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The Mediating Role of Mental Toughness in the Relationship between Meta-Emotion and Co-Rumination with Health Anxiety in Hospital Nurses

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Abstract

Background: Hospital nurses are more exposed to health anxiety due to close contact with patients.

Objectives: This study aimed to determine the mediating role of mental toughness in the relationship between meta-emotion and co-rumination with nurses' health anxiety.

Methods: The research method was structural equations type correlation. The statistical sample of the research included 250 nurses from hospitals in West Azarbaijan province in 2022, who were selected by simple random sampling. Salkovskis and Warwick's (2002) health anxiety scale, Mitmansgruber et al.'s meta-emotion questionnaire (2009), Clough et al.'s (2002) mental toughness scale, and Davidson's co-rumination questionnaire (2014) were used to measure the variables. The data were analyzed using Pearson's correlation coefficient, Sobel test and bootstrap.

Results: Findings indicated that the meta-emotion and co-rumination variable interact with the mediating role of mental toughness which has a role in explaining the nurses' model of health anxiety. In total, 38% of the variance of health anxiety was explained through the variables of negative and positive meta-emotion, co-rumination and psychological stability. The direct effect of positive meta-emotion (-0.327), negative meta-emotion (0.318), mental toughness (-0.452), and co-rumination (0.367) are significant in explaining the health anxiety model. Furthermore, the indirect effect of negative meta-emotion (0.158), positive meta-emotion (-0.161), and co-rumination (0.155) with the mediation of the role of mental toughness is significant.

Conclusion: Considering the direct and indirect effects of meta-emotion, mental toughness and co-rumination variables on the level of health anxiety variable, it seems that by strengthening positive meta-emotion and mental toughness, and improving co-rumination and negative meta-emotion, the health anxiety in nurses can be reduced.

Keywords: Health Anxiety, Meta-Emotion, Mental Toughness, Co-Rumination, Hospital, Nurse

1. Background

In developed societies, the need for expert nurses is felt more and more due to reasons such as technological progress, aging and the occurrence of chronic and widespread diseases.[1] This is due to the fact that nursed not only play the role of care, but are also the administrators of the community's health, and play the role of guides and consultants in educational, health and therapeutic matters.[2] The constant presence of nurses and observing the signs and symptoms of diseases,[3] has made health anxiety an inevitable feature in them. In health anxiety, a person believes that he has a serious illness, which is often based on a misinterpretation of body sensations or symptoms.[4] Some experts believe that health anxiety is a continuum disorder in which there are people who are less concerned about their health in one dimension of the continuum and people who worry too much about their health in the other dimension of the continuum.[5] On the other hand, other experts believe that health anxiety is a categorical disorder, and based on this disorder, people are divided into two groups (with and without health anxiety).[6]

Investigating and identifying the factors affecting health anxiety, in preventing and improving health anxiety, as well as in adopting the treatment method, helps the therapists.[7] Meta-emotions can be mentioned as one of the psychological factors affecting nurses' health anxiety. The set of coherent beliefs that a person has about his own and others' emotions is called meta-

emotions.[8] Meta-emotions are the processing of emotions, which primarily leads to the adjustment of the intensity and level of emotion, and then by managing a person's thoughts, decisions and behavior. It actually strengthens the mental well-being of individuals.[9] Meta-emotion has two dimensions, positive and negative meta-emotion.[10] Positive meta-emotion (such as meta-passion or meta-compassion) means awareness, knowledge, recognition, and acceptance of positive emotions and their desired expression; and negative meta-emotion (such as hyper-violence or hyper-anxiety) means knowledge, recognition and acceptance of unpleasant emotions and optimal prevention of their occurrence.[11] Tran emotional integrative therapy, through emotion regulation and reduction of negative emotions, is effective in reducing anxiety, sensitivity and experiential avoidance.[12] The role of positive excitement in reducing symptoms of corona anxiety and health anxiety is significant.[13] By the improvement of hyper excitatory disorders, the symptoms and signs of anxiety in phobic disorder patients decreased.[14] To reduce the anxiety of COVID-19, it is necessary to design programs to reduce negative meta-emotion and increase positive meta-emotion and implement them through educational workshops.[15]

Mental toughness is one of the concepts of positive psychology that can play a role in explaining nurses' health anxiety. Mental toughness is one of the personality structures whose basis is the beliefs that a person has about himself and the world which protects a person against internal and external pressures.[16] Mental toughness is a factor that accompanies a person in difficult situations and helps him go through difficult and threatening situations successfully.[17] Mental toughness consists of the combination of four components, which are: having a commitment to oneself and one's responsibilities, believing that the events of life and their results can be controlled; and the inner belief that change is a challenge for progress and development and is a threat to a person's adaptability, and self-confidence.[18] Research results show that high mental toughness is associated with health anxiety and low health complaints.[19]

Participants who were capable of mental toughness reported a low level of health anxiety, depression and stress.[20] The direct and mediating effect of mental toughness is positive in strengthening mental well-being.[21,22] Previous research that investigated the mediating effect of mental toughness in the relationship between stress and anxiety showed that the mediating role of mental toughness is significant in moderating the relationship between stress and anxiety.[23]

Another psychological variable that can play a role in nurses' health anxiety model is co-rumination. Excessive discussion and exchange of opinions about personal issues and problems in two-person or multiple-person relationships is called co-rumination.[24] In other words, in rumination, the parties encourage each other to repeatedly discuss and describe the issues and problems of life and work.[25] Constantly focusing on disturbing issues and topics (co- rumination), may be associated with anxiety and depression, because the person will be worried about not solving professional and life issues and problems.[26] Co-rumination is different from self-disclosure, because in co-rumination, unlike self-disclosure, people talk more about their negative feelings, so it is considered an incompatible strategy. Also, co-rumination is different from pure rumination, because pure rumination is an individual process, but co-rumination has a social aspect and takes place in interpersonal interactions.[27] Research results show a significant relationship between co-rumination and anxiety and depression.[28,29] Having a co-rumination about the COVID-19 (discussing and talking about the dangers and negative effects of this disease) and searching the topics in the mass media about the COVID-19, increases health anxiety.[30] The results showed that the correlation of co-rumination with health anxiety, normative anxiety, trait anxiety, test anxiety and anxiety sensitivity is positive and significant.[31]

Another goal of the study was to examine the mediating role of mental toughness in the relationship between meta-emotion and co-rumination with nurses' health anxiety. I other words, the researchers sought to investigate the mediating effect of mental toughness in moderating the relationship between meta-emotion and co-rumination with nurses' health anxiety. Studies that examine the mediating effect of mental toughness in relation to predictor variables and criteria of this study have not yet been caried out. However, there are studies that have investigated the mediating effect of mental toughness in relation to personality and psychological disorders. For example, researchers have shown that the direct and mediating effect of mental toughness is positive in strengthening mental well-being.[21,22] Research that investigated the mediating effect of mental toughness in the relationship between stress and anxiety revealed the significant role of mental toughness in the relationship between these variables (stress and anxiety).[23]

One of the criteria of the development of organizations and institutions is the preparation of mental, physical and social health of the human resources of that organization. Undoubtedly, providing this criterion plays an important role in guaranteeing the dynamism and efficiency of every organization,[32] and it is necessary to continuously measure and improve it (health and its dimensions) in organizations. This is because there is a relationship between mental health and individual capabilities in fulfilling organizational goals. In other words, nurses and employees who have mental health have a high ability in performing job and professional responsibilities.[33] Since a significant number of nurses are unable to satisfy patients

with care and treatment services due to their lack of emotional, social and professional health, therefore it is necessary for managers and officials of treatment and care centers to have consistent plans to measure and strengthen the health of nurses (emotional, psychological and social health).[3] Since the effective factors in the level of nurses' health anxiety inside and outside the country have not been investigated in the form of structural equations, so the researchers sought to investigate whether the mediating role of mental toughness in the relationship between meta-emotion and co-rumination with nurses' health anxiety is significant?.

2. Objectives

This study was conducted with the aim of designing the health anxiety model of nurses based on meta-emotion, co-rumination and mental toughness. In addition, the researchers sought to investigate the direct and indirect effects of meta-emotion and co-rumination on the level of health anxiety of nurses. Another goal of the study was to investigate the mediating role of mental toughness in the relationship between meta-emotion and co-rumination with nurses' health anxiety.

3. Methods

3.1. Study Design

The research method was structural equation correlation. The nurses of the West Azerbaijan Province hospitals in 2021 formed the statistical population of the study.

3.2. Study Place and Participants

Statistical sample by simple random method and through formula:

$$N=\left(\frac{z_{\alpha}+z_{\beta}}{C(r)}\right)^{2}+3$$

(with a preliminary study of 50 people and taking into account the error of 0.05, the correlation of the previous variables with the criterion variable was at least 0.176) 250 nurses were selected after the statistical sample was determined. The researchers with the permission of the officials of the hospitals and medical centers, visited the departments where the nurses served and made them aware of the importance and necessity of the research. They emphasized that participating in the study is completely optional and not willing to participate in the study will not affect the way of evaluating their job performance.

Then, they proceeded to distribute and collect information gathering tools. The inclusion criteria included working in non-contagious sectors, not suspecting COVID-19 and having a willingness to cooperate with the study. The only exclusion criterion was completing the questionnaires with carelessness.

3.3. Date Collection Tools

To measure the study variables, Salkovskis and Warwick's health anxiety scale (2002), Mitmansgruber et al.'s meta-emotion questionnaire (2009), Clough et al.'s mental toughness scale (2002) and Davidson's co-rumination questionnaire (2014) were used.

3.3.1. Health Anxiety Scale

This scale with 18 questions, was designed by Salkovskis and Warwick (2002). It measures the level of worry and anxiety of the participants regarding their health. Each question consists of four sentences that evaluate the nurse's opinion about being sick or not. The scoring of the questionnaire is zero (first sentence), one (second sentence), two (third sentence) and three (fourth sentence). A high score indicates the severity of health anxiety symptoms in a person. Illness, general health concern and negative consequences are among the subscales of the questionnaire. The retest validity of the entire questionnaire is 0.90 and the Cronbach's alpha coefficient of the subscales of the questionnaire is reported in the range of 0.70 to 0.82.[34] In Iran, the validity of the questionnaire was checked by Cronbach's alpha method, and its construct validity was checked by exploratory factor analysis. The results showed that the construct validity of this questionnaire includes three factors of disease (being infected, disease consequences and general health concern). In addition, Cronbach's alpha coefficient of 0.75 shows the good validity of the questionnaire.[35]

3.3.2. Meta-emotion Scale

This questionnaire has 28 items designed by Mitmansgruber et al. in 2009. It has six subscales: anger, shame, violence control and suppression (negative meta-emotions) and compassion and love (positive meta-emotions). This questionnaire is graded in the form of a six-point Likert scale. The score of each subscale is calculated separately. The higher the received score, the higher the level of that component in the individual. Cronbach's alpha coefficient has been reported for the dimension of positive meta-emotion of 0.91 and for the dimension of negative meta-emotion of 0.85.[36] In Iran, it was implemented on students to check the psychometric properties of the scale. Cronbach's alpha coefficient was 0.87 for positive meta-emotion subscale and 0.70 for negative overexcitement subscale and 0.89 for the whole scale. The results of the confirmatory factor analysis showed that the indicators of the meta-emotion scale have a factor load higher than 0.30 and the root mean square error of approximation was 0.46, which shows the efficiency of the two-factor questionnaire of the meta-emotion, as well as the correlation of the subscales of the meta-emotion with the subscales. Emotional intelligence scales indicate the convergent validity of the meta-emotion scale in the Iranian society.[37]

3.3.3. Mental Toughness Scale

This scale was designed by Clough and et al. in 2002, and has 48 items and is scored on a five-point Likert scale. It has four subscales of challenge, commitment, control and confidence. The higher the score received in this questionnaire, the higher the level of mental strength in a person. The retest coefficient of the questionnaire was 0.9.[38] In Iran, after the questionnaire questions were translated into Farsi, the reliability of the subscales was checked by Cronbach's alpha method, and its value for each subscale of challenge, commitment, control, and confidence was 0.78, 0.78, 0.77, 0.74 respectively, and was calculated as 0.93 for the whole questionnaire.[39]

3.3.4. Co-rumination Scale

The co-rumination scale was designed and validated by Davidson in 2014. This questionnaire contains 26 items, which are scored on a five-point Likert scale ranging from 1 (not really true) to 5 (really true). It has three subscales (reconstruction, deep thinking and encouragement to talk about the problem). The minimum and maximum score that a person can get in this questionnaire is 26 and 130, respectively. Higher scores in each subscale means more tendency and action of the individual in that subscale. The results of the confirmatory factor analysis showed that the dimensions of the co-rumination scale have a factor load higher than 0.30. Also, to check the concurrent validity of the questionnaire, its correlation with depression, rumination, worry and attachment questionnaires was found to be positive and significant.[40] In Iran, the validity and reliability of the questionnaire was checked. The results showed that the co-rumination questionnaire has three factors of reconstruction, encouragement to talk about the problem and deep thinking, which explain 66.01% of the variance. Co-rumination has a positive and significant relationship with stress, anxiety, depression and rumination response, so the Persian version of the questionnaire has adequate reliability and validity for implementation in the Iranian society.[41]

3.4. Statistical Analysis

The collected data were analyzed using Pearson's correlation coefficient, Sobel's test (to examine the indirect effect of variables) and bootstrap (to examine the direct effect of variables) through SPSS and Amos statistical software version 24. A $P<0.05$ was considered as statistically significant in this study.

4. Results

In the present study, 250 questionnaires were distributed among the participants. Eight questionnaires were discarded due to carelessness in completing them, and the final analysis was performed on the questionnaires of 242 nurses. The mean, standard deviation, minimum and maximum score of health anxiety variable were 19.11, 4.7, 18, 54, respectively. In addition, the negative meta-emotion was 44.9, 8.19, 33, 78; positive meta-emotion was 46.8, 8.11, 23, 65; mental toughness was 158.08, 15.38, 48, 220, and co-rumination was 54.6, 9.17, 26, 122. The demographic characteristics of the participants have been presented in Table 1.

Table 1. The Demographic Characteristics of the Participants

The Demographic Characteristics	Groups	n	%
Gender	Male	98	40.49
	Female	144	59.50
Employment status	Traineeship	15	6.19
	Contract employment	102	42.14
	Open-ended employment	125	51.65
Educational degree	B.Sc.	191	78.92
	M.Sc.	51	21.07
Marital status	Married	170	70.24
	Single	72	29.75
Work experience	1-10 years	81	33.47
	11-20 years	129	53.30
	21-30 years	32	13.22

Pearson's correlation matrix was used to examine the simple correlation between negative and positive meta-emotion, psychological stability and co-rumination with nurses' health anxiety. The results showed that there is a positive and significant correlation between negative meta-emotion (r = 0.313) and co-rumination (r = 0.392) with nurses' health anxiety ($P<0.05$). But the correlation coefficient of positive meta-emotion (r = -0.320) and mental stability (r = -0.482) with health anxiety is negative and significant at the 0.05 level. This means that with the increase of positive meta-emotion and mental stability, the level of health anxiety of nurses decreased.

Table.2. Correlation Matrix of Variables and Mardia's Coefficient

Variable	1
Health anxiety	-
Positive meta-emotion	-0.320**
Negative meta-emotion	0.313**
Mental toughness	-0.482**
Co-rumination	0.392**
Mardia's coefficient	14.17
Critical ration	1.72

Also, in using the structural equation modeling method, it is necessary to check the presuppositions of this method before performing the data analysis. Multivariate normality is one of the important assumptions that should be considered. Based on the mardia's coefficient and its

critical ratio, the assumption of multivariate normality has been met, and the results have been presented in Table 2.

To determine the significance of the mediation relationships of the model, structural equation analysis has been used. The results indicated that negative, positive, and co-rumination variables interact with the mediating role of psychological stability in the nurses' health anxiety model. In total, 38% of the variance of health anxiety was explained through the variables of negative and positive meta-emotion, co-rumination and psychological stability. The direct effect of positive meta-emotion (-0.327), negative meta-emotion (0.318), psychological stability (-0.452), and co-rumination (0.367) was significant in explaining the health anxiety model of nurses. The indirect effect of negative meta-emotion (0.158), positive meta-emotion (-0.161) and co-rumination (0.155) was observed with the mediating role of psychological stability, the results of which are shown in model number 1 and Table 3.

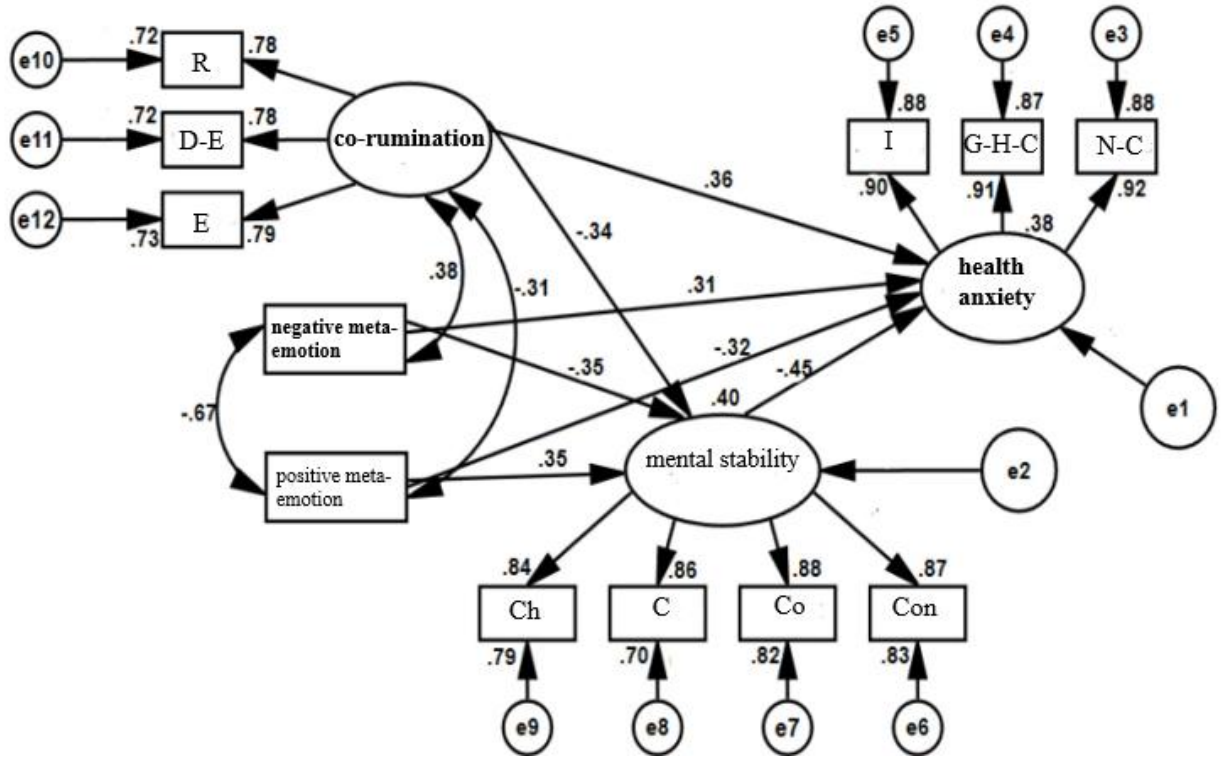

Figure 1. The Standard coefficients of the final research model. R = reconstruction; D-E = deep thinking; E = encouragement; I = illness; G-H-C = general health concern; N-C = negative consequences; Ch = challenge; C = commitment; Co = control; Con = confidence

Table 3. Direct and Indirect Effect of Variables on Nurses' Health Anxiety

Paths	Direct Effect	Indirect Effect	Total Effect	*P*-value
1. Negative meta-emotion → Health anxiety	0.318	-	0.318	0.03
2. Positive meta-emotion → Health anxiety	-0.327	-	-0.327	0.01
3. Mental toughness → Health anxiety	-0.452	-	-0.452	0.00
4. Co-rumination → Health anxiety	0.367	-	0.367	0.01
5. Negative meta-emotion → Mental toughness	-0.351	-	-0.351	0.01
6. Positive meta-emotion → Mental toughness	0.358	-	0.358	0.02
7. Co-rumination → Mental toughness	-0.343	-	-0.343	0.01
8. Negative meta-emotion → Mental toughness→Health anxiety	-	0.158	0.476	0.00
9. Positive meta-emotion → Mental toughness→Health anxiety	-	-0.161	-0.488	0.00
10. Co-rumination → Mental toughness→Health anxiety	-	0.155	0.607	0.00

Table 4. Fit of Proposed Pattern with Data based on Fit Indexes

Index	X^2	df	X^2/df	GFI	AGFI	IFI	CFI	RMSEA
Pattern	34.4	14	2.45	0.988	0.931	0.921	0.962	0.04

Amos software version 24 was used to measure the fit index of the proposed model. The output showed that mental toughness is able to play a mediating role between negative and positive meta-emotion and co-rumination with nurses' health anxiety because the values of the Goodness-of-Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Incremental Fit Index (IFI) and Comparative Fit Index (CFI) in most models is 0.9. Also,

in appropriate models, the index of the ratio of chi square to the degree of freedom X^2/df should be in the range of 1 to 3, and in this model, the index of the ratio of chi square to the degree of freedom X^2/df is in the range of 1 to 3. Also, the Root Mean Square Error of Estimation index (RMSEA) should be smaller than 0.09, which was obtained in this model as 0.04. This indicates the validity of the desired model (Table 4).

5. Discussion

In this study, the direct effect of the positive and negative meta-emotion on nurses' health anxiety was investigated. The results of the bootstrap test showed that the direct effect of positive and negative meta-emotion was significant on the level of health anxiety in nurses. The results of studies were consistent with the present study indicating the role of meta-emotion skills in reducing anxiety sensitivity and experiential avoidance.[12] Some others reported the role of positive meta-emotion in reducing symptoms of corona anxiety and significant health anxiety.[13] In addition, in other studies, they showed the effectiveness of meta-emotion treatment in reducing the symptoms of anxiety in patients with phobic disorder.[14] In other similar studies, they improved nurses' corona anxiety by strengthening positive meta-emotion.[15] It can be said that meta-emotion is a multifaceted concept which includes knowledge, processes and strategies that evaluate, monitor or control emotions and excitement. In other words, the concept of meta-emotion refers to a person's awareness and knowledge about emotional processes and how to use them optimally in order to achieve health, professional, family and social goals. Unlike negative meta-emotion, with the growth and expansion of positive meta-emotion, a set of supervisory skills is formed in the nurse, which act as awareness skills and make the nurse aware of the factors and effects of her and the patients' emotions.

Also, the result of bootstrap showed that the direct effect of mental toughness (-0.452) was significant on the level of nurses' health anxiety, which means that with the increase of mental toughness, nurses' health anxiety decreases. Research results that are in line with the findings of the present study showed that high mental toughness is associated with health anxiety and low health complaints.[19] Research in line with the present study reported the direct and mediating effect of mental toughness in strengthening positive psychological well-being.[21,22] In another study, they showed that the ability of mental toughness leads to the reduction of health anxiety, depression and stress.[20] In explaining this finding, it can be said that the hospital environment is full of stressful situations that are a potential threat to the emotional and psychological well-being of nurses. Nurses who are not capable of psychological stability may be disappointed and experience unpleasant emotions such as sadness, loneliness and anxiety by working in the difficult conditions of hospitals and medical centers. In contrast, nurses who are capable of psychological stability have more strength and are able to control unfortunate events. They have a career and instead of avoiding work and professional issues and problems, they consider them as an opportunity to progress. Also, they evaluate work and job stressful events as more positive and controllable, and the result of such a process is strengthening mental and professional health and reducing health anxiety in nurses.

Another finding of the study indicates the significant direct effect of co-rumination (0.367) on the level of health anxiety of nurses, which means that with the increase of co-rumination, health anxiety also increases. The results of research consistent with the findings of the present study indicate a significant correlation between co-rumination and anxiety and depression.[28,29] Also, similar studies showed that co-rumination about the corona disease (discussing and talking about the risks and negative effects of the corona disease) and searching about it on the mass media about the corona disease increases health anxiety.[30] The results of other studies revealed that the correlation of co-rumination with health anxiety, normative anxiety, trait anxiety, test anxiety and anxiety sensitivity is positive and significant.[31] It can be said that co-rumination is a defective way of interpersonal interactions. Nurses who have high co-rumination, instead of exchanging information about their ability, positive qualities and strengths and ways to strengthen them, exchange information more about their feelings. Negative emotions, sadness, fear and anger, such a procedure causes the formation of external locus of control in the nurse. Nurses believe that negative feelings and emotions, loss, fear, anger and vulnerability to disorders is an inherent feature of all human beings, therefore, they become worried and anxious about their health.

Furthermore, Sobel's test was used to investigate the indirect effect of negative meta-emotion, positive meta-emotion and co-rumination variables with the mediating role of mental toughness on the level of health anxiety of nurses. The results show that the indirect effect of negative meta-emotion (0.158), positive meta-emotion (-0.161) and co-rumination (0.155) with the mediation of mental toughness on the level of nurses' health anxiety was significant. Studies that are in line with the present finding showed that the direct and mediating effect of mental toughness is positive in strengthening mental well-being.[21,22] Other research in line with the present finding indicate the mediating role of mental toughness in the relationship between stress and anxiety.[23] In explaining this finding, it can be said that mental toughness is a combination of beliefs that a person has about himself and the universe. Nurses who are equipped with mental

toughness also have the ability to control and manage emotions, they use positive meta-emotion in order to overcome negative meta-emotion and return to emotional health. It can also be said that mental toughness in nurses acts as a control and monitoring center which leads nurses to instead of fearing and worrying about life and professional issues and events, evaluate them as an opportunity for progress. As a result, all their anxiety including their health anxiety reduces.

5.1. Study Limitations

One of the limitations that the researchers tried to reduce was to control the nurses' concern that the questionnaires were contaminated with the flu and corona virus due to the simultaneous implementation of the research with the spread of these two viruses. Nurses' anxiety increased the possibility of their carelessness in answering questions.

6. Conclusion

The results of the present study showed that the mediating role of the mental toughness variable in modulating the relationship between positive and negative meta-emotion and co-rumination with nurses' health anxiety was significant. In total, 38% of the variance of health anxiety was explained by mental toughness through the adjustment of the effect of negative, positive meta-emotion and co-overexcitement variables. Therefore, in order to increase the effect of positive meta-emotion and reduce the effects of negative meta-emotion and co-rumination on the level of health anxiety of nurses, it is necessary to hold workshops in the field of mental toughness and to strengthen this positive psychological characteristic in nurses, nurses, so that nurses get better against health anxiety and other disorders and become mentally safe and resilient. In addition, in order to examine amount of the generalizability of the study results, it is suggested to carry out the present study on home nurses and hospital nurses in other provinces in the coming future in order to increase the accuracy and validity of the study results.

Research Highlights

What Is Already Known?

Due to the spread of infectious diseases (such as Covid-19, AIDS, Hepatitis, etc.) and non-infectious diseases (such as heart attack, stroke, diabetes, blood pressure), the field of health anxiety has increased. The degree of prevention and control of this anxiety is different among people. Some individuals are able to control this disease by using coping styles, but others are unable to manage and control it.

What Does This Study Add?

This study showed that nurses are more exposed to health anxiety due to working in the hospital, close contact with patients and observing the signs and symptoms of diseases. Some personality traits, such as positive meta-emotion and mental toughness, increase their resilience against this disease, while other personality traits (such as negative meta-emotion and co- rumination) increase nurses' vulnerability to health anxiety. Therefore, by strengthening positive meta-emotion and mental toughness in nurses, health anxiety can be improved or at least reduced.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

Ethical clearance was obtained from the Ethical Committee of the Payam-Noor University. Verbal and written consent was required from participants. nurses who refused to participate in the study received their treatment without any bias. There was strict confidentiality, and all results were used for scientific purposes.

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