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Research Paper

Predicting the Model of Psychological Capital based on Mindfulness with the Intermediary Anxiety in Obese women Candidates for Bariatric Surgery

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ABSTRACT

Objective: The present study conducted to investigate the role of anxiety mediation in the relationship between psychological capital and mindfulness in obese candidates for bariatric surgery.

Methods: The study method was a descriptive correlational research. The statistical population of the research included all women candidates referred to Rasoul Akram Hospital in Tehran in the year 1400 (March 21, 2021 – March 20, 2022) for minimal invasive bariatric surgery. Among them, a number of 250 women were selected as samples through convenience non-random sampling. The research tools were Psychological Capital Questionnaire (Luthans et al. 2007), Freiburg's Mindfulness Inventory - short form (Wallach et al. 2006) and Beck Anxiety Questionnaire (Beck et al. 1993). Structural equation modeling was used for analyzing the data. The gathered data were analyzed using two statistical analysis software SPSS Version 26 and LISREL Version 8.8.

Results: The results showed that the fit indices are in acceptable level and the suggested model has optimum fit index.

Conclusion: Considering the important role of mindfulness and anxiety in predicting the psychological capital, trainings and interventions aiming increase in mindfulness and decrease in anxiety should be included in preoperative plans dedicated for bariatric surgery candidate.

1. Introduction

Currently, obesity and overweight are one of the most important public health problems in both developed and developing countries. Recent studies have shown that obesity causes many physical and psychological problems for the people (Nguyen et al., 2020). Obesity and overweight are defined as excessive accumulation of fat in the body which endangers the health (Escott and Raymond, 2012). It is now known that obesity is the result of complex biological, environmental, and psychological interactions, and bariatric surgery is the most effective treatment method for patients suffering from extreme obesity (Reavis et al., 2018). This is despite the fact that the amount of weight loss and maintaining the weight loss after surgery vary significantly in different patients (Feig et al., 2019). The weight gain after surgery is still common and about 25% of people undergone surgery to achieve normal weight fail to maintain the weight they lost.

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People's adherence to the manner of conduct recommended by specialists after surgery is influenced by their psychological factors (Clapp et al., 2018).

Psychological factors are known as important causes in regaining the lost weight in obese people (Byrne et al., 2003). It should be noted that re-surgery is currently increasing in people significant weight gain after the first surgery (Pintobastos et al., 2017). On the other hand, the conducted study also suggests that positive cognitive status is one of the strong predictors for achieving to successful results of this surgery and it causes the candidate to strive hard to achieve the success through motivation and inner energy and a positive view of his abilities (Robertson et al., 2017). In fact, recent studies have focused on positive psychology, instead of dealing with disorders, and it has been emphasized to pay more attention to human abilities and talents. Initial researches on positive psychology confirms its positive relationship with people's performance (Ghahrmani & Khalatbari 2016). In fact, such people, by adherence to postoperative care instructions and improving their performance after surgery, can have a better result in terms of weight loss and maintaining the weight loss. On the other hand, the positive psychology has been widely neglected in researches conducted on the obese people waiting for a surgery (Feig et al., 2019). The psychological capital concept has been developed with the influence of positive psychology. Psychological capital is the study and positive use of psychological abilities and capabilities of human resources that can be measured and developed and that improve performance (Luthans, 2002). This structure is composed of self-efficacy (having self-confidence in a known area), resilience (trying to reach balance after a problem), hope (positive orientation towards goals) and optimism (creating positive evidences) which has been introduced as a comparable criterion for measuring human and mental capital. Psychological capital identifies the movement from the actual self to the possible self (Luthans, 2012) and the initial research on psychological capital confirms its positive relationship with the performance (Luthans and Youssef, 2004). Psychological capital emphasizes on positive processes and abilities of individuals. Positive thinking improves people's quality of life by acting as a barrier against stress and increasing active coping strategies and using healthy behaviors (Seligman et al., 2006). Many studies have shown a very strong relationship between psychological capital and better treatment outcomes in a lot of treatment groups (Rasmussen et al., 2009, Brown et al., 2014).

The concept of mindfulness is one of the factors that has been considered in recent research as an effective factor in improving psychological capital and has been used for a long time for people suffering from chronic unhealthy conditions such as obesity. The results of research conducted and activities undertaken in the last decade have shown that traditional practices as well as modern forms of mindfulness are the great promising sources almost any type of psychological distress (Praissman, 2008). Mindfulness, is attention in a special way and target oriented in present time without any judgement. Through Mindfulness, an individual learns to know about his / her mind and focuses on different methods of his / her mind (Kabat-Zinn et al., 1985). When our mind is worried about invading by others or running out of food reserves, mindfulness brings us back to the present safe moment and helps us think about how we're creating distress for ourselves (Siegel, 2009).

Various researches have shown the relationship between mindfulness and different dimensions of psychological capital including a researches conducted by Shojaeian and Abolmaali (2016) and Yavari et al. (2019). All the results obtained from these studies indicated that there is a significant positive relationship between mindfulness and psychological capital or its dimensions. In addition to the direct effect of mindfulness on psychological capital, it is believed that this variable is capable to improve psychological capital indirectly by reducing anxiety. Anxiety is another variable which its prevalence is higher in among the candidates for obesity surgery than in the population with normal weight (De Zwaan et al., 2011). Anxiety is an unpleasant feeling of apprehension and an uncomfortable fear with unknown origin (Bahramipour and Atashpour, 2009). Sarason and Stoops (1978) believes that anxiety comes when we realize that our system of structures cannot cope with the problem. Anxiety is a state in which a person feels unease, unpleasant or fear. This situation usually occurs when a person cannot predict or control the consequences of a work. Anxiety implies a vague and unknown danger and has cognitive, behavioral and physical symptoms (Rezaei, 2005). Anxiety is a human reaction to any unknown situation. Being in the hospital and becoming hospitalized is itself a stressful and life-threatening experience with fear and anxiety for patients. Surgery, regardless of its scope, duration and type, is always considered as an anxiety-inducing experience (Iftikhar et al., 2002). Various researches indicated that patients with morbid obesity, especially those seeking surgical treatment, are defined as anxious people (Van Haut et al., 2004). Several studies have

shown that there is a negative relationship between anxiety and mindfulness. Among them, we can point out studies conducted by MacDonald and Olsen (2020),Webel et al, (2015) and Serpa et al. (2014) and which their results show that the variable of mindfulness has negative effect on the anxiety variable and reduces anxiety levels. Other studies have also shown that there is a negative relationship between anxiety and psychological capital, for example, we can point out (Pereira et al, 2019; Demir et al, 2018; Zhou et al, 2018; Ding et al, 2015). So far, there has been no research that has investigated the effects of two variables including mindfulness and anxiety together on psychological capital and considering previous studies that have shown psychological capital has a significant effect in managing chronic conditions such as obesity, presenting a model including two variables of mindfulness and anxiety and their effects on psychological capital can be useful. According to the discussed contents, the purpose of the current research was the explanation of the psychological capital model based on mindfulness with the mediating role of anxiety in women obese who were candidates for bariatric surgery.

2. Materials and Methods

In terms of purpose, the present research was an applied research. Regarding the process of collecting data it was survey research, and according to method of implementation, the study was a correlational study. The statistical population of the research included all women candidates referred to Rasoul Akram Hospital in Tehran in the year 1400 (March 21, 2021 – March 20, 2022) for minimally invasive bariatric surgery. Among them, a number of 250 women were selected as samples through convenience non-random sampling. The selected samples were asked to complete the questionnaires. Among them, 20 questionnaires were removed they failed to answer a large number of questions. After removing these questionnaires, the remaining samples were samples 65 (26.2%) were single and 183 (73.8%) were married.

Measuring tool: Luthans Psychological Capital Questionnaire (2007) was used as tool. This questionnaire contains 24 questions and 4 subscales of self-efficacy, hope, resilience and optimism. Each subject answered questions on a 6-point Likert scale (from completely disagree to completely agree). The higher score in this questionnaire represents more psychological capital. Lutans, et al. (2007) reported the reliability of this tool to be about 0.97. In Iran Cronbach's alpha showed the questionnaire to reach acceptable reliability, α = 0.85 (Bahadori khosrowshahi et al 2015). The validity of the questionnaire has been documented in several studies. A study conducted by Ziyaei et al (2015) provided convergent validity of the Psychological Capital Questionnaire subscales including self-efficacy, hope, optimism and resilience, 0.63, 0.62, 0.56 and 0.69, respectively, which the values above 0.40 are acceptable. In this study, Cronbach's alpha used to assess the reliability of this questionnaire. The overall Cronbach's alpha was 0.76 and for self-efficacy, hope, resilience, and optimism subscales, were 0.69, 0.72, 0.81, and 0.66, respectively.

Freiburg Mindfulness Questionnaire (FMI-SF): The Freiburg Mindfulness Questionnaire short form was developed by Walach et al (2006). This questionnaire is composed of 14 items describing all aspects of mindfulness. Each item is scored based on a 4-point Likert scale with 1=rarely and 4= always. It should be noted that a number of 13 question is reverse scored. The minimum score in this questionnaire is 14 and the maximum score is 56, and a higher score denotes greater mindfulness. Following a survey in the country, the short form of the Freiburg Mindfulness Questionnaire was first translated into Farsi and then its validity and reliability were examined. Concurrent validity with self-control scales (r = 0.69) and emotional regulation (r = 0.68) were reported at a significance level of 0.01. The results of the confirmatory factor analysis model showed that the structure of the questionnaire had an acceptable fit with the data and had good factorial validity. Also, the reliability obtained for Cronbach's alpha was 0.92, ordinal beta was 0.93, and retest reliability was 0.83 after four weeks (Ghasemi Jobneh et al., 2015). In this research, Cronbach's alpha was used to checking the reliability of this questionnaire and the calculated total reliability score was 0.89.

Beck Anxiety Questionnaire (BAI): This questionnaire was designed in 1993 by Beck and his colleagues. This scale includes 21 statements, each of which describes a common symptom of anxiety. The subject is asked to indicate to what extent each of the signs caused him / her discomfort and annoyance in the last month. The subject determines this amount based on a 4-point scale ranging from 0 to 3. The total score ranges from 0 to 63. In a research conducted by Kaviani and Mousavi (2008), the research results showed that the validity, reliability and internal harmony of Beck's anxiety scale in the Iranian population was 0.72, 0.83 and 0.92, respectively. We used Cronbach's alpha in this study for verifying the reliability of this questionnaire and calculated total score was 0.91.

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3. Results

In this section, in line with the main hypothesis of the study, i.e. explanation model of psychological capital based on mindfulness was suitable considering the mediating role of anxiety in experimental data. We used Structural equation modeling and Lisrel software and data screening carried out using SPSS software. Descriptive findings of the research variables showed that the skewness and elongation of the research variables were between +1.5 and -1.5. As a result, the research variables had a normal distribution. Table No. 1 shows the correlation matrix of the research variables including psychological capital, mindfulness and anxiety along with their correlation coefficients and their significance level.

Table 1. Matrix of correlation coefficients between research variables

Variables	1	2	3
1- Psychological capital	1		
2- Anxiety	-0.405**	1	
3- mindfulness	0.532**	-0.383**	1

(P<0.01**) (P<0.05*)

According to Table 1, the correlation between all researches variables were significant at the level of 0.01. There was a significant negative correlation between anxiety and psychological capital (r = 0.405, p < 0.01). There was a significant positive correlation between mindfulness and psychological capital (p < 0.01, r = 0.532). There was a significant negative correlation between mindfulness and anxiety (p < 0.01, r = 0.383). As shown, there was high correlation between mindfulness and psychological capital and the lowest correlation between mindfulness and anxiety.

Analysis of models in partial least squares–structural equation modeling (ML-SEM) method with covariance approach was carried out in two main stages: "checking the fit of the model" and then "testing the research hypotheses". Checking the fit of the model was done in three parts: fitting the measurement models, structural model fitting and overall model fitting. In order to check the suitability of the overall model, suitability indices have been used (Table No. 2).

Table 2. The indicators of the goodness of fit of the psychological capital forecasting model

The Index Name	Fit Value	Status
χ^2 value and its significance	20.86	Confirm
Degrees of freedom	8	-
χ^2 value of degrees of freedom	2.60	Confirm
Root Mean Square Error Approximate (RMSEA)	0.054	Optimal
NFI	0.95	Optimal
CFI	0.96	Optimal
GFI	0.95	Optimal
SRMR	0.047	Optimal

Indicators reported in Structural equations analysis (Table 2) proved the optimal fit of data with the model. As a result, the experimental data collected by the researcher confirmed the theoretical model developed based on research literature and showed that the model developed to explain psychological capital based on mindfulness with the mediation of anxiety in women obese who were candidates for bariatric surgery was a desirable model.

Table 3 summarized the estimation of standardized parameters factor loads, determining coefficients and quantity t-value for the variables of the research (psychological capital)

Table 3. Standard factor loads done, Variance explained and t-values for variables of the research

The Facto	Subscales	Factor Load	Defined Variance	T-value
Psychological Capital	Hope	0.71	0.50	
	Resilience	0.69	0.47	9.45**
	Optimism	0.68	0.43	9.44**
	Self-Reliance	0.77	0.59	10.38**

(P<0.01**) (P<0.05*)

Table 3 showed all model parameters were significant ($p < 0.01$) and the factor loading of the questions was higher than 0.4, which showed that all the components had a good similarity. The amount of explained variance of cognitive capital by linear combination of mindfulness and anxiety variables was 0.42, which showed the linear combination of mindfulness and anxiety 42% of the changes explain psychological capital. Mindfulness predicted 15% of the variance of anxiety.

Table 4 reflects direct, indirect and total predictor and mediating variable effects on psychological capital.

Table 4. Estimates of Direct, Indirect and Total Effects

Variables	Direct Effects		Indirect Effect		Total Effect	
	β	t	β	t	β	t
Mindfulness → Psychological Capital	0.50	6.82**	0.10	3.37**	0.60	7.94**
Anxiety → Psychological Capital	-0.26	-4.00**	--	--	-0.26	-4.00**
Mindfulness → Anxiety	-0.38	-6.26**	-	-	-0.38	-6.26**

($P<0.01^{**}$) ($P<0.05^{*}$)

Mindfulness variable with standardized coefficient ($p < 0.01$, $\beta = 0.50$) had direct and positive relationship, anxiety variable with standard coefficient ($p < 0.01$, $\beta = -0.26$) had a direct and negative effect on the psychological capital. The mindfulness variables with a standard coefficient ($p < 0.01$, $\beta = 0.38$) had direct and negative effect on anxiety variable. Mindfulness variable with standardized coefficient ($p < 0.01$, $\beta = 0.10$) had indirect and positive effect on psychological capital variable. The total effect of this variable on psychological capital was 0.60.

4. Discussion and Conclusion

The results of data analysis showed that the prediction model of psychological capital based on mindfulness considering the mediating role of anxiety based on experimental data had a good fit and the relationships between variables were significant. In this study, the role of mindfulness with psychological capital was investigated. In this regard, the mediating role of anxiety in the relationship between mindfulness and psychological capital was investigated. The results determined the mediating role of anxiety. In other words, besides having a direct effect on psychological capital, mindfulness can indirectly increase psychological capital by reducing anxiety. In line with the results of the present research, the findings of studies conducted by Gashqaei et al. (2020), Pereira et al. (2019), Zhou et al. (2018) Baezzat et al. (2017), Javaheri (2017), Ding et al. (2015), Demir (2018), MacBeth and Gumley (2012) showed that anxiety has directly and negatively effects on psychological capital. In the explanation of the findings obtained, we can say that according to the definition of the American Psychiatric Association (2000), anxiety consists of two independent components: physical anxiety and cognitive anxiety. Among the cognitive components of anxiety, negative attitude towards the problem could be mentioned; in fact, an anxious person is associated with a set of negative cognitions when facing problems (Dugas and Ladouceur, 1998). According to the problem solving model of D'Zurilla and Nezo (2010), if people have a negative attitude towards the problem, they will not have efficient solutions to solve the problem. Because having a negative orientation to the problem can interfere with the proper application of one's problem solving skills. Therefore, it can be argued that the anxiety can over the time have a negative effect on a person's beliefs about his own strength in facing challenges, which is defined as self-efficacy. Also, anxious people perceive natural problems in life as threatening and are easily disappointed when faced with them and are pessimistic about the results of their efforts to solve the problem (Koerner et al., 2004). This pessimism causes them devote less try to solve the problem and to have less resilience and to have less achievements over time than normal people and as a result to experience less positive emotions. Therefore, it can be argued that in addition to the negative effect on the self-efficacy component, anxiety also negatively affects the components of optimism, hope, and resilience.

In the following, in line with the current research, which indicated the mindfulness had a direct effect on psychological capital and improved it, we can refer to the researches Atashpour et al. (2021), Yavari et al. (2019), Katan et al. (2019), Del Zende Nejad and Aghajani (2019), Shojaeian and Abol-Maali (2016), Ghasemijobneh et al. (2015) and Greason and Cashwell (2009). In explaining this issue, it can be said that the lack of impulse reaction in mindfulness slows down the person and gives the person the opportunity to check different options when facing a problem and has the ability to instead of just showing the reaction, choose a suitable option and finally achieve more success. Over time, as a result of successful experiences, this person becomes confident that he has the ability to face challenges effectively, which is the

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concept of self-efficacy in psychological capital (Ansari Moghadam et al., 2019).

Also, non-judgment and re-evaluation in mindfulness helps to break the cycle of automatic thoughts in the person's mind, and when the person's mind is worried about running out of food, mindfulness brings him/her back to the safe moment of the present and helps the person in a hopeful way and with a positive point of view on own abilities, he was trying hard to reach his goal (Siegel, 2009). Acceptance of the present moment with deliberate attention and non-judgmental awareness in mindfulness causes the controllability of things in the person's mind to increase over time, which itself increases the levels of optimism in the person (Doyle, 2013).

There were some limitations in this study. Since this research was conducted in a cross-sectional sample, causality cannot be inferred from it. Also, due to the non-random and available sampling method, the generalization of the results should be done with caution. It is suggested that organizations providing services to obese people, to give educations and interventions aiming increase in mindfulness and decrease in anxiety as part of their programs before surgery. Also it is suggested psychologists and counsellors who deal with the Bariatric surgery candidates, consider the result of the present study in order to improve the psychological capital of this population.

5. Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them.

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Authors' contributions

All authors have participated in the design, implementation and writing of all sections of the present study.

Conflicts of interest

The authors declared no conflict of interests.

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