

The Relation Between Marital Adjustment and Posttraumatic Growth in Infertile Couples: The Mediatory Role of Religious Coping Strategies

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Abstract

Background: Infertility as a crisis can both lead to negative reactions and stress in infertile couples and bring about positive reactions and growth, to which henceforth posttraumatic growth is referred. This study was conducted to model the relation between marital adjustment and posttraumatic growth through the mediation of religious coping strategies in infertile couples.

Methods: This correlation-based study was performed on 250 couples at the infertility center of Shariati hospital, Tehran, Iran, selected via convenience sampling. They answered to the Marital Adjustment Scale, the Posttraumatic Growth Inventory, and the Religious Coping Strategies Inventory. This study used Structural Equation Modeling.

Results: The results showed significant positive relationships between marital adjustment and both positive religious coping strategies and posttraumatic growth. A significant positive relationship between positive religious coping strategies and posttraumatic growth was also detected. Positive religious coping strategies were observed to play a mediatory role between marital adjustment and posttraumatic growth. This was the case while attributing such a mediatory role to negative coping strategies was not possible.

Conclusion: Based on the results, this study can be seen as further evidence showing the necessity of focusing on the role of positive religious coping strategies in marital adjustment and posttraumatic growth in infertile couples.

Keywords: Coping strategies, Infertile couple, Marital adjustment, Posttraumatic Growth, Religion.

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Introduction

Infertility is defined as failing to conceive after one year of regular sexual intercourse in the absence of contraceptive methods (1). Experience of Infertility that some have called Infertility crisis, is associated with the physical, economic, psychological and social stress and it will affect all aspects of life (2). So that researchers believe infertility is among the most stressful events in a patient's life (3) and consider the diagnosis phase, the time spent on dealing with the issue, the emotional impact experienced during treatment, and the medical interventions to be severely

harmful (4). The negative effect of infertility on health and the physical integrity of the person (5), as well as its role in damaging the quality of the marital relationship, reducing self-confidence, and causing distress and depression (6), confusion, stress, sexual dissatisfaction (7) have been shown in various studies. As an important personal and social problem, in addition to being associated with numerous psychological problems such as depression, anxiety, distress, and life dissatisfaction, infertility can eventually lead to lack of marital adjustment (8).

In the past decade, marital adjustment and satisfaction along with its relation with other aspects of life has been studied extensively by psychologists (9).

Based on Fredrickson's broaden-and-build theory (1998) of positive emotions, marital adjustment can be considered as an influential factor in developing thoughts and expanding resources regarding its association with positive emotions such as affection, satisfaction, happiness and appreciation. Marital adjustment is in fact the situation where the couple both feel happy and are satisfied with one another (10) and their satisfying relationship can be assessed via their mutual affection, care for each other, mutual acceptance and consensus. On this basis, positive emotions are the absolute indices of well-being and the total balance between one's positive and negative emotions can be a predictor for their feeling of well-being. Regarding this theory, specific practical attitudes, completely manifest the form and function of negative emotions. The specific practical attitude can be described as an outcome of a psychological process which limits one's thought and action assets by recalling the intention of a certain behavior to the mind (such as escape in time of fear) and in threatening situation, expands the rapid reactions range which has an instant and direct effect while the positive emotions enjoy the expatory effect (11).

Positive emotions broaden the thought-action repertoires of the individuals and extend the range of ideas and actions that enter the mind (12). These various ideas and actions each lead to paths through which positive emotions step beyond the ordinary thinking and acting practices. Positive emotions therefore enlarge the cognitive context (11).

The fact that marital adjustment is the most important indicator of good performance in a family (13) and increases trust, love and loyalty (14) shows its significance. Moreover, marital maladjustment, as a predictor of psychological distress (15, 16) is closely linked to an increased risk of depression and other psychological disorders, as well as divorce (17).

Even though it is well established that infertility can produce tension in social relations, mental disturbance in the couple, and divorce (18), scholars have different views about the effect of infertility on marital adjustment. Many report a decrease in marital adjustment and functioning as a result of infertility, while others believe, based on

detailed studies, that going through the diagnosis and treatment phases leads to higher levels of communication and intimacy between spouses (19). For instance, according to the results of the study by Repokari and Punamaki (2007), infertility treatment phases cannot be a threat to marital adjustment and splitting the stress between the spouses can in fact strengthen marital ties (20).

As recent studies have confirmed, not all people suffer from psychological issues after experiencing stress; in fact, for many of them, these crises serve as facilitators for increasing resistance and personal and social resources, developing new coping skills, and in general personal progress. Along the same lines, the term posttraumatic growth coined by Tedeschi and Calhoun (1998) refers to the individuals' tendency to report positive changes after a stressful experience (21).

According to the existing literature, the following factors have been identified to contribute to posttraumatic growth: spirituality or openness towards religious changes, social support and personal motivation, the intensity of the event, and positive and active coping (22-25). Studies have also shown that religious coping strategies serve as an independent factor contributing to posttraumatic growth (26). Park, Cohen and Murch (1996) showed that there is a direct relationship between religion, positive change, social support, and acceptance on the one hand and stress-related growth on the other (27). In fact, since some aspects of religious practices and beliefs are extensively related to a healthy life, it is reasonable to expect religion to have a role in the way individuals cope with stressful events. Religion makes clear the limitations of the material aspects of people's lives, their personal desires, and their life in general, offering a solution to handle these limitations through beliefs that go beyond the individuals (28).

Consequently, the individual's responses in coping with the impact constitute an important element in achieving posttraumatic growth. The literature confirms the importance of coping attitudes as a mediatory factor determining the psychological consequences of stress (21). Collings et al. (1990) have assumed that active coping efforts such as multiple evaluations are effective in reaching these consequences (29).

Based on what was said, the coping strategies of infertile couples have been examined in numerous studies (8). The results show that coping strategies differ between well-adjusted couples and poorly

adjusted couples. Through religious coping strategies, infertile couples with better marital adjustment achieve a set of adjusting behaviors consistent with the event.

In general, considering the importance of post-traumatic growth in facing the damages and the aftermaths of stress along with the role it plays in helping the individual progress and achieve positive new changes, it seems necessary to identify the factors that are related to this growth and facilitate it. The main aim of this study is to model the relationship between marital adjustment and post-traumatic growth and the mediatory role of religious coping strategies in infertile couples.

Methods

This study measures correlation using structural equation modeling. The statistical population in this research includes all infertile couples that have visited Shariati hospital, Tehran, Iran during the years 2013 and 2014. This study was performed on 250 people and the sample consisted of 70 men (28%) with an average age of 35.38 ± 6.01 and 176 women (70%) with an average age of 30.23 ± 5.93 . Four of the individuals did not answer the question regarding gender in the questionnaire.

The average number of years since marriage in the sample was 84.96 months and the average length of the infertility period was 46.56 months. Among the four possible cases for the source of infertility -male, female, both, unknown- the most common case was female infertility (27.6%) and the least common case was male infertility (20.2%).

Spanier's Dyadic Adjustment Scale: Spanier's (1976) Dyadic Adjustment Scale (DAS) is a 32-item self-report measure used for measuring the quality of the relationship between couples through evaluating their mentality regarding marital adjustment. This scale measures four aspects of a relationship: marital satisfaction, marital cohesion, marital consensus, and affective expression. Spanier (1976) calculated the reliability coefficient of this method to be 0.96 in terms of Cronbach's alpha (30). In Spanier and Thompson's (1982) research, the number is reported to be 0.91 (31). To further assess the reliability of the scale, Spanier (1976) also used Lock and Wallace's (1959) marital adjustment scale; the correlation between the two scales was 0.86 for married couples and 0.88 for divorced couples (30). In a study by Mollazadeh et al. (2002), the internal consistency of this tool was

found to be 0.95 (32). To determine the validity of the scale, logical methods were used first to assess content validity. The dyadic adjustment scale's validity was shown by correctly distinguishing married couples from divorced couples. It is also worth noting that this scale has concurrent validity as well (33). In the current study, the internal consistency coefficients for the four subscales of this questionnaire (marital satisfaction, marital cohesion, marital consensus, and affective expression) were found to be 0.83, 0.76, 0.87, and 0.59, respectively. This method uses a scale of 0 to 151; achieving 101 and higher shows high adjustment and a better relationship while anything below that number shows a low level of adjustment (33).

Posttraumatic Growth Inventory (PTGI): Posttraumatic growth inventory is a test devised by Tedeschi and Calhoun (1996) used as a tool for evaluating positive consequences in people who have experienced undesirable events. The questionnaire consists of 21 questions listed under five domains: new possibilities, relating to others, personal strength, appreciation of life, and spiritual change. The internal consistency of the test is reported to be 0.90 in general and covering a range from 0.67 to 0.85 for the individual domains. The test-retest reliability of the test was 0.71 for a 2-month period and 0.86 over a 6-month period (34). In Moussavi's study (2008), the internal consistency was found to be 0.92 in general and for the five domains (relating to others, new possibilities, personal strength, spiritual change, and appreciation of life) were found to be 0.82, 0.79, 0.82, 0.71, and 0.62 (28). In the present study, the internal consistency coefficients for the five domains (relating to others, new possibilities, personal strength, spiritual change, and appreciation of life) were found to be 0.83, 0.82, 0.80, 0.78, and 0.76. The responses are given weights based on Likert scales from 0 (I never experienced this change) to 5 (I experienced this change to a high degree). For each domain, the score is equal to the sum of the scores of the responses to its corresponding items. The final score of the scale can be calculated for PTGI.

Religious Coping Inventory (RCOPE): Religious Coping Inventory is created by Pargament et al. (2000) and in general evaluates the way religion is used by individuals to deal with stress in life. The test lists negative and positive coping strategies in two separate sets. The test has 21 subscales and comes in three versions: long (105 items), medi-

um (63 items), and short (21 items). This study used the short version where each subscale has only one question. Of these 21 questions, 12 are dedicated to positive religious coping and 9 are dedicated to negative religious coping. The internal consistency of the test in terms of Cronbach's alpha was 0.87 for positive religious coping and 0.78 for negative religious coping (35). In order to assess the reliability and validity of the test, in a preliminary study in the winter of 2001, the correlation between the scores that were achieved through using the two scales together was found to be 0.6 (36). Cronbach's alpha coefficient was calculated to measure the reliability of the test. The coefficient equaled 0.86 for the subscale "positive religious coping" and 0.65 for negative religious coping. These results match the results found earlier by Pargament et al. (2000) in their research on families with autistic children. In the present study, the internal consistency coefficients for negative and positive strategies were 0.85 and 0.56, respectively. In the factor analysis process, the items belonging to the positive coping strategies subscale were grouped; assigning questions 1, 13, 17, and 5 to p1, questions 20, 6, and 21 to p2, and questions 10, 11, and 19 to p3. The responses were weighted based on Likert scales from 0 (never) to 3 (most of the times). A higher score for each subscale shows higher use of the corresponding strategy.

Statistical analysis: Patients visiting the infertility center of Shariati hospital completed the questionnaires voluntarily. Afterwards, in order to analyze the data, in addition to calculating the zero order correlation matrix for the main variables of the research, the structural relations between the variables were calculated via structural equation modeling to assess the performance of the test. These steps were taken with the help of the software packages SPSS¹ and AMOS². The p-value less than 0.05 was considered significant.

Results

Table 1 shows mean scores and standard deviations for the main variables of the study.

The data of table 1 show that the mean and standard deviation of dyadic consensus subscale in marital adjustment factor, the mean and standard deviation of interpersonal relationship subscale in posttraumatic growth factor and the mean

Table 1. Descriptive indices of the variables of study

Total factor	M	SD
Marital adjustment		
Marital satisfaction	37.56	7.77
Marital cohesion	16.75	5.04
Marital consensus	50.37	8.51
Affective expression	9.54	2.19
Posttraumatic growth		
Personal strength	11.66	4.83
New possibilities	13.23	5.89
Relating to others	18.41	7.54
Appreciation of life	6.71	2.72
Spiritual change	6.62	2.75
Religious coping		
Positive	24.91	7.44
Negative	8.16	3.80

and standard deviation of positive strategies subscale in religious copying strategies, are the highest scores.

The results in table 2 show that the relation between the various levels of factors that affect marital adjustment (excluding the marital satisfaction subscale) and positive religious coping strategies is positive and significant. On the other hand, the relation between these factors (excluding the marital consensus subscale) and negative coping strategies is negative and significant. There is also a positive and significant relation between marital satisfaction and any of the subscales "new possibilities", "personal strength", "spiritual change", and "appreciation of life". Marital cohesion has a positive and significant relation with new possibilities, personal strengths, spiritual change, and appreciation of life. Marital consensus has a positive and significant relation with all of the subscales of posttraumatic growth. Affective expression has a positive and significant relation with the subscales new possibilities, personal strength, spiritual change, and appreciation of life. Lastly, the relation between positive coping strategies and all of the subscales of posttraumatic growth is positive and significant while negative coping strategies does not have a significant relation with any of the subscales in posttraumatic growth.

In order to explain the distribution pattern of posttraumatic growth scores among infertile individuals through marital adjustment variables and religious coping strategies, the method of structural equation modeling was utilized, making sure beforehand that the relevant assumptions including univariate and multivariate normal distribution,

Table 2. Mean scores and the correlation between the variables of the research

Total factor	Subscale	1	2	3	4	5	6	7	8	9	10	11
Marital adjustment												
	Marital satisfaction	1										
	Marital cohesion	0.551**	1									
	Marital consensus	0.507**	0.475**	1								
	Affective expression	0.540**	0.456**	0.642**	1							
Posttraumatic growth												
	Personal strength	0.240**	0.206**	0.220**	0.242**	1						
	New possibilities	0.188**	0.135*	0.200**	0.199**	0.200**	1					
	Relating to others	0.055	0.075	0.170**	0.079	0.170**	0.657**	1				
	Appreciation of life	0.271**	0.155*	0.252**	0.199**	0.252**	0.701**	0.608**	1			
	Spiritual change	0.199**	0.165**	0.154*	0.162*	0.154*	0.545**	0.541**	0.587**	1		
Religious coping												
	Positive	0.122	0.126*	0.281**	0.158*	0.411**	0.295**	0.381**	0.423**	0.541**	1	
	Negative	-0.276**	-0.141*	-0.066	-0.159*	0.027	0.051	0.114	-0.012	-0.040	0.243**	1

*P<0/05; **p<0/01

Table 3. Goodness-of-fit indices of the model

Pattern	χ^2	Df	χ^2/df	RMSEA	CFI	GFI	AGFI
Positive religious coping strategies	125.47	51	2.460	0.077	0.954	0.925	0.88

linearity, and multicollinearity are valid. Goodness-of-fit indices were also used showing that the model fit the data adequately (Table 3).

Figure 1 shows the results for the prediction of posttraumatic growth scores by marital adjustment through the mediatory role of positive coping strategies. In this model, 32% of the distribution of scores for posttraumatic growth in infertile individuals can be explained by the variables belonging to marital adjustment and positive religious coping strategies. On the other hand, 0.09% of the distribution of scores for positive religious coping strategies can be explained by marital adjustment.

In the structural model assumed here (Figure 2), all path coefficients between the latent variables were statistically significant. In this model, the

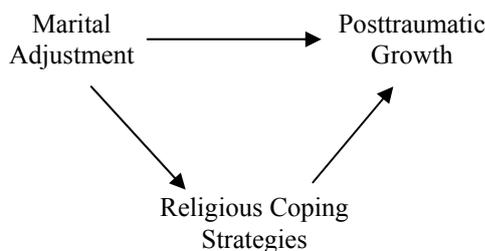


Figure 1. Structural model display relationships between Marital Adjustment and Posttraumatic Growth variables by mediating Religious Coping Strategies

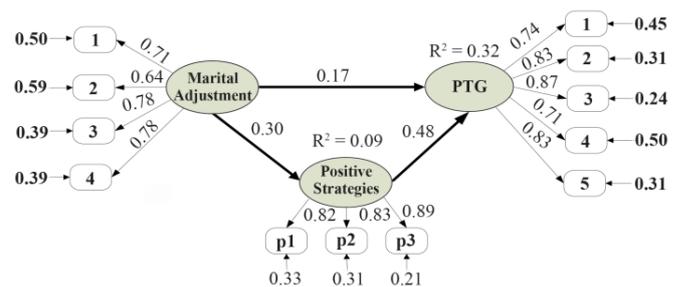


Figure 2. The mediatory model of positive religious coping strategies predicting posttraumatic growth through marital adjustment.

Note that in the latent variable marital adjustment, 1=marital satisfaction, 2=marital cohesion, 3=marital consensus, and 4= affective expression. In the latent variable positive religious coping strategies, p1 is the combination of items 1, 5, 13, and 17, p2 is the combination of items 6, 20, and 21, and p3 is the combination of items 10, 11, and 19. In the latent variable posttraumatic growth, 1=relating to others, 2=new possibilities, 3=personal strength, 4=spiritual change, and 5= appreciation of life

relation between marital adjustment and positive religious coping strategies was positive and significant. The relation between marital adjustment and posttraumatic growth, as well as the relation between positive religious coping strategies and posttraumatic growth were also positive and significant.

It is worth noting that since joint dispersion between the subscales of negative religious coping strategies and the subscales of posttraumatic

growth as the underlying factor was not statistically significant, it is not possible to analyze a mediatory role for negative religious coping strategies for the relation between marital adjustment and posttraumatic growth. Based on these results, the present study shows that negative religious coping strategies do not explain the joint dispersion of marital adjustment and posttraumatic growth in a statistically significant way.

According to the structural model, the indirect effect of the exogenous latent variable, *i.e.* marital adjustment, on posttraumatic growth through positive religious coping strategies was found to be 0.144. The results showed that the indirect effects of the exogenous latent variable (marital adjustment) on the ultimate endogenous variable (posttraumatic growth) through positive religious coping strategies were significant ($p < 0.05$).

The standardized overall effect of the exogenous latent variable (marital adjustment) on posttraumatic growth was 0.32. The results showed that the standardized overall effect of the exogenous latent variable (marital adjustment) on the ultimate latent variable of the study (posttraumatic growth) was statistically significant ($p < 0.05$).

Discussion

The present study was conducted with the aim of evaluating the mediatory role of positive religious coping strategies in the relation between marital adjustment and posttraumatic growth among infertile individuals. The results confirmed the existence of an indirect effect of marital adjustment on posttraumatic growth through positive religious coping strategies.

In order to explain the role of marital adjustment in the coping process and posttraumatic growth in infertile individuals, Fredrickson's broaden-and-build theory (1998) of positive emotions can be a typical example (12). According to this theory, the positive emotions stemming from marital adjustment results in expansion of their intellectual and behavioral assets. For example, satisfaction as a positive emotion leads to spending time on understanding the current life conditions and mélange of these conditions in one's conceptions of oneself and the world. The result of increasing the positive emotions caused by marital adjustment can be considered as one's cognitive resources or in other words one's coping strategies which can be of use a few moments later in a different emotional context.

Furthermore, these effects are accumulated and combined over time to lead to a spiraling path towards self-actualization and posttraumatic growth (11). Posttraumatic growth as a variable related to well-being ultimately contributes to the continuation of the cycle in a positive direction through increasing positive emotions, *i.e.* increasing marital adjustment in infertile couples.

On the other hand, the existence of a positive and significant relation between marital adjustment and posttraumatic growth in infertile individuals, along with the results of some earlier studies, suggests that the infertility crisis has a role in instigating posttraumatic growth and boosting marital adjustment, allowing us to count it as an opportunity for bringing the couple closer together and consolidating their marriage (37). For example, a study by Schmidt et al. (2005) showed how the infertility experience in the patients caused their spouses to talk about the existential aspects of life and the emotional sides of infertility and to learn new vocabulary for speaking about different kinds of infertility treatment. The infertility experience can also prepare the couple for handling new stressors (37).

Many studies (6, 8, 38) report a decrease in marital adjustment and the absence of productive experiences following infertility. The contradiction between the results of these studies with those mentioned earlier suggests that different people have faced infertility in different ways. In other words, infertility is not experienced by all infertile individuals in the same way (39). A considerable instance of this phenomenon can be observed in the significantly different ways infertile couples have used religious coping strategies in the present study. Well-adjusted couples make posttraumatic growth attainable for themselves by choosing positive coping strategies when they are faced with infertility crisis. To cope with infertility through an orientation system, these individuals understand the situation and analyze and predict its consequences. Thus, infertile couples with high marital adjustment use strategies that ultimately enable them to achieve posttraumatic growth. PTG does not amount to adjustment with traumatic events; it is rather the reaction to them. However, it seems that there is a theoretical relationship between the two, which may rely on the mediatory role of coping strategies (40).

Evaluation and coping are in fact processes that have a close relationship with adjustment. People

who consider life crises as challenges are more likely to actively confront it and therefore experience growth (21). Buyuka sik-Colak et al. (2012) showed in a study that more flexible individuals tend to use coping strategies which in turn lead to developing PTG (41).

Another factor related to posttraumatic growth is religion. Using religion helps individuals confront the effects of stressful events and find objectives and meaning in these events even in situations where they seem meaningless (42). Religious beliefs can therefore be viewed as an effective way in the coping process and attaining posttraumatic growth.

The Pargament's (1997) theory can be of a great help to specify the role of religion in the coping process and achieving positive results in confronting infertility as a challenging event. According to his theory, positive religious coping strategies play a role in one's primary and secondary appraisals of a problem, where primary appraisal is an individual's judgment about the nature of an event and its importance while secondary appraisal is an individual's opinion about how much assets she/he has to confront that event and to cope with it. Regarding this basis, individuals who in the primary appraisal, consider the negative event as a lesson from God, are less likely to lose hope or resort to self-accusatory interpretations. In the secondary appraisal, people tend to believe that their problems are changeable when they turn to God for a solution and this increases their ability to control the situation (43).

In fact, one of the most important roles of religion, is to give meaning to individual's experiences and in general to his/her life as one of the most important factors of posttraumatic growth besides to give meaning to a situation and personal schemas (44). On the other hand, as one of the aspect of posttraumatic growth is the improvement of interpersonal relationship, the role that religious copying strategies plays in social support and in general the relationship with others itself explains the relationship between these two factors. Therefore, in infertile couples, positive copying strategies can be a facilitating factor in the process of achieving the posttraumatic growth.

Moreover, according to past research, religious attitudes can be effective in dyadic adjustment, since religion offers directions for life and provides individuals with a system of beliefs and values that can influence married life (45). The results of a study by Rasouli and Soltani Gord Fa-

ramarz (2012) shows that dyadic adjustment has a positive correlation with religious orientations and a negative one with religious disorganization (14). These findings match those of Kotrla, Dyer, Stelzer (2010) and Schramm, Marshall, and Harris (2012) (46-47).

Another result of this study showed that negative religious coping strategies, unlike positive strategies, did not have a mediatory role in producing marital adjustment and posttraumatic growth. In fact, people who use negative coping strategies try to see the problem as a punishment from God or interpret it as the act of a negative entity such as the devil in their primary appraisal of the issue. As a result, negative emotions, self-accusatory feelings, shame, and guilt are formed in them. Questioning the power of God can cause disillusion, dissatisfaction and nonfulfillment, which in turn leads to social isolation, while attributing punishment to the devil can cause fear and anxiety. Furthermore, using negative religious coping strategies in the secondary appraisal process leads to turning away from God, punishing oneself as a result of guilt, and expressing negative emotions (40).

In general, relying on principles extracted from the conceptual framework of available theories, the results of the current study show that for couples struggling with infertility, given a high degree of dyadic adjustment, positive religious coping strategies have a positive relationship with posttraumatic growth. Therefore, people who use positive religious strategies more often are more likely to attain positive experiences when faced with challenging events. Once facing stressful events, these people appreciate the values of their lives more than before, can attain new goals, interests and views in life, trust more in their own abilities, and count themselves more powerful in dealing with problems. They also establish better connections with their family and friends and further appreciate the value of their relationships with others.

Based on what was said and considering the fact that the nature and content of positive coping strategies call for positive consequences, it is natural that it can serve as a mediator in the relation between dyadic adjustment and posttraumatic growth. On the other hand, negative coping strategies, given their negative consequences, obviously cannot play a role in the relation between dyadic adjustment and posttraumatic growth.

Not examining the marital adjustment of the

couples before facing infertility as a contributing factor to the results, not gathering data by couples, and the stressfulness of the environment of Shariati hospital are factors that limit our ability to generalize the results of the study.

Conclusion

The present study showed that choosing positive religious coping strategies by well-adjusted infertile couples helps them attain posttraumatic growth. Thus, people who mostly use positive religious coping strategies have more chances of achieving positive experiences from confrontation with stressful events. After facing stressful events, these people appreciate their lives, can achieve new goals, interests, and views in life, increase their self-confidence, and see themselves more capable in facing problems. In addition, these people have a better relation with their spouse, family, and friends and appreciate their relations more.

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Conflict of Interest

Authors declare that there is no conflict of interest.

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