The Role of Positive Personality Traits in Emotion Regulation of Patients with Irritable Bowel Syndrome (IBS)

Mina MAZAHERI, *Shekoufeh NIKNESHAN, Hamed DAGHAGHZADEH, Hamid AFSHAR

1. Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
2. Integrative Functional Gastroenterology Research Center, Dept. of Gastroenterology, Isfahan University of Medical Sciences, Isfahan, Iran
3. Psychosomatic Research Center, Dept. of Psychiatry, Isfahan University of Medical Science, Isfahan, Iran

*Corresponding Author: Email: shnikneshan@gmail.com

(Received 05 Nov 2014; accepted 21 Jan 2015)

Abstract

Background: Personality traits and emotion regulation processes play an important role in human health. The purpose of this study was to investigate the role of positive personality traits (psychological hardiness and interpersonal forgiveness) in emotion regulation of patients with Irritable Bowel Syndrome.

Methods: The research was a cross-sectional study. Statistical population included all of IBS patients referred to the Subspecialty Center of Psychiatry in Isfahan in 2013. Overall, 123 subjects (100 women, 83.3%, and 30 men, 16.7%) were selected by census method, according to criteria of research and during a particular period. To collect data, the Difficulties in Emotion Regulation Scale (DERS), Lang and Goulet Hardiness Scale (LGHS) and Interpersonal forgiveness Inventory (IFI) were used. Data was analyzed using Pearson's correlation coefficient and Multivariate and Binary Logistic regression analyses.

Results: Mean age of patients was 33.82±10.45 years and 83.3% (100) of them were female. Regression analyses showed that both personality traits of hardiness and forgiveness were as protective factors for emotional dysregulation with OR, 95% CI: 0.93 and 0.96 sequentially, with adjusting demographic variables (age, gender, and education level and disease duration).

Conclusion: Patients who are more hardy and forgiving toward others, are likely more successful at adaptive emotion regulation. It emphasizes the positive and beneficial role of the personality traits in regulating of emotional problems of IBS patients. Hence, these variables should be considered as effective factors in the treatment process of the patients.

Keywords: Emotional regulation, Psychological hardiness, Interpersonal forgiveness, Irritable bowel syndrome

Introduction

“Irritable bowel syndrome (IBS) is the most prevalent of functional gastrointestinal disorder” (1). It is exhibited with abdominal pain or discomfort associated with disturbance in defecation and intestinal habits, in the absence of an organic cause that justifies the signs (2). About 54% to 100% of patients with IBS may be associated with psychiatric disorders (such as emotional disorders) and personality pathology (3). Inasmuch, stress, anxiety and depression are prevalent in IBS patients and they are related to onset and severity of symptoms (4), affective and emotional symptoms should be considered as specific and inseparable symptoms of the syndrome (5). There are significant differences between the patients and healthy individuals in terms of anxiety, neuroticism and extraversion. Hence, the patients with irritable bowel syndrome who seek medical help because
of their intestinal symptoms, demonstrate emotional problems such as depression and anxiety and neurotic personality characteristics (3). Process of emotion regulation is the process to moderate negative emotions (6). It is beneficial to remember that optimal emotion regulation (or emotion dysregulation) may vary for different individuals, in different situations and with different goals. Due to emotion regulation involved heterogeneous developmental processes, individual differences in emotion regulation likely happen along multiple dimensions rather than on a single axis. For example, individuals seemingly differ in their knowledge of the need for emotion regulation, awareness of alternative strategies, flexibility in applying different regulatory strategies, and other components of emotion regulation (7).

The relationships between personality traits and processes of emotion regulation have been confirmed in several studies. Some factorial models have acquired the consistent evidence for the relation between affect and personality (8). In addition, personality plays a role in emotional changes (9). Behavioral characteristics (e.g., attention, sociability, stability or reactivity in response to frustration) are as internal sources of individual differences in emotion regulation (10). The relationships between 5 big traits and difficulties in emotion regulation have also been indicated (11). Extraversion was positively correlated with emotion regulation, and neuroticism negatively (12). Openness to experience was correlated with the ability to recognize emotions (13) and agree-able-ness has been related to how a person expres-ses his/her negative emotions (14). In principle, the relations between personality and emotion regulation strategies are indirect, considering that personality causes individuals to become more vulnerable toward certain emotions (15).

Hardiness as a personality trait is a configuration of attitudes and skills that motivate the individuals to do strategic and hard actions in face to stressful circumstances, and also, to activate tenaciously to cope with the conditions. Hence, it can help individuals to turn stressful circumstances from potential disasters into growth opportunities (16). The components of mental health, including so-matization, anxiety, social dysfunction, hostility, avoidance of stressful thoughts and depression, are negatively related to hardiness (17, 18).

So, hardiness is positively correlated with emotional stability (19). Findings of previous studies regarding the effects of hardiness on stress and health are inconsistent, possibly due to neglect (failure to approve) the influence of variables such as negative affectivity. Klag & Bradley's study examined the main, moderating and mediating effects of hardiness. In the study, controlling for negative affectivity, enough evidence was not obtained for the direct effects of hardiness on stress and illness (20). Hardiness has a significant impact on adaptive and maladaptive emotion regulation strategies (21). In fact, cognitive hardness moderate the effects of emotional coping on psychological distress (22).

Forgiveness is another trait whereby individual who has been annoyed (insult or betrayal) to inhibit relationship-destructive responses and to behave constructively toward someone who has behaved destructively toward him/her. In fact, forgiving is a motivational transformation, namely, one becomes decreasingly motivated to avenge an insulting behavior, and vice versa, increasingly motivated to compromise with offender, despite the offender's hurtful actions (23). Forgiveness not only reduces negative emotions such as anger, hate, hostility, and also thought and behaviors associated with them, but also increases empathy, kindness and compassion toward the offender contemporarily (24, 25). The trait is positively correlated with life satisfaction, positive affect and emotional-focused coping (26-28) and negatively with anxiety, depression, neuroticism, stress, anger and hostility (26-29).

Agreeableness is the strongest predictor of forgiveness, however, two characteristics related to neuroticism (irritability and temperamentalness) prevents forgiveness. These characteristics of neuroticism may lead to the re-experience of negative emotions toward a transgressor and thus postpone the development of positive emotions (30). Therefore, the association between forgiveness and health may be mediated by stress and negative
emotions (31). Forgiveness can indirectly improve health by stress reduction (32, 33).

Considering the literature of the study, positive personality traits are likely to affect emotion regulation and ability of individuals emotionally, but researches are not enough about the role of the traits in emotion dysregulation and its factors, and also any study has investigated the role of such abilities in digestive patients. Hence, the purpose of this study was to determine the relationship between personality traits (forgiveness and hardiness) and emotion dysregulation in IBS.

Method and Materials

Subjects
The research was a cross-sectional study among the patients with Irritable Bowel Syndrome who were referred to the Psychosomatic Disorders Clinic of Isfahan in 2013. Overall, 123 patients were selected by census method, according to criteria of research and during a particular period (10 months). Study criteria included: satisfaction from participating in the study, age range of 18–70 years, lack of acute psychiatric disorders, and the diagnosis of IBS on the basis of ROME III criteria by gastroenterologists.

Instruments
After assuring to patients about the confidentiality of the information, data on demographic characteristics, emotional dysregulation and personality traits were collected by self-administered questionnaires.

Demographic characteristics
Demographic characteristics applied in this study were age, sex as male and female, educational level and disease duration.

The Difficulties in Emotion Regulation Scale (DERS)
The scale is a self-report measure developed by Gratz & Roemer (34) to assess difficulties in emotion regulation. The DERS can distinguish adaptive emotion regulation from emotional avoidance and expressive control. The scale is composed of 6 factors, including, Non-Acceptance of Emotional Responses (Non-Acceptance), Difficulties Engaging in Goal-Directed Behavior (Goal), Impulse Control Difficulties (Impulse), Lack of Emotional Awareness (Awareness), Limited Access to Emotion Regulation Strategies (Strategy), and Lack of Emotional Clarity (Clarity). The DERS has 36 items that are rated on a five-point Likert scale, ranging from 1 (almost never) to 5 (almost always), and are recoded so that higher scores in every case indicate greater difficulties in emotion regulation (i.e., greater emotion dysregulation). The scale has high internal consistency, Cronbach’s α=0.93 for total DERS & Cronbach’s α>:80 for each factors (34). In an Iranian normal sample, internal consistency of the scale using Cronbach’s α ranged from 0.66 to 0.88 for all factors (35).

Lang and Goulet Hardiness Scale (LGHS)
The LGHS is a 45-item self-report instrument designed to measure psychological hardiness in stressful situations (35). Respondents rate each item on a 1 (strongly disagree) to 5 (strongly agree) scale. The scale has a good internal consistency based on Cronbach’s α (36). It was 0.82 in an Iranian normal sample (37).

Interpersonal forgiveness Inventory (IFI-25)
The IFI developed by Ehteshamzadeh et al. (38), consists of 25 items aimed at assessing a respondent’s self-appraisal of his/her proneness to forgive interpersonal transgressions. The IFI-25 is rated on a four point Likert scale. Higher scores on this scale reflect higher levels of forgiveness. In the Iranian sample, internal consistency of the IFI based on Cronbach’s α was 0.80 (38).

Statistical Analysis
Descriptive analysis was expressed as mean & standard deviation. Pearson correlation coefficient was used to evaluate the correlation between emotional dysregulation and personality traits. Multivariate and Binary Logistic regression analyses were performed to determine the predictive ability of personality traits (hardiness and forgiveness). The dependent variable was personality traits and the independent variables
were emotional dysregulation and its factors. The Statistical Package for the Social Sciences version 15.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analyses.

**Results**

A total of 123 IBS patients were recruited for the study (100 women, 83.3%, and 30 men, 16.7%). The mean age was 33.82±10.45 years with an age range of 18–70 yr. The results obtained for the IBS are illustrated as descriptive data in Table 1.

| Variables | Hardiness | Forgiveness | Emotional Dysregulation |
|-----------|-----------|-------------|------------------------|
|           | M        | SD          | M         | SD        | M        | SD        |
| Male      | 1.384E2  | 1.494E1     | 62.40E2   | 9.372     | 1.071E2  | 2.273E1   |
| Female    | 1.423E2  | 1.405E1     | 62.22E2   | 9.846     | 1.027E2  | 1.888E1   |
| Total     | 1.392E2  | 14.801      | 62.368    | 9.417     | 1.063E2  | 22.059    |

**Table 2:** Pearson’s correlation coefficients between personality traits and emotional dysregulation and its subscales

| Variables      | Hardiness | Forgiveness |
|----------------|-----------|-------------|
|                | r         | r           |
| Total DERS     | 0.28**    | 0.29**      |
| DERS -Non-Accept| 0.23*     | 0.23*       |
| DERS -Goal     | 0.37**    | 0.36**      |
| DERS -Impulse  | 0.32**    | 0.41**      |
| DERS -Awareness| 0.13      | 0.087       |
| DERS -Strategy | 0.31**    | 0.35**      |
| DERS -Clarity  | 0.18*     | 0.05-       |

**Table 3:** The results of multivariate regression analyses between personality traits and emotional dysregulation and its subscales

| Variables      | Hardiness | Forgiveness |
|----------------|-----------|-------------|
|                | B         | t | F | R2 | P | F | R2 | P |
| Total DERS     | -0.63     | -4.70 | 20.82 | 0.15 | 0.000 | -0.63 | -3.05 | 9.35 | 0.072 | 0.003 |
| DERS -Non-Accept| -0.094    | -2.45 | 6.02 | 0.048 | 0.016 | -0.147 | -2.50 | 6.01 | 0.048 | 0.014 |
| DERS -Goal     | -0.12     | -4.37 | 19.16 | 0.14 | 0.000 | -0.17 | -4.17 | 17.43 | 0.13 | 0.000 |
| DERS -Impulse  | -0.14     | -4.09 | 17.90 | 0.13 | 0.000 | -0.256 | -4.87 | 22.10 | 0.156 | 0.000 |
| DERS -Awareness| -0.049    | -1.73 | 3.01 | 0.025 | 0.085 | 0.043 | 0.961 | 0.624 | 0.008 | 0.338 |
| DERS -Strategy | -0.058    | -4.22 | 17.79 | 0.13 | 0.000 | -0.233 | -4.33 | 18.78 | 0.135 | 0.000 |
| DERS -Clarity  | -0.144    | -2.23 | 4.99 | 0.040 | 0.023 | -0.019 | -0.522 | 0.172 | 0.001 | 0.603 |

Model2: adjusted for demographic characteristics (age, sex, educational level and disease duration)

Available at: [http://ijph.tums.ac.ir](http://ijph.tums.ac.ir)
In addition, the results of a binary logistic regression showed (Table 4) that hardiness and forgiveness were protective factors for emotional dysregulation with OR, 95% CI: 0.93 (0.89,0.97), and 0.96(0.93,0.98) sequentially (in crude analysis), and with adjusting demographics characteristics (age, sex, educational level and disease duration) didn't show sensible changing in OR emotional dysregulation (in model1).

Table 4: Binary logistic regression analyses for variables of predicting emotional dysregulation

| Variables | Crude OR(95%CI) | Modell OR(95%CI) |
|-----------|-----------------|------------------|
| Hardiness | 0.93(0.89,0.97) | 0.94(0.90,0.98)  |
| Forgiveness | 0.96(0.93,0.98) | 0.96(0.93,0.98)  |

Modell: age, sex, educational level and disease duration adjusted OR (Odds Ratio), CI (Confidence Interval)

Discussion

It seems that personality traits are related to emotion regulation. Hence, this research was conducted with the purpose of investigating the relationship between personality traits, psychological hardiness, interpersonal forgiveness and emotion dysregulation in patients with irritable bowel syndrome. Forgiveness and hardiness were significantly and negatively correlated with emotional dysregulation. Hardiness was a negative predictor of emotional dysregulation and most of its subscales. That is, individuals who acquire high score on hardiness measure, are more probably to accept their emotional responses and subsequently experience fewer negative emotions, to able to recognize their emotions, to control their behaviors and to accomplish tasks when experiencing negative emotions, and finally, to use adaptive strategies in problematic conditions. Thus, hardiness as a positive characteristic associated with less emotional dysregulation in irritable bowel syndrome. This finding is consistent with the results of other studies (21, 22, 39).

In explaining this finding it can be elucidated that hardy individuals assess unpleasant conditions as a challenging rather than as a threatening, have a commitment to activities and their interpersonal relationships and to self, recognize their own values, goals and priorities in life, and believe that they can influence events and turn stressful circumstances from potential disasters into opportunities for personal growth. Furthermore, hardy individuals can maintain their mental health under unpleasant and unexpected circumstances, because of optimistically style, feeling of ability in the face with difficulties, using problem-solving coping, having positive expectations about consequences, and believing to dependency of outcome to action (40). Belief to change, variation, dynamism of life and to this attitude that any event does not necessarily mean a threat to human health, cause cognitive flexibility and tolerance with respect to stressful difficult events and ambiguous situations (41).

Hardiness as an internal source mediates the choice of emotion regulation strategies by altering the individuals' cognitive appraisal process, so that, the individuals can reframe or reinterpret adverse experiences. Consequently, it is expected that the levels of psychological distresses experienced by them to be reduced (21) and they encounter with fewer problems in their emotion regulation. In this regard, this study also showed that hardy persons tend to experience less negative emotions and get into less maladaptive coping strategies. Thus, it can such be assumed what produce a buffer in hardy people is to control negative affectivity against stress. According to past studies (20, 21), it seems negative affectivity plays a role of mediator between hardiness and stress. Hardiness affects stress and disease via impact on negative affectivity and emotion regulation strategies. In addition, interpersonal forgiveness was significantly and negatively correlated with emotional dysregulation. Forgiveness was a negative predictor (a protective factor) of emotional dysregulation and some its subscales. This study showed that persons with characteristic of interpersonal forgiveness experience lower level of emotional dysregulation, due to they accept their emotional responses and able to do appropriate actions with concentration on them when experiencing nega-
tive emotion. Besides, they inhibit their impulsive behaviors and utilize more adaptive coping strategies. This finding is in line with Sansone et al. and Hirsch et al. (42, 43).

Individuals with borderline personality disorder (characterized by severe disturbances in emotion regulation) show lower forgiveness (42). The effect of self-forgiveness on suicidal behavior was indirect and it was mediated by depression. However, forgiveness of others was directly associated with suicidal behavior (43). Inconsistent with the current study, in another study with aim of assessing the role of forgiveness of self as well as forgiveness of others, lack of self-forgiveness was associated with engaging in self-destructive behaviors along with the greater longevity frequency of that for specific reasons related to emotions regulation and social functioning, namely to get rid of unwanted emotions, to feel something due to feeling numb or empty, and to communicate with others. But no relationship was found between forgiveness of others and self-destructive behaviors (44).

Unforgiveness has been defined as a set of delayed emotions toward a transgressor (45) and produces severe negative emotions (25). Instead, forgiveness not only reduce sun forgiveness through diminishing the negative thoughts, emotions, motivations, and behaviors toward the offender, but also increases positive emotions and perspectives such as empathy, hope, or compassion (45). Thus, since trait forgiveness was positively correlated with ability of empathy and agreeableness (46) and was negatively correlated with anger and vengeful rumination (47), the individuals who are more forgiveness in interpersonal relationships, experiences fewer anger and revenge and their motives are more altruistic. These individuals in the face with an annoying interpersonal situation can control their negative emotions faster and maintain their intimate relationships with giving an opportunity to trespasser to re-communicate (46).

Forgiving individuals alter their attributions toward causality and personality of transgressors. Hence, the impact of rumination reduces and negative emotions such as resentment, bitterness, disgust, hostility, anger, fear are subsided (48, 49). Rumination has been recognized as a mediator between forgivingness and emotional outcomes (47). A structural equation model has been used to examine the relationship between forgiveness and mental and physical health. Its results indicated that the forgiveness-health relation was mediated by positive and negative affect, perceived stress, and the interrelationship between negative affect and stress. In other word, the results show that the relationship between forgiveness and health more is indirect and under other factors (49). Patients who had higher scores on forgiveness-related variables, reported lower levels of pain, anger, and psychological distress. Furthermore, anger largely mediated the association between forgiveness and psychological distress (50). Hence, according to the results of the present study, patients with irritable bowel syndrome who are more forgiving, tend to experience less emotion dysregulation and/or have probably more ability in their emotion regulation.

There are several limitations in this study. This is a cross-sectional analysis; therefore, we cannot determine causality. Other limitations are that variables scores were based on self-report measures and sampling was not based on simple random because limited statistical population. So, we should be cautious in generalizing the findings. Besides, other social factors that may affect the relationship between variables have been overlooked.

Conclusion

Positive internal resources such as interpersonal forgiveness and psychological hardness are as protective factors for emotional dysregulation in IBS patients. Thus, the patients who are more hardy and more forgiving toward others, are likely more successful at adaptive emotion regulation. It emphasizes the positive and beneficial role of the personality traits in regulating of emotional problems of IBS patients. Hence, these variables should be considered as effective factors in the treatment process of the patients. According to the findings of this study, it is recommended that intervention
programs based on positive psychology be implemented for patients in the Psychosomatic Disorders Clinics.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

This study was supported by the Psychosomatic Research Center. The authors declare that there is no conflict of interests.

References

1. Hulisz D (2004). The Burden of Illness of Irritable Bowel Syndrome: Current Challenges and Hope for the Future. J Manag Care Pharm, 10(4): 299-309.
2. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. (2006). Functional bowel disorders. Gastroenterology, 130(5): 1480-91.
3. Tosic-Golubovic S, Miljkovic S, Nagorni A, Lazarevic D, Nikolic G (2010). Irritable bowel syndrome, anxiety, depression and personality characteristics. Psychiat Danub, 22(3): 418-24.
4. North CS, Hong BA, Alpers DH (2007). Relationship of functional gastrointestinal disorders and psychiatric disorders: implications for treatment. World J Gastroenterol, 13(14): 2020-7.
5. Muscatello MR, Bruno A, Pandolfo G et al. (2010). Depression, anxiety and anger in subtypes of irritable bowel syndrome patients. J Clin Psychol Med S, 17(1): 64-70.
6. Gross JJ, Munoz RF (1995). Emotion regulation and mental health. Clin Psycho-SCI PR, 2(2): 151–164.
7. Thompson RA (1994). Emotion regulation: A theme in search of definition. Monogr Soc Res Child, 59(2-3): 25–52.
8. Avia, MD (1997). Personality and positive emotions. Eur J Personality, 11(1): 33-56.
9. Mayer JD, Stevens AA (1994). An emerging understanding of the reflective (meta) experience of mood. J Res Pers, 28(3): 351-373.
10. Calkins SD (1994). Origins and outcomes of individual differences in emotion regulation. In Fox NA. The development of emotion regulation: biological and behavioral considerations. Monogr Soc Res Child, 59(2-3): 53-72.
11. Trogolo M, Medranoa LA (2012). Personality traits, difficulties in emotion regulation and academic satisfaction in a sample of Argentine college students. IJP, 5(2): 30-39.
12. Davies M, Stankov L, Roberts R (1998). Emotional intelligence: In search of an elusive construct. J Per Soc Psychol, 75(4): 989-1015.
13. Terracciano A, Merritt M, Zonderman A, Evans M (2003). Personality traits and sex differences in emotion recognition among African Americans and Caucasians. Ann New York Acad Sci, 1000: 309-312.
14. McCrae R, Costa P (1997). Personality traits structure as a human universal. Am Psychol, 52(5): 509-516.
15. Kokkonen M, Pulkkinen L (2001). Examination of the paths between personality, current mood, its evaluation, and emotion regulation. Eur J Personality, 15(2): 83-104.
16. Makhri SI (2007). Relevance of Hardiness Assessment and Training to the Military Context. Mil Psychol, 19(1): 61–70.
17. Shirbime Z, Soudani M (2009). The survey of relationship between mental health and the psychological hardiness of nursing and midwife students in Azad University of Gachsaran [National Psychology Hemayeshe and its application in community]. Azad university of Marvdasht, Iran; 2009. (Persian).
18. Makhri SI, Harvey RH, Khoshab, DM, Fazel M, Resurreccion N (2009). The Personality Construct of Hardiness, IV Expressed in Positive Cognitions and Emotions Concerning Oneself and Developmentally Relevant Activities. J Humanist Psychol, 49(3): 292-305.
19. Ghorbani N, Watson PJ (2005). Hardiness scales in Iranian managers: evidence of incremental validity in relationships with the five factor model and with organizational and psychological adjustment. Psychol Rep, 96(3): 775-81.
20. Klag S, Bradley G (2004). The role of hardness in stress and illness: An exploration of the effect
of negative affectivity and gender. Br J Health Psych, 9(2): 137–61.

21. Subramanian S, Nithyanandan DV (2008). Hardiness and Optimism as Moderators of the types of Cognitive Emotion Regulation Strategies among Adolescents who had encountered Negative Life Events. J Indian Health Psychology, 2: 167-177.

22. Beasley M, Thompson T, Davidson J (2003). Resiliency in response to life stress: the effects of coping style and cognitive hardiness. Pers Indiv Differ, 34(1): 77–95.

23. McCullough ME, Worthington EL, Rachal K (1997). Interpersonal forgiveness in close relationships. J Pers Soc Psychol, 73(2): 321-336.

24. Worthington EL, Wade NG (1999). The social psychology of unforgiveness and forgiveness and implications for clinical practice. J Soc Clin Psychol, 18(4): 385–418.

25. Witzel CV, Ludwig TE, Bauer DJ (2002). Please forgive me: Transgressors’ emotions and physiology during imagery of seeking forgiveness and victim responses. J Psychol Chris, 21(3): 219-233.

26. Brown RP, Phillips A (2005). Letting bygones be bygones: further evidence for the validity of the Tendency to Forgive Scale. Pers Indiv Differ, 38(3): 627–38.

27. Seybold KS, Hill PC, Neumann JK, Chi DS (2001). Physiological and psychological correlates of forgiveness. J Psychol Chris, 20(3): 250–259.

28. Thompson LY, Snyder CR, Hoffman L et al. (2005). Dispositional forgiveness of self, others, and situations. J Pers, 73(2): 313–360.

29. Lawler KA, Piferi RL (2006). The forgiving personality: describing a life well lived? Pers Indiv Differ, 41(6): 1009–20.

30. Shepherd S, Belicki K (2008). Trait forgiveness and traitedness within the HEXACO model of personality. Pers Indiv Differ, 45(5): 389-394.

31. Friedberg JP, Suchday S, Srinivas, VS (2009). Relationship between Forgiveness and Psychological and Physiological Indices in Cardiac Patients Int. J Behav Med, 16(3): 205–211.

32. Lawler KA, Younger JW, Piferi RL, Jobe RL, Edmondson KA, Jones WH (2005). The unique effects of forgiveness on health: an exploration of pathways. J Behav Med, 28(2): 157–67.

33. Lawler KA, Younger JW, Piferi RL, Billington E, Jobe R, Edmondson K, Jones WH (2003). A change of heart: cardiovascular correlates of forgiveness in response to interpersonal conflict. J Behav Med, 26(5): 373–93.

34. Gratz KL, Roemer L (2004). Multidimensional Assessment of Emotion Regulation and Dysregulation: Development, Factor Structure, and Initial Validation of the Difficulties in Emotion Regulation Scale. J Psychopathol Behav, 26(1): 41-54.

35. Khazanda M, Saidiy M, Hosseinmary M, Edriss F (2012). Factor structure and psychometric properties of difficulties of emotional regulation scale. J behav Sia, 6(1): 96-87. (Persian)

36. Lang A, Goulet C. (2013). Lang and Goulet hardiness scale: Development and testing on bereaved parents following the death of their fetus/ infant. Death Stud, 27(10): 851-880.

37. Roshan R, Shakeri R (2010). The evaluation of reliability and validity a scale for measuring hardiness in students. Daneshvar Raftiar, 40: 35-52. (Persian)

38. Ehteshamzadeh P, Ahadi H, Enayati MS, Heidari A (2011). Construct and Validation of a Scale for Measuring Interpersonal Forgiveness. IJPCP, 16(4): 443- 455. (Persian).

39. Schellenberg DE. Coping and Psychological Hardiness and Their Relationship to Depression in Older Adults. [Psychology Dissertations]. Philadelphia College of Osteopathic Medicine (PCOM): Paper 124, USA; 2005.

40. King LA, King DW, Keane TM, Faribank JF, Adams GA (1998). Resilience-recovery factors in posttraumatic stress disorder among female and male Vietnam veterans: Hardiness, postwar social support and additional stressful life events. J Pers Soc Psychol, 74(2): 420–434.

41. Macki RS, Wadha P, Haier JR (1996). Relationship of hardiness to alcohol and drug use in adolescents. Am J Drug Alcohol Ab, 22(2): 247–257.

42. Sansone RA, Kelley AR, Forbis JS (2013). The Relationship between Forgiveness and Borderline Personality Symptomatology. J Relig Health, 52(3): 974-80.

43. Hirsch JK, Webb JR, Jeglic EL. (2011). Forgiveness, depression, and suicidal behavior among a diverse sample of college students. J Clin Psychol, 67(9): 896-906.
44. Westers NJ, Rehfuss M, Olson L, Biron D (2012). The role of forgiveness in adolescents who engage in nonsuicidal self-injury. J Nerv Ment Dis, 200(6): 535-41.

45. Harris AHS, Thoresen CE (2005). Forgiveness, Unforgiveness, Health, and Disease. In: Handbook of Forgiveness. Eds, Worthington. Brunner-Routledge. New York, pp. 321-324.

46. Ehteshamzadeh P, Ahadi H, Heydarei AR, Eftekhar Saad Z (2008). The survey of simple and multiple donor relationship between behavior Islamic towards stresses and general Health among students. New Finding in Psychology, 2(8): 100-113. (Persian).

47. Berry JW, Worthington EL, O'Connor LE, Parrott L, Wade NG (2005). Forgivingness, vengeful rumination, and affective traits. J Pers, 73(1): 183-225.

48. Fincham FD, Jackson H, Beach SRH (2005). Transgression severity and forgiveness: Different moderators for objective and subjective severity. J Soc Clin Psychol, 24: 800–875.

49. Green M, Decourville N, Sadava S (2012). Positive affect, negative affect, stress, and social support as mediators of the forgiveness-health relationship. J Soc Psychol, 152(3), 288-307.

50. Carson JW, Keefe FJ, Goli V, Fras AM, Lynch TR, Thorp SR, Buechler, JL (2005). Forgiveness and chronic low back pain: a preliminary study examining the relationship of forgiveness to pain, anger, and psychological distress. J Pain, 6(2): 84-91.