsibility and commitment to my family), child related concerns (I want to watch my children as they grow), fear of suicide (e.g., I am afraid of the unknown), fear of social disapproval (e.g., I am concerned about what others would think of me) and moral objection of suicide (e.g., My religious beliefs forbid suicide attempt). The factor structures of RFL were confirmed in adult psychiatric inpatient samples, and alpha was reported 0.93 for the total score (25). In a psychometric study of RFL on Iranian suicidal behaviors in Kermanshah province, its alpha coefficient was obtained .95 for the total scale and confirmatory factor analysis showed a 4 factor solution that consisted of survival and coping beliefs, family responsibility, child-related concerns and fear of suicide (26).

Data were analyzed by Pearson correlation, multivariate regression method and path analysis. SPSS and AMOS were used for hypothesis testing.

Results

Descriptive results about the type of substance used, rates of poly drug, history of suicide attempt and methods of suicide attempts were represented in Table 1.

However, history of suicide attempt was more reported in opium abusers in group 1 and crack abusers in the prison setting, but there was not a significant association between type of substance abused and history of suicide attempt (contingency coefficient = 0.3, $p = 0.69$ for group 1; contingency coefficient = 0.18, $p = 0.92$ for group 2). Comparison of suicide methods in both groups showed that poisoning was more commonly used as a suicide method ($\chi^2 = 3.37$, $p < 0.001$; $\chi^2 = 3.91$, $p < 0.001$). Results of suicide probability scale in group 1 revealed that the risk of suicide attempt in 3% of the participants was non-clinical, in 45.8% was mild and in 8.1% was moderate. However, scores of the participants in group 2 showed that risk of suicide attempt in 1.3% of the participants was mild, in 20% was moderate and in 79% was severe. Group comparison after controlling the effect of age and academic status showed that suicide probability in group 2 was significantly higher than group 1 ($F(1,346) = 2.89$, Lambda Wilkes = 0.265, $P = 0.001$). Analysis of variance showed a significant difference between group 1 and 2 with respect to suicide ideation/punishment ($F = 71.28$, $p < 0.001$), hostility-impulsivity ($F = 89.04$, $p < 0.001$), negative self-evaluation ($F = 29.28$, $p < 0.001$) and hopelessness ($F = 79.28$, $p < 0.001$). The zero-order correlations among

variables were presented in Table 2. Suicide probability has a significant inverse correlation with mindfulness, general symptom severity, survival coping beliefs, and child-related concerns. However, there was a direct correlation between suicide probability and fear of social disapproval.

We conducted a hierarchical linear regression to determine which reasons for living beliefs could predict suicide probability when controlling other variables. As presented in Table 3, survival and coping beliefs and fear of social disapproval significantly predicted suicide probability. These results support the examination of the mediating role of these two variables.

Results of the path analysis with Amos showed that data were fit with a model indicating that trait mindfulness and fear of social disapproval have a mediator role. Brief results of the analysis are presented in Fig. 1. Results from the examination of the final model, with all paths, covariance and error terms suggested an excellent fit to the data, $\chi^2 = 16.04$; $\chi^2/df = 16.4$; CFI = 0.923; NFI = 0.925; RMSEA = 0.08; $p < 0.001$. The whole variable in the model explained 32% of the variance of suicide probability. Table 4 summarizes the standardized direct and indirect effects of General symptom severity, mindfulness and fear of social disapproval.

General symptom severity was associated with suicide probability through a mediating link with trait mindfulness. Trait mindfulness was directly associated with suicide probability. Trait mindfulness was negatively associated with suicide probability and general symptom severity that represent the possible protective role of this variable. Fear of social disapproval was not a significant mediator in the path between general symptom severities to suicide probability, but it showed a direct relationship with suicide probability.

Discussion

Findings of this study showed that suicide attempt is a prevalent behavior in individuals with substance abuse or dependence disorder in both the outpatient setting and prison. However, substance abusers in the prison were more prone to suicide attempt and had higher scores in all of the suicide probability subscales. Rates of suicide attempt in prisons of other countries were also higher than the general population. Epidemiological studies in the United States' jails indicated that 50% of the prisoners had a history of suicide attempt (5).

The most common method for suicide attempt was poisoning with drugs. In a previous study in Iran (27) and other countries such as England (28) poisoning was also the most common method for suicide attempt.

Our finding was consistent with that of the previous studies which showed that severity of the general symptom was an important risk factor of suicide in individuals with substance abuse and dependency.

Suicide probability, Mindfulness, Reasons For Living

Studies from a longitudinal investigation indicated that a high level of psychiatric symptoms assessed by Symptom Checklist 90 (GSI) at the 5-year follow-up,

predicted mortality at the 15-year follow-up, whereas abstinence did not (29).

Table 1: Characteristics of groups

Variable Substance	Group(1)	Group(2)
Opium	62%	17.6%
Methamphetamine	30%	0%
Heroin	4%	30%
Crack	1%	42.5%
Grass	1%	1%
Alcohol	1%	4%
Poly drug	23%	70%
Suicide attempt	41(35.7%)	101(42%)
Suicide method		
Poisoning	6.8%	21.5%
Cutting	3.8%	8.6%
Poisoning+ cutting	9%	9%
Self-burning	0.4%	1.3%
Gas suffocation	1.5%	1.3%
Hanging	1.7%	1.7%

Table 2: Correlations between Suicide probability, General Symptom Severity, Mindfulness and Reasons for Living

Variables	1	2	3	4	5	6	7	8	9
1.SPS	-								
2.Mindfulness	-0.246**	-							
3.GS	0.748**	-0.248**							
4.surival coping	-0.244**	-0.097	-0.316**	-					
5.family responsibility	-0.097	-0.107*	-0.160**	0.736**	-				
6.child related	-0.107*	0.073	-0.152**	0.652**	0.660**	-			
7.suicide fear.	0.073	0.129*	0.100	0.466**	0.370**	0.313**	-		
8. FSD	0.129*	0.239**	0.091	0.453**	0.427**	0.339**	0.540**	-	
9.moralobjection	0.001	0.206**	-0.038	0.543**	0.492**	0.510**	0.386**	0.448***	-

Notes. SPS_ Social Probability Scale, GS = General Symptoms, FSD = Fear of Suicide Disapproval

* p <.05. ** p < .01.

Table 3: Hierarchical Regression Analysis for Reasons of Living Predicting Suicide Probability

Variable	R	R ²	B	Beta	T	Sig
SCB	0.244	0.060	-0.443	-0.381	-6.76	P<0.001
FSD	0.363	0.132	-1.95	-0.301	5.35	P<0.001

Notes: SCB = Survival & Coping Beliefs, FSD = Fear of Social Disapproval

Table 4: Standardized Direct and Indirect Effects

Outcome	Determinant	Direct	Indirect
SP	GSI	0.509(P<0.001)	
	Mindfulness	-0.156(P<0.015)	0.29(p=0.011)
	FSD	-0.549(P=.017)	
Mindfulness	GSI	-0.99(P<0.001)	-
FSD	GSI	0.01 (p=0.09)	-

Note: FSD = fear of Social Disapproval; SPS =Suicide probability, GS = General Symptoms

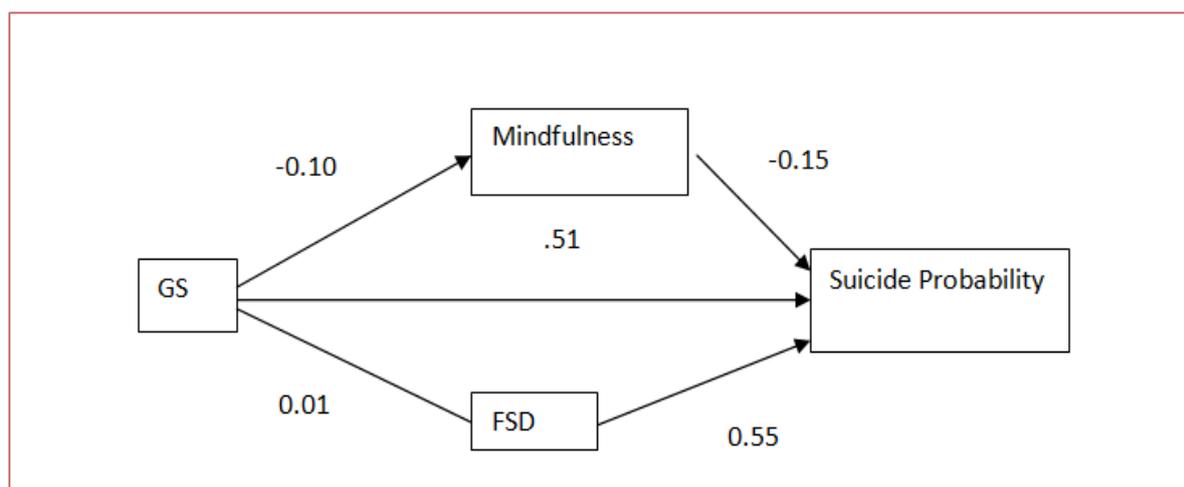


Figure 1: Path Analysis of Relationships of Mindfulness and fear of social disapproval variables to suicide probability

Note. GS=General symptom; FSD=Fear of Social disapproval

It could be said that severity of psychiatric symptoms may increase the probability of suicide attempt in people with substance use disorders. It seems that mental symptoms like depression, anxiety, obsession and hallucination have a role in the tendency to substance abuse and suicide attempt .

Coping and survival beliefs, child-related concerns and social disapproval significantly predicted suicide probability. Finding of another study using an adjusted form of reason for the living inventory in Turkey indicated that child-related concerns and fear of negative consequences of suicide negatively correlated with suicide probability in the general population (30). Our finding is consistent with that of other research showing that reasons for living have a protective role against suicidal behavior in other mental disorders. Previous studies also showed that depressed patients who had not attempted suicide expressed more feelings of responsibility towards family, more fear of social disapproval and greater survival and coping skills than the depressed patients who had attempted suicide and that the total scores of reasons for living correlated inversely with the suicide probability index (14). Another study on PTSD patients showed that scores of patients in reasons for living scale have negatively associated with some of the depression symptoms and suicide ideation (31). Therefore, our finding supported the role of survival and coping beliefs and child-related concerns as protective factors against suicidal behavior in individuals with substance use disorders. It have been suggested that survival and coping beliefs are related to sense of meaning and hopelessness, so it is expected that individuals who had a stronger survival and coping ability had a lower suicide probability. Additionally, individuals who perceived themselves as burdensome to others and lost their sense of social belonging (such as family and children) were especially more prone to suicide desire and ideation

(32). Thus, it could suggest that a person would be addicted to drug but would not necessarily commit suicide. In another words, in contrast to the common sense attitude, suicide is not caused by addiction. Indeed, cultivating and enriching these kinds of beliefs even in addicted individuals could be effective in decreasing the probability of suicide.

Our finding that fear of social disapproval positively correlated with suicide probability was unexpected, but previous studies confirmed that males have a greater fear of social disapproval over having suicidal thought, and this factor could be accounted for the greater rate of suicide completing in males (33). Fear of social disapproval implicitly suggested that there were not adaptive skills to cope with suicidal thoughts and so the person was probably more prone to shame and social anxiety. It have been showed that individuals high in shame-proneness were more at risk of depression (34), and shame was associated with self-harm and suicide attempt (35). Therefore, fear of social disapproval is not an ideal reason against suicide attempt. Patients who have stronger reasons in the social disapproval domain may be more prone to suicide attempt because they cannot accept themselves and they have external locus of control. These explanations could be tested in future studies .

Although fear of suicide have been identified as a major protective factor from the reason for living subscale (15,16) in bipolar patients and individuals with major depressive disorder, but our finding did not confirm the role of this factor in individuals with substance use disorders. This result was not unexpected because the prevalence of impulsivity and risk-taking behavior is very high in this group. Although some studies showed that moral objection had a protective role against suicide attempt (36.), our results did not support the role of moral objection in predicting suicide

probability of individual with substance abuse and dependence .

In general, we can conclude that contents of reasons for living beliefs differentially have a protective role in different groups of mental disorders.

Additionally, our results showed that trait mindfulness had a significant association with suicide probability. Path analysis showed that the relation between severity of general psychiatric symptoms and suicide probability could be decreased if a person obtained a high score in trait mindfulness. In other words, trait mindfulness was a protective factor that decreased both the risks of suicide and psychiatric general symptoms. These results in general were consistent with the results of other researches that showed the role of trait mindfulness as a resiliency factor against different kinds of mental disorders such as depression and social anxiety (18). Mindfulness helps individuals to use adaptive strategies for emotion regulation (37), so individuals who can use better emotion regulation strategies may be less prone to attempt suicide to cope with negative emotions. In another research on college students, it has been reported that mindfulness can decrease the effects of neuroticism as a significant mediator variables on depression, (19). Also, it has been suggested that mindfulness-based intervention such as mindfulness-based cognitive therapy and dialectical behavior therapy can decrease suicide ideation in individuals with major depressive disorder (19). This finding supported the theoretical foundation of using mindfulness in the treatment of suicidal behaviors in individuals with substance use disorders. According to cry of pain model of suicide (38), suicide is caused by feeling of entrapment and helplessness. These feelings then interrupt problem solving and increase access to negative emotions over general memories that aggravate suicidal thoughts. In contrast, mindfulness is a way of attention that enriches the capacity to solve problems and it is more related to the retrieval of specific memories (19). So, mindfulness help individuals against suicide risk by decentering from negative thoughts and changing flexibly focus of attention from distressing memories (38)

The results of this research could be interpreted in the diathesis- stress model (39). It could be argued that general symptom severity as a vulnerability factor predisposes substance abusers or substance-dependent people to choose suicide attempt as an emotional solution to their inter- and intra- personal problems. Nonetheless, trait mindfulness can buffer the negative effects of severity of psychiatric symptoms on suicide probability and act as an antidote to stressful situations of substance abusers or substance dependent people. Trait mindfulness can explain why some substance abusers do not engage in suicidal behaviors. This role for trait mindfulness supported one of the hypotheses of self-determination theory (40). In other words, mindfulness acts as a foundation for healthy self-regulation and if this kind of awareness blocked or inhibited the person, he/she cannot engage in effective

self-regulation. Thus, mindfulness could be conceptualized as a protective factor that can foster resiliency against maladaptive types of self-regulation such as suicide attempt .

Our finding was consistent with previous studies (10), supporting the main role of severity of symptom as a significant predictor of suicide probability. Indeed, it is very important to address comorbid mental disorders in individuals treated for substance abuse or dependence disorders. Results of path analysis confirmed the role of trait mindfulness as a mediating variable in decreasing the effects of severity of general psychiatric symptoms on suicide probability. To the best of our knowledge, this is the first study to test the protective role of mindfulness against suicide probability. Although individuals with substance use disorders have many problems in biological and social level of functioning, owning some traits such as mindfulness may decrease the secondary problems to substance use such as suicide. Also, our results support the role of reasons for living specially survival and coping beliefs and fear of social disapproval as predictors of suicide probability. Indeed, addressing and enriching reasons for living in individuals with substance use disorder may have a positive effect on decreasing rates of suicide attempts .

The results of the present study should be interpreted with caution for several reasons. Firstly, design of this research was cross sectional, and only self-report instruments have been used to assess our variables. Secondly, most participants were opium users, so it would not be completely accurate to generalize this finding to other groups of substance users. Thirdly, personality disorders of the participants had not been considered, and this could decrease the internal validity of the study. Fourth, it is possible that some socioeconomic or other variables such as age, confounded with reason for living, so any decision about findings of this study should be based on considering this limitation. More research is needed to identify those individuals with substance abuse or dependence disorders who are at risk for suicide attempts. Assessing these protective factors in other high risk groups for suicide attempt and using larger samples are also recommended.

Conclusion

Rate of suicide attempt in those substance abusers who lived in the prison was higher than those in the outpatient setting. It seemed that the severity of general symptoms, some of the reasons for living and trait mindfulness could predict suicide probability. We examined a path model to predict suicide probability, and this model confirmed our hypothesis that general symptoms have a direct effect on suicide probability, but trait mindfulness have a significant protective factor against the negative effects of general symptoms on suicide probability. Reasons for living separately predicted suicide probability, but when their effects were investigated by controlling trait mindfulness,

these effects were removed. The finding confirmed this idea that how we think (i.e. mindfulness) is more important than what we think (i.e. reasons of living) in predicting suicide. In other words, in preventing suicide attempt in people with substance abuse or dependence, it is useful to teach them how to free themselves from suicidal states through mindfulness.

References

1. Darke S, Ross J, Williamson A, Mills KL, Havard A, Teesson M. Patterns and correlates of attempted suicide by heroin users over a 3-year period: findings from the Australian treatment outcome study. *Drug Alcohol Depend* 2007; 87: 146-152.
2. Borges G, Walters EE, Kessler RC. Associations of substance use, abuse, and dependence with subsequent suicidal behavior. *Am J Epidemiol* 2000; 151: 781-789.
3. Tiet QQ, Ilgen MA, Byrnes HF, Moos RH. Suicide attempts among substance use disorder patients: an initial step toward a decision tree for suicide management. *Alcohol Clin Exp Res* 2006; 30: 998-1005.
4. Dark S, Williamson A, Ross J, Teesson M. Attempted suicide among heroin users: 12 month outcomes from the Australian Treatment Outcome Study (ATOS). *Drug and Alcohol Depend* 2005; 78: 177-186.
5. Magaletta PR, Patry MW, Wheat B, Bates J. Prison Inmate Characteristics and Suicide attempt lethality: An Exploratory Study. *Psychol Serv* 2008; 5: 351-361.
6. Fazel S, Cartwright J, Norman-Nott A, Hawton K. Suicide In prisoners: a systematic review of risk factors. *J Clin Psychiatry* 2008; 69: 1721-1731.
7. Aharonovich E, Liu X, Nunes E, Hasin DS. Suicide attempts in substance abusers: effects of major depression in relation to substance use disorders. *Am J Psychiat* 2002; 159: 1600-1602.
8. Preuss U, Schuckit M, Smith T, Danko G, Bucholz K, et al. Predictors and correlates of suicid attempters over 5 years in 1,237 alcohol-dependent men and women. *Am J Psychiat* 2003; 160: 56-63.
9. Cull J, Gill W. *Suicide probability scale*. Los Angeles: CA; 1982.
10. Najt P, Fusar-Poli P, Brambilla P. Co-occurring mental and substance abuse disorders: A review on the potential predictors and clinical outcomes. *Psychiatry Res* 2011; 186: 159-164.
11. Bradizz CM, Stasiewicz PR, Paas, ND. Relapse to alcohol and drug use among individuals diagnosed with individuals diagnosed with co-occurring mental health and substance use disorders: A review. *Clin Psychol Rev* 2006; 26: 162-178.
12. Linehan MM, Goodstein JL, Nielsen SL, Chiles JA. Reasons for staying alive when you're thinking of killing yourself: The reasons for living inventory. *J Consult Clin Psychol* 1983; 51: 276-286.
13. Lizardi D, Currier D, Galfalvy H, Sher L, Burke A, Mann J, et al. Perceived reasons for living in index hospitalization and future suicide attempt. *J Nerv Ment. Dis* 2007; 195: 451-455.
14. Malone K, Oquendo MA, Haas GL, Ellis SP. Protective Factors against Suicidal acts in Major Depression: reasons for Living. *Am J Psychiat* 2000; 157: 1084-1088.
15. Oquendo MA, Waternaux C, Brodsky B, Parsons B, Haas G, et al. Suicidal behavior in bipolar mood disorder: clinical characteristics of attempters and non-attempters. *J Affect Disord* 2001; 59: 107-117.
16. Briton P, Duberstein P, Conner K, Heisel M, Hirsch JK, Conwell Y. Reasons for living, Hoplessness, and Suicide Ideation Among Depressed Adults 50 years or older. *Am J Geriat Psychiat* 2008; 16: 736-741.
17. Brown KW, Cordon S. Toward a phenomenology of mindfulness: Subjective experience and emotional correlates. In: Didonna F Eds. *Clinical handbook of mindfulness*. New York, NY: Springer. 2009.
18. Brown KW, Ryan RM. The benefits of being present: Mindfulness and its role in psychological well-being. *J Pers Soc Psychol* 2003; 84: 822-848.
19. Williams JM, Swales M. The use of Mindfulness-based approaches for suicidal patients. *Arch Suicide Res* 2004; 8: 315-329.
20. Barnhofer T, Duggan DS, Griffith JW. Dispositional mindfulness moderates the relation between neuroticism and depressive symptoms. *Pers Individ Dif* 2011; 51: 958-962.
21. Derogatis LR. *Brief Symptom Inventory: Administration, scoring and procedures manual*, 4eds. Minneapolis: MN NCS, Pearson, Inc; 1993.
22. Mohammad khani P, Dobson K, Amiri M, Hosseini Ghafari F. Psychometric properties of the brief symptom inventory in a sample of recovered Iranian depressed patients. *Int J Clin Hlth Psyc* 2010; 10: 541-551.
23. Sharifian M, Gholamali-Lavasani M, Ejei J, Taremian F, Amrani K. The relationship among classroom community, attitude toward parents, anxiety disorders and depression with adolescents suicide probability. *Procedia Soc. Behav Sci* 2011; 15: 520-525.
24. Ghorbani N, Cunningham C, Watson PJ. Comparative analysis of integrative self-knowledge, mindfulness, and private self-consciousness in predicting responses to stress in Iran. *Int J Psychol* 2010; 45: 147-154.
25. Osman A, Beverly K, Linehan M, Barrios F, Gutierrez P, Courtney B. Validation of the adult suicidal questionnaire and the reasons for living inventory in an adult psychiatric inpatient sample. *Psychol Assessment* 1999; 11: 115-123.
26. Mahmoudi O, Askari A, Azkosh M, Khodabakhsh-kullai A. [Exploring the Validity, Reliability and Standardization of Adult Reasons for living inventory (Persian)]. *J psychiat clin psychol* 2010; 16: 239-247.

27. Ghoreishi A, Mousavinasab N. [Systematic review of completed suicide and suicide attempt in Iran (Persian)]. *J psychiat clin psychol*; 16: 154-162.
28. Thomas KH, Beech E, Gunnell D. Changes in commonly used methods of suicide in England and Wales from 1901–1907 to 2001–2007. *J Affect Disord* 2013; 144: 235-239.
29. Fridell M, Hesse M. Psychiatric severity and mortality in substance abusers: a 15-year follow-up of drug Users. *Addict Behav* 2006; 31: 559-565.
30. Batigan AD. Suicide probability: a study on reasons for living, hopelessness and loneliness. *Turk Psikiyatri Derg* 2005; 16: 1-10.
31. Lee DJ, Liverant G, Lowmaster SE, Gradus JL, Sloan DM. PTSD and reasons for living: Associations with depressive symptoms and alcohol use. *Psychiatry Res* 2014; 219: 550-555.
32. Joiner T. *Why people die by suicide*. Cambridge, MA: Harvard University Press; 2005.
33. Ritch AR, Kirkpatrick-Smith J, Bonner RL, Janes F. Gender differences in the psychosocial correlates of suicidal ideation among adolescents. *Suicide Life-Threat Behav* 1992; 22: 364-374.
34. Cheung MS, Gilbert P, Irons C. An exploration of shame, social rank and rumination in relation to depression. *Pers. Individ Dif* 2004; 36: 1143-1153.
35. Gilbert P, McEwan K, Irons C, Bhundia R, Christie R, Broomhead C, Rockliff H. Self-harm in a mixed clinical population: The roles of self-criticism, shame, and social rank. *Br J Clin. Psychol* 2012; 49: 563-576.
36. Richardson-Vejlgand R, Sher L, Oquendo M, Lizardi D, Stanley B. Moral objections to suicide and suicidal ideation among mood disorder Whites, Blacks, and Hispanics. *J Affect Disord* 2009; 117: 197–201.
37. Chambers R, Gullone E, Allen NB. Mindful emotion regulation: An integrative review. *Clin Psychol* 2009; 29: 560-572.
38. Williams JK. *Suicide and attempted suicide and self-harm*. London: Penguin book; 1997.
39. Ingram RE, Luxton DD. Vulnerability-Stress Models. In: Hankin BL, Abela JRZ Eds. *Development of Psychopathology: A vulnerability stress perspective*. Thousand Oaks, Sage Publications Inc; 2005.
40. Deci EL, Ryan RM. Self-determination theory: When mind mediates behavior. *J Mind Behav* 1980; 1:33-43.