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The role of interpersonal forgiveness in resilience and severity of pain in chronic pain patients

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Abstract

Introduction: Following the growing interest in positive psychology, in recent years, research has been rapid growth in forgiveness and its relationship to health. In line with these studies, the purpose of the present study was to assess the role of interpersonal forgiveness in predicting of resilience and pain severity in chronic pain patients.

Materials and Methods: In this descriptive-correlational study, 218 patients with chronic pain from several medical centers affiliated to Isfahan University of Medical Sciences in 2014 were selected by convenience sampling. The research instrument was three questionnaires: Interpersonal Forgiveness Inventory (IFI), Connor-Davidson Resilience Scale (CD-RISC) and Multidimensional Pain Inventory (MPI). Data was analyzed using correlation and multiple regressions by SSPS-20.

Results: The results showed that interpersonal forgiveness had significantly positive relationship with resilience in chronic pain patients (P<0.05), while it had no significant correlation with pain severity and age in these patients. Moreover, the results of regression analysis showed that interpersonal forgiveness components predict 42 percentages of resilience scores in chronic pain patients.

Conclusion: Based on the results of this study development in understanding of concepts in positive adaptability such as interpersonal forgiveness and resilience can help chronic pain patients.

Keywords: Chronic pain, Forgiveness, Resilience

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Introduction

Chronic pain is a chronic health condition that it known as a universal problem. In Iran, 9-21% of adult population (1) and 15-46.5% of worldwide general population suffer from chronic pain (2,3). Chronic pain is a factor for recurrent refers to medical system because of its characteristics such as recurrence and continuity that related with great costs, biological and psychosocial problems (4). On the other hand, there is not certain treatment for chronic pain and most of treatment approaches are failed (3), so each type of research in the field of adjustment and patients' better function can provide valuable information.

In the recent years, positive psychology in different fields of health psychology such as chronic diseases is an interesting subject for researchers and significant progressions are visible in treatment and research fields of this approach. Positive psychology emphasizes on humans ability instead of abnormality or disorder. Therefore the most adapted factors with human's needs and threats are the key factors of this approach (5).

Now, the various adjustment concepts such as optimism (6), hope (7), quality of life (8) and wisdom and happiness (9) have been suggested in positive psychology. Also, psychological resilience is a key concept in this field. The new interest for adjustment and positive psychology began 1970 to 1980 decades through rich researches in children's resilience. Now, there is certainty about the usefulness of theories and applications of resilience for general population (10).

Resilience is known as ability for successful

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adjustment with stressful factors and maintenance of mental welfare against disasters (11). It means that resilience is a result of humans ability for interaction with environment and processes which it enhances welfare and protects the individual against risk factors (12). Yehuda et al. know the psychological resilience as a permanent source of temperament which identifies through humans coming out of a negative experience and great disaster (13). While Rutter believes that resilience is not a rare ability and it can be learned by anyone and it should be considered as a process rather than a fixed character of personality (14). The results of studies indicate that individuals with chronic pain who have high resilience in cognitive and behavioral aspects of pain such as coping styles with pain, attitude about pain, tendency for catastrophizing and model of application of health and medical care services, have better function (15,16). Also, resilience mechanisms can modify the relation between pain and its outcomes through strengthen the coping responses so resilience play a mediator role in relations between pain and outcomes related to health and welfare (17).

Ryff and Singer believe that there is a relationship between stresses, negative life experiences, personality and behavioral factors such as behavioral and medical outcomes. So, progression of concept of resilience against disease needed the researches which focused on positive health psychology as a bridge between behavioral, environmental and psychosocial factors (18). Also, McEwen believes that the management style of negative emotions such as anger, resentment and fear is a factor related to resilience and positive health psychology. So, it should be needed that the promoting characteristics of positive health psychology be identified (referred to 19).

One of the concepts that it seems to be effective in positive mental health is interpersonal forgiveness. The field of forgiveness is partly young compared to 50 year researches in field of resilience and only in the past 20 years, social researchers have considered to forgiveness seriously (10) but it has specific place in positive psychology as a solving for reduction of harmful effects of interpersonal mistakes and enhancement of positive adjustment. Although the base of forgiveness derivates from the religious beliefs among different religions such as Islam, Judaism, Christianity and Buddhism who believe that God forgives men so people should forgive the wrongdoers (20).

Forgiveness is a freely choice for release the anger and revenge about person who hurt and trying to generous response with kindness to that person (21). Although forgives does not mean deny, minimize or forget of his/her mistakes (22). Forgiveness entered as limited to the research literature of resilience previously (23), for example Wolin and Wolin suggested that resilient individuals need to release pains and follow the healing (24) but only in the recent years, the limited studies assessed the relation between resilience and forgiveness directly (10,19,25). The results of these studies showed that forgiveness has a significant role in increase of resilience. Broyles believes that the relation between resilience and forgiveness, provide arguments for positive psychology (25).

In addition, the results of almost studies about forgiveness indicate that interpersonal forgiveness is related to reduction in psychological distresses and negative emotions such as anger and promotion of positive emotions (26-29). Fitzgibbons suggested that people, who forgive others, can reduce their anger that usually related to anxiety, depression and the other emotional disorders. Based on all his studies, he resulted that forgiveness is a main emotional concept for reduction of anger in different disorders (30).

Also, the results of the past studies indicate that interpersonal forgiveness generally plays role in mental health (28,29,31) and through reduction of psychological distresses affect on physical health (29,31-33) and healthy life (34). In addition, the results of experimental studies suggest that forgiveness plays role in reduction of reaction to stress (35). Worthington et al. present a theoretical model that un-forgiveness is concerned as a stressor factor associated with negative emotions and forgiveness is concerned as a emotional coping skill which plays role in physiological processes directly while it affects indirectly on outcomes of health through enhancement of health effective factors such as social support, quality of communication and religion. Although researchers believe that more studies such as cohort studies be needed for approval of this model especially effect on physical health (36).

In this regard, the limited studies have assessed the role of forgiveness in psychological distresses and pain in patients with chronic pain (37,38). The results showed that patients with higher scores of variables of forgiveness reported low levels of pain (37), anger and psychological distresses (37,38). Also, anger can mediate association between forgiveness and psychological distresses, and the association between pain and some of variables of forgiveness (37). On the other hand, it is possible

that forgiveness is a main mechanism in modification of cognitive aspects of chronic pain and it can modify the content of thought, emotions, behavior and reaction (38). Now, regarding to the limited available clinical studies about the relation between forgiveness and resilience, more studies should be conducted. Also, according to the important role of positive adjustment in physical, psychological and social health among patients with chronic pain, the present study aimed to assess the role of interpersonal forgiveness in prediction of resilience and severity of pain in patients with chronic pain.

Materials and Methods

The statistical community of this descriptive-correlational study concluded all patients with chronic pain who treated in several medical centers of Isfahan city or they referred by rheumatologists, orthopedics and neurologists to some imaging centers of Isfahan city during June-December 2014. The cases were selected through available sampling method. Inclusion criteria included aged 18-60 years, education for at least middle school, pain for at least 6 months and lack of serious infectious diseases or malignant physical diseases such as cancer, hepatic or renal failure, AIDS and hepatitis. Also exclusion criteria included lack of consent for participation and incomplete questionnaires. Ethical issues based on standards of research committee of Isfahan University of Medical Sciences were observed.

The participants responded to questions of questionnaires after obtaining written consent and explanation about the confidentiality of information, application of data for research purposes and explanation about response to questions. The sample size estimated about 200 cases based on Morgan table but according to dropping possibility it increased to 240 cases regarding to the inclusion criteria. The data related to 22 patients were excluded because of exclusion criteria or incomplete questionnaires. Finally, data related to 218 patients with chronic pain (155 women, 63 men) were assessed.

Research instruments

- *Interpersonal Forgiveness Inventory (IFI):* This is a 25-item questionnaire which was created by Ehteshamzadeh et al. for assessment of interpersonal forgiveness in Iran. It has 3 subscales of re-communication and control of revenge (12 questions), resentful control (6 questions) and realistic understanding (7 questions). This questionnaire is scored based on Likert scoring (score: 1-4) for last 7 questions (19^{th} -25^{th} questions) as completely disagree (1), disagree (2), agree (3) and completely agree (4) but the other questions are scored reversely. So the minimum and maximum scores of this scale are 25 and 100 respectively. The higher score indicates high ability for forgiveness of others mistakes. Ehteshamzadeh et al. reported test-retest reliability coefficient for the total scale and the subscales 0.71, 0.70, 0.68 and 0.58 respectively and its reported based on Cronbach's alpha for the total scale and the subscales 0.80, 0.77, 0.66 and 0.57 respectively (39). In this research its reported based on Cronbach's alpha for the total scale and the subscales 0.78, 0.76, 0.58 and 0.55 respectively.

- *Connor-Davidson Resilience Scale (CD-RISC):* This is a 25-item questionnaire which provided by Connor and Davidson for measurement of ability of adjustment to stress. The scoring is according to Likert system (score: 0 (never) -4 (always)). The results of primary explorative factorial analysis indicate that it is a multi-dimensional instrument and it has approved five factors included competency/personal strength, confidence to intuition/tolerate negative emotions, positive acceptance of change/safe relationships, control and spirituality has been confirmed but because the reliability and validity of subscales have not been confirmed yet, now just total score of resiliency is valid for research purposes (40). The Persian version of this scale was standardized by Mohammadi in Iran (2005) and its validity and reliability were approved in different researches (41). In the present study, the internal consistency of this scale was measured as 0.91 based on Cronbach's alpha.

- *The West Haven-Yale Multidimensional Pain Inventory (WHYMPI):* This scale is designed by Kernz et al. (1985) based on the cognitive-behavioral theory of pain and its validity and reliability are approved. This scale has three independent parts that each part has several subscales. The first part which measures severity of pain was applied in this research. This part has 20 sentences which measure 5 subscales included severity of pain, disturbance in daily function, and control on life, emotional disturbance and social support. The second part has 14 sentences which measure the patient's evaluation about reaction of spouse or others, who have important role in patient's life in 3 subscales included negative reaction, try to distraction of pain and show of kindness. The third part has 18 sentences included 4 subscales of patients activities in home, functions related to maintenance of home instruments, social

activities and extra-home activities. The questions scored based on the Likert system (0-6). The subscale of severity of pain included the questions of numbers 1, 7 and 12 that the score is calculated through division of the sum score on 3 (42). Asghari Moghaddam and Golak approved the reliability and validity of Persian form of questionnaire based on Cronbach's alpha in range of 0.77 to 0.92 (43). In the present study, Cronbach's alpha measured as 0.89.

Data analyzed through Pearson coefficient and multi regression analysis via SPSS software version 20.

Results

The demographic data show that almost of participants include woman (71%), married (74%) with mean age of 42 ± 10.80 years and mean duration of pain is 5.6 ± 5.6 years. Also, the frequency and percentage of location, type and pain in several locations are presented in Table 1. According to this table, the most location of pain has been reported in limbs (49%) and most frequent type of pain was spasm (36%). Also, most of patients (45%) reported pain in more one location of their body.

Table 1. Frequency and percentage of location, type pain among patients with chronic pain

Variable		Prevalence	Percentage
Location of pain	Head	41	10
Husbands´ mental health	Spine	140	35
Wives´ marital satisfaction	Limb	202	49
Husbands´ marital satisfaction	Chest	14	4
Mental health of all people	Abdomen	7	2
Marital satisfaction of all people	Burning	60	16
	Insentience	29	8
	Spasmodic	135	36
	Tingling	25	7
	Radiating	97	26
	Pulsing	28	7
Pain in one location		95	45
Two location		46	21
More than two location		73	34

The descriptive findings (prevalence, mean and standard deviation) of participants' scores in interpersonal forgiveness and its components (re-communication and control of revenge, control of resentment, realistic conception and understanding), resilience.

Table 2. The descriptive of statistics related to interpersonal forgiveness and its components, resilience and severity of pain in patients of chronic pain

Variable		Prevalence	Mean	Standard deviation
Total interpersonal forgiveness		218	68.27	11.45
Components of interpersonal forgiveness	Re-communication and control of revenge	218	32.38	6.90
	Control of resentment	218	16.96	5.28
	Realistic understanding	218	18.92	4.04
Resilience		218	89.89	15.24
Severity of pain		218	4.33	080

Pearson test was applied to assess the relationship between interpersonal forgiveness and its components with resilience, severity of pain, age and pain duration among patients with chronic pain that the results are presented in Table 3. Based on the results, interpersonal forgiveness and its components (P<0.01), re-communication and control of revenge (P<0.01), control of resentment (P<0.01) and realistic understanding (P<0.05) have significant relationships with resilience while severity of pain and age have not these relationships with resilience (P>0.05). In addition, there is significant relation between severity of pain and resilience (P<0.05).

Table 3. Coefficient between interpersonal forgiveness and its components, resilience, severity of pain and age among patients with chronic pain

Variable	Interpersonal forgiveness	Re-communication and control of revenge	Control of resentment	Realistic understanding	Resilience	Severity of pain
Total interpersonal forgiveness	1					
Re-communication and control of revenge	0.863**	1				
Control of resentment	0.760**	0.522**	1			
Realistic understanding	0.363**	0.053	0.048	1		
Resilience	0.422**	0.378**	0.299**	0.159*	1	
Severity of pain	0.055	0.023	0.048	0.060	0.160**	1
Age	0.080	0.116	0.063	0.050	0.030	0.043

**P<0.01, *P<0.05

The multi-variance regression used for prediction of scores of resilience among patients with chronic pain based on the scores of interpersonal forgiveness. The results have been indicated in Table 4.

Based on the results, F value is significant in variance analysis of the scores of interpersonal forgiveness (P<0.01) and total regression has statistical validity. The coefficient of predictor variables indicate that 42% of the scores of resilience among patients with chronic pain are affected by components of interpersonal forgiveness (R2=0.180). Also, these coefficients based on t-test indicate that all components of interpersonal forgiveness included re-communication and control of revenge (P<0.01), control of resentment and realistic understanding (P<0.05) can predict the changes of resilience significantly.

Table 4. Summary of regression model and variance analysis of resilience based on the components of interpersonal forgiveness

Predictor variable	B	SE	β	t	sig	R	R2	DF	F	sig
Dimensions of interpersonal forgiveness						0.424	0.180	214.3	15.64	0.001**
Re-communication and control of revenge	0.31	0.079	0.290	3.97	0.001**					
Control of resentment	0.10	0.051	0.15	2.12	0.035*					
Realistic understanding	0.16	0.067	0.151	2.43	0.016*					
Distance from base	3.67	0.153		24.01	0.001**					

Discussion

The present study aimed to assess the role of interpersonal forgiveness in prediction of resilience and severity of pain among patients with chronic pain. The results showed that there is a positive and significant relationship between interpersonal forgiveness and all components (re-communication and control of revenge, control of resentment and realistic understanding) with resilience among patients with chronic pain.

In addition, the results of regression analysis showed that interpersonal forgiveness is effective in prediction of resilience among patients with chronic pain and all its component such as re-communication and control of revenge, control of resentment and realistic understanding have effective role in prediction and these components can predict 42% of increasing resilience among patients with chronic pain. This finding approves the results of the limited studies which indicated that forgiveness is associated with resilience (10,19,25).

These studies conducted among non-clinical populations such as adolescents, women and elderly individuals. The results indicated the role of forgiveness in promotion of resilience. Also, some studies refer to the relation between resilience and forgiveness (8,36,44) which concordant with the results of the present study. It be suggested that the relation between resilience and forgiveness is expectable because these two structures are suggested in positive psychology as important concepts in humans adjustment and ability (10,20,45).

Also, forgiveness as a potential solution is a positive facilitator through reduction of harmful effects of interpersonal mistakes and maintenance of healthy relations. In addition, people with more tendencies to forgive have more intimacy, satisfaction and commitment in relations (46). So, forgiveness is a strong social phenomenon which helps social life through making healthy relation (10). The researchers believe that resilience presents in the deepest levels of forgiveness. Forgiveness not only helps close relation to forgive the wrongdoer but it also facilitates reconstruction the relation after mistake (control of revenge and re-communication). Also, forgiveness related to find meaning for person or others who suffer and finding a new meaning for life (realistic conception) (47). On the other hand, in primary researches of resilience as a first wave, which conducted on the survivals of dangerous situations, the characteristics such as positive affect, optimism, cognitive flexibility, active coping (religious or spirituality), social support, intimacy and empathy, the regulation of negative emotions and dominance are effective in resilience (13). It seems that interpersonal forgiveness or even forgiveness play role in achievement to some of these characteristics. In fact, forgiveness and resilience have a common nature that person thoughts and acts in a way that correct the negative relations and situations and heals wounds (10).

Also, the results indicated that interpersonal forgiveness and its components have not significant relations with the severity of pain among patients with chronic pain while resilience has a reversed and significant relation with the severity of pain. Such that the resiliency increases the pain decreases in these patients. These results not concordant with the limited studies about chronic pain which suggest that forgiveness is correlated with the reduction of pain (37).

Based on the theory of gait control of pain, the input of the descendent and central neurons can be changed by positive and negative emotions. Somehow negative emotions can increase pain while positive emotions can decrease the severity of pain (48). So it is possible that according to this theory, forgiveness affect indirectly on pain. Based on the prior studies (37,38) forgiveness is related with reduction of pain through reduction of anger and psychological distresses. In the present study indicated that resilience related to reduction of pain so it is possible that interpersonal forgiveness plays in reduction of pain through resilience. The results of a study showed that forgiveness has indirect effect on health through the ways such as social support (29). However this is a reasonable guess and needs to more research. On the other hand the limited studies in this field lead to difficulty in comparison and discussion.

The additional findings of research showed that there is not significant relation between age and interpersonal forgiveness and resilience. This finding is concordant with the previous study among elderly individuals that it suggests age is not associated with increasing resilience and interpersonal forgiveness (25). Although it opposites with formal thought which suggests increased age is related with increased interpersonal forgiveness and resilience while more studies should be conducted about the relation between age and interpersonal forgiveness and resilience.

There are limits in the present study which limit the generalization of data. Most of these limitations are non-randomized sampling, limitation to several centers of Isfahan city, lack of mediated variables such as mental health, limited sampling to clinical population and patients with chronic pain and usage of one instrument to assess interpersonal forgiveness which is different from the same conducted studies.

Si it is suggested that more studies be conducted according to the defects in this field and probable variables in interpersonal forgiveness and resilience such as psychological, epidemiological and socio-cultural variables. Also, the interventions should be designed to enhance resilience based on interpersonal forgiveness and their effects in resilience and psychophysical health be assessed among clinical and non-clinical populations especially in patients with chronic pain.

Conclusion

Overall, the results showed that interpersonal forgiveness and all its components included re-communication and control of revenge, control of resentment and realistic conception play role in prediction of resilience among patients with chronic pain but there is not significant relationship between interpersonal forgiveness and the severity of pain. So, the results of this study can provide valuable data in the field of psychological resilience and interpersonal forgiveness as participated coping skills in positive psychology.

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