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International Journal of Body, Mind and Culture

Editorial Body, Mind, and Culture 2020

Carl Eduard Scheidt[1]

[1] Professor, Department of Psychosomatic, Albert-Ludwigs University of Freiburg, Freiburg, Germany

Corresponding Author: Carl Eduard Scheidt; Professor, Department of Psychosomatic, Albert-Ludwigs University of Freiburg, Freiburg, Germany
Email: carl.eduard.scheidt@uniklinik-freiburg.de

Editorial

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The year 2020 marks a milestone in the history of our journal, which has been continuously published as a quarterly journal since 2013. The journal is now indexed by Scopus and will thereby reach an increasing readership. Authors will have the chance to publish in a journal with qualified bibliometric properties, which for young scientists striving for a research career is an important incentive in their academic activity. We are convinced that reaching this milestone will help to promote the main goal of our journal, which is the establishment of interdisciplinary and international scientific dialogue on health and illness from a holistic psychosomatic perspective. Whereas psychosomatic medicine has been interdisciplinary from its very beginning, integration of the fields of internal medicine, neurology, psychology, and psychoanalysis intercultural research has been introduced only lately. The enormous influence of social and cultural differences on issues of health and disease however can be appropriately studied only from a comparative perspective based on a cooperation and scientific discourse across nations and cultures. This was and is the rational of the ongoing scientific cooperation between the German and Iranian Universities and Institutions that have been supporting the development of this journal over the last decade.

As can be seen from the archive of IJBMC, the field of psychological and psychosomatic medicine covers a vast array of topics and is still extending rapidly. One recent topic is psycho-oncology (see the contribution in this issue page xx), which is also the central issue of a current research cooperation between the International University of Isfahan, Iran, and the Psychosomatic Department of the Albert-Ludwigs University of Freiburg, Germany, funded by the German Academic Exchange Service. Other topics concern rehabilitation, psychotherapy research, eating disorders, diabetes, and various medical conditions. The spectrum of scientific methods used includes meta-analyses, randomized controlled trials, observational and single case studies, and qualitative methods. The Journal in recent years has

established a rigorous peer review system for the quality assurance of the published articles. In addition to the online publication a limited number of print editions, designed particularly for institutional documentation, are available.

In the current issue, a number of high quality clinical trials are assembled. This includes a study by xx reporting on a randomized controlled trial in which the effects of a five-session online psycho-educational intervention on pregnant women were evaluated. The authors observed the significant effects of their intervention on women´s psychological health. Since pregnancy for a substantial number of women is associated with considerable distress due to body image, hormonal, and other physiological changes, this is a clinically relevant and important finding.

In a cross-sectional comparison of 100 patients suffering from multiple sclerosis (MS) and a non-clinical control group, the authors reported differences of the body image in MS. Since the external body image in MS is affected only in relatively progressed cases, this finding is interpreted as reflecting a heightened concern in patients regarding their disease progression, and therefore, indicating a need for psychosocial support.

A third study has investigated the effects of 8 sessions of Acceptance and Commitment Therapy (ACT) on patients suffering from irritable bowel syndrome (IBS), a functional gastrointestinal disorder associated with disturbing physical and psychological symptoms. The study participants included 30 patients in the experimental group and 30 non-clinical controls. The study design was randomized controlled trial with a pretest and a posttest measurement. The ACT-therapy yielded significant results in terms of improved self-care and hopefulness in the intervention group, thus supporting the effectiveness of this treatment in IBS.

In another study, Frederickson's Positive Emotion Training Program and psychodrama were evaluated in a group of 10-11-year-old students with dyslexia. The rational of this study was that the improvement of underlying emotional difficulties in dyslexic youngsters may result in enhanced cognitive functioning. This randomized controlled trial was conducted on two experimental groups (one receiving Positive Emotion Training and the second receiving psychodrama), and a non-clinical control group as comparison. The emerging results show that only the Positive Emotion Training was effective in improving emotion regulation in the dyslexic students group.

Heart surgery is associated with considerable psychological distress often resulting in anxiety and depression. Therefore, interventions improving psycho-social well-being in this particular patient group are of high clinical importance. A study performed in Bu Ali Hospital investigated 50 patients after cardiac surgery. Half of the total sample received a six-week intervention aimed at improving body awareness. The results show that the intervention effectively enhanced body awareness, and thereby, reduced anxiety and depression.

The study of psychosomatic problems in the context of working environment is a relatively new field of psychosomatic medicine that has received increasing attention. Psychosocial distress due to specific working conditions may lead to long sickness leave and early disability. The investigation of these issues is important for prevention planning. In the study reported here, the authors investigated fatigue and symptoms of anxiety and depression amongst police personnel in Tabriz, Iran. They found clear interrelationships and a mutual influence between physical and psychological symptom clusters.

Finally, a study reported a Delphy Consensus Process of oncology experts in Iran

aiming to define the content of a curriculum in psycho-oncology, which is appropriate for the specific needs of such a curriculum in Iran. In this process, 36 experts participated and identified four areas of expertise. These included education, health care management, and research. Due to the high importance of the family in the Iranian cultural context, involving the family in the psychosocial care process of cancer patients should have a high priority. Although the burden on the family of cancer patients has been stressed in other cultural contexts, psycho-oncology curricula often focus on individual patients rather than their social network.

Overall, this issue of the journal again gives an impression of the broad clinical field of psychosomatic medicine. Experiences of the Corona pandemic, which belong to the sad and dramatic experiences of the year, have urged us to re-consider and perhaps re-evaluate our priorities with regard to health and illness and our systems of health care. An open discourse on health care management systems is of vital importance for our future. The interdisciplinary and international dialogue to which we hope to contribute can reflect on these vital issues of health care and disease in the care services provided to patients.

Conflict of Interests

Authors have no conflict of interests.

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International Journal of Body, Mind and Culture

Formulation and Testing of a Model of the Relationship between Psychological Characteristics of Depression, Anxiety, and Stress, and Physical Complaints of the Staff of a Military Unit in Tabriz, Iran, with the Mediating Role of Chronic Fatigue

Mohammad Reza Sharbafchi[1], Hamid Afshar Zanjani[2], Hossein Rostami[3]

[1] Assistant Professor, Psychosomatic Research Center AND Department of Psychiatry, Isfahan University of Medical Sciences, Isfahan, Iran
[2] Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[3] Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Corresponding Author: Hossein Rostami; Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran; Email: rostami.psychologist@gmail.com

Quantitative Study

Abstract

Background: Employees of military units in their workplaces often complain of experiencing multiple physical and psychological symptoms that cannot be explained medically. The present study aimed to investigate the relationship between the psychological characteristics of depression, anxiety, and stress, and unexplained physical complaints of the staff of a military unit in the city of Tabriz, Iran, with the mediating role of chronic fatigue.

Methods: For this purpose, 300 employees of a military unit in the city of Tabriz were selected through cluster sampling method in 2019. To measure the variables, the participants completed the Depression, Anxiety, and Stress Scale (DASS-21), Chalder Fatigue Questionnaire (CFQ), and Symptom Checklist-90 (SCL-90). Cronbach's alpha was used to assess the validity and reliability of these scales and the results indicated the desirability of these scales. The data were analyzed using Amos software and bootstrapping test.

Results: The results showed that the total effect of psychological characteristics on chronic fatigue ($\beta = 0.85$ $P < 0.001$), chronic fatigue on physical complaints ($\beta = 0.54$; $P < 0.001$), and psychological characteristics on physical complaints ($\beta = 0.30$; $P < 0.001$) was statistically significant. Moreover, the indirect effect of chronic fatigue and psychological characteristics on physical complaints was significant ($\beta = 0.096$; $P = 0.020$).

Conclusion: The identification of psychological characteristics helps authorities to think about ways to provide counseling and treatment for mental disorders and chronic fatigue among the work force that can improve physical complaints among the personnel of military units.

Keywords: Psychological characteristics; Chronic fatigue; Physical complaints

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Introduction

The military force is an important sector that keeps the peace and security of a part of the city, and the main task of every military unit is to prevent the occurrence of crime. The military unit within the city and the units outside the city maintain the order and security of each district. The military force is a public commander of the judiciary system that, in case of observing visible crimes, has to directly intervene and introduce the criminals to the judiciary system. Criminals, as part of the society, are individuals with behavioral problems. The problems related to anger in criminals are one of the concerns of military unit and correctional instructors who are always looking for ways to control and deal with this phenomenon; and since military unit officers spend long intervals with offenders and criminals, they lose much energy which leads to fatigue and unexplained physical complaints. These problems also result in severe physical harms in both the staff and criminals (Nemati, Babazadeh, & Fakhri, 2013). Previous studies have reported a relationship between working environments and a wide range of illnesses and mental health disorders (Rollings, Wells, Evans, Bednarz, & Yang, 2017; Morton, Michalak, & Murray, 2017). Millitary personnel regularly face insults, threats, and beatings by criminals and prisoners who often suffer from mental disorders. Therefore, in such working environments, the employees, especially caregivers, are at high risk of mental health problems including unexplained physical complaints and mental complaints (Ghaddar, Mateo, & Sanchez, 2008). The employees may also face injuries due to the escaping of criminals which leads to physical complaints and fatigue from working and the environment. Physical complaints are reoccurring emotional and psychological symptoms for which careful medical examinations often fail to provide a clear physical cause. These disorders, which may emerge in one of the internal or external organs of the body, are associated with perceived stress and various psychosocial-social variables (Golparvar & Sadeghi, 2016). Mental disorders can be masked by physical complaints such as headaches, back pain, chest pain, and digestive problems (Haftgoli et al., 2010). Physical complaints such as exhaustion, general pain, poor ventricular function, tremor, and confusion are commonly observed, and the progression of physical complaints such as exhaustion and pain in practice are associated with depression (Shakoor et al., 2010). In fact, it seems that depression also has an effect on employees' physical complaints. Depression is a common mental disorder with various symptoms, often accompanied by physical symptoms. Moreover, 69% of depressed patients may show physical symptoms for their major complaints (Demyttenaere et al., 2004). In the study by van Hooren, Vermeiren, and Bolman (2008), it was found that there is a significant positive relationship between depression symptoms and physical complaints and patients who use more problem-focused effective factors or have emotion-focused explicit experiences have fewer symptoms of depression. In addition, anxiety is defined as a feeling of unreasonable fear and discomfort as well as a response to an unknown, ambiguous, or conflicting threat, and may also result in physical complaints (Sadock & Sadock, 2010). Studies show that anxiety and depression have significant relationships with physical complaints (Hekmat Ravan, Samsam Shariat, Khani, Khademi, 2012). Nielsen and Einarsen (2012), in their study, found that workplace bullying at the employee level results in consequences such as depression, anxiety, stress, pressure, exhaustion, and post-traumatic stress disorder (PTSD), and has a significant relationship with physical health implications such as mental complaints and physical health problems.

Stress can also have detrimental effects on people's physical and mental health, for example, occupational stress can cause anxiety, mental strain, and emotional tension. Moreover, it can cause exacerbation of physical and cardiovascular problems, musculoskeletal disorders (MSDs), and psychophysical pains (Nakao, 2010). In addition to psychological characteristics, chronic fatigue syndrome (CFS) appears to have a mediating role in employees' physical complaints. CFS is a complex and disabling disorder the most common symptoms of which are asthenia, muscle pain, memory deficits and lack of concentration, insomnia, chest pain, dizziness, night sweats, weight loss, and psychological problems such as depression and irritability (Sadock, Sadock, & Ruiz, 2015). The exact incidence rate and mode of CFS are not known, but its incidence rate in the general adult population is estimated to be 0.70 to 2.8%. Women are two times more likely to have it than men. The average age of the incidence of this disorder is 33 years, although it has also been seen in people younger than 10 years of age and older than 70 years of age (Committee on the Diagnostic Criteria for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, Board on the Health of Select Populations, & Institute of Medicine, 2015). Researchers have reported the prevalence of this disorder to be even higher than the prevalence of cancer and AIDS (Carruthers et al., 2003). Numerous studies have pointed out that military personnel are more likely to be exposed to exhaustion, acute stress, and traumatic stress (Gadermann et al., 2012: Shahhosseini & Vaez Mousavi, 2017) because they deal with many accidents and stressful incidents during their service. Long-term exposure to stressful conditions can in turn lead to fatigue and burnout, asthenia, lethargy, and laziness (Maslach, Schaufeli, & Leiter, 2001). When fatigue lasts more than 6 months, it is considered as chronic fatigue. Symptoms of CFS are often associated with other diseases such as fibromyalgia and irritable bowel syndrome (IBS) (Sadock et al., 2015). The effects of this syndrome on the work force are costly and reduce production, efficiency, and motivation, and increase absences and unemployment (Haddadi, Zakerian, Mahmoodi, Nasl Seraji, Parsa Yekta, & Ali Yari, 2014). Moreover, the human being is a biological, psychological, and social being (Mehdad, Rahimi, & Atashpour, 2011), and at least one-third of his/her life is spent in the workplace. Therefore, work is considered a very important factor in health (Aghaei, Jalali, Aslan, & Hasanzadeh, 2011). Fatigue is the most common symptom of CFS which is characterized by severe mental and physical fatigue and is responsible for a 50% decrease in all activities of the affected person (Haddadi et al., 2014). Most employees who have the diagnostic criteria of CFS also have some psychiatric diagnostic criteria, especially anxiety, depression, and stress disorders (Taheri & Sajjadian, 2018). Examination of these diagnostic criteria indicates that the physical symptoms of anxiety are similar to the physical symptoms of CFS (Tyrer, 1976). Anxiety is a very unpleasant diffuse feeling that is often accompanied by symptoms of the autonomic apparatus (such as diarrhea, dizziness and lightheadedness, excessive sweating, intensification of reflexes, hypertension, pupillary edema, restlessness, shaking, gastric distress, and slow urination) (Ahmadi, Mohammadi Sartang, Nooraliee, Veisi, & Rasouli, 2013). Studies have also shown a close relationship between depression and CFS. However, despite the similarities of these two disorders, the exact relationship between them is still unclear, and 66% of people with fatigue syndrome also have symptoms of major depressive disorder (MDD) and 50% of them have reported at least one episode of MDD (Committee on the Diagnostic Criteria for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, Board on the Health of Select Populations, & Institute of Medicine, 2015). Depression

is a widespread disorder that most people experience at some period in their lives (Farhadi, Yarmohamadi Vasel, Zoghi Paidar, & Chegini, 2017). The high correlation between these two disorders is such that many psychiatrists believe that all cases of this syndrome are depressive disorders; however, patients with CFS rarely feel guilty, think about suicide, or lack feeling of enjoyment, and they do not lose much weight. Furthermore, these patients usually do not have a family history of depression or other mental disorders, and there are not many stressful events in their lives that justify or facilitate depression. In addition, although some patients respond to treatment for depression, many eventually become resistant to all psychotropic drugs (Sadock et al., 2015). In the previous studies, the relationships between the variables of the present study have been separately investigated; however, we found no integrative research that examines the relationships between these variables in the form of a holistic model. This is why the present study is an important step toward providing a coherent structural model of the intrinsic relationships between the variables of depression, anxiety, and stress as the independent variables, and chronic fatigue as the mediating variable and physical complaints as the dependent variable. The present study was conducted to determine whether the model of the relationship between the psychological characteristics of depression, anxiety, and stress and the physical complaints of employees of a military unit in the city of Tabriz, Iran, with the mediating role of chronic fatigue is well fitted or not.

Methods

The present descriptive, correlational research was conducted in 2019. The statistical population of the study consisted of all employees of a military unit in the city of Tabriz from among whom 300 people were selected through random cluster sampling. To do this, from among all military units in the city of Tabriz, 8 units were randomly selected, and in the next stage, a number of staff from the selected units were randomly selected. After presenting the related permit to the selected units in the city of Tabriz, the questionnaires were distributed among the staff. The employees were assured of the observance of ethical principles, anonymity in completing the questionnaires, and confidentiality of information. The employees who answered the questionnaires incompletely were excluded from the statistical sample. The instruments used in this study included the Depression, Anxiety, and Stress Scale (DASS-21), Chalder Fatigue Questionnaire (CFQ), and Symptom Checklist-90 (SCL-90).

Symptom Checklist-90: This SCL-90 was introduced by Derogatis, Rickles, and Rock Derogatis and it indicates 9 dimensions of disease symptoms including physical complaints, obsession and compulsion, sensitivity in interpersonal relations, depression, anxiety, aggression, morbid fear, paranoid thoughts, and psychosis (Derogatis, Lipman, & Covi, 1973). The scoring of the SCL-90 is based on a 5-point Likert scale ranging from 0 (never) to 4 (strongly). It is necessary to note that in this study only the component of physical complaints was used and the questions related to physical complaints are questions 1, 4, 12, 27, 40, 42, 48, 49, 52, 53, 56, and 58. The validity and reliability of the SCL-90 were assessed by Derogatis et al. (1973), who reported the internal validity of the test using Cronbach's alpha coefficient to be satisfactory and higher than 0.5. Moreover, in Iranian studies, the Cronbach's alpha coefficient of the physical complaints component has been reported to be 0.78 (Mohammadi, 2018).

Chalder Fatigue Questionnaire: Chalder, Berelowitz, and Hirsch developed a short

14-item instrument that measures the mental and physical symptoms of fatigue. The scoring of the CFQ is based on a Likert scale ranging from 1 (never) to 4 (very high). The validity and reliability of this scale were evaluated by Chalder et al. (1993) using the clinical interview symptom list, its sensitivity was 75.5% and its specificity was 74.5%. The internal consistency coefficient was 0.85 and 0.82 for the physical exhaustion question and mental exhaustion questions, respectively.

Depression, Anxiety, and Stress Scale: The DASS-21 was developed by Lovibond and Lovibond (1995) and it consists of 3 self-report measures for the evaluation of negative emotional states in depression, anxiety, and stress. This scale consists of 21 questions and each of its subscales has 7 questions. Each question is scored on a scale ranging from 0 (does not apply to me at all) to 3 (totally applies to me). Foreign studies have assessed this scale using factor analysis and their results indicated the presence of the 3 factors of depression, anxiety, and stress. The results of the present study showed that 68% of the total variance of the scale is measured by these 3 factors. Specific values of the factors of stress, depression, and anxiety in the study by Lovibond and Lovibond (1995) were 9.07, 2.89, and 1.23, and alpha coefficients for these factors were 0.97, 0.92, and 0.95, respectively. The validity and reliability of this questionnaire were evaluated in some Iranian studies, which have reported the test-retest reliability of the depression, anxiety, and stress subscales to be equal to 80%, 76%, and 77%, respectively (Mofidirad, & Shareh, 2014). The collected data were analyzed using structural equation test in Amos (version 24; IBM Corp, Armonk, NY, USA) and SPSS software (version 22; IBM Corp, Armonk, NY, USA).

Results

The present study was performed on 300 employees of a military unit in the city of Tabriz. The participants' mean age was 33.97 years, and the range of their service experience was 1-29 years and their mean service experience was 13.16 years.

Table 1 shows the mean and standard deviation of the variables and the skewness and kurtosis indices. According to the results presented in table 1, it can be stated that the indices of skewness and kurtosis are appropriate, that is, the assumptions necessary for path analysis, including the assumption of normality of distribution, were verified. Mardia's test was used to test the multivariate normality of distribution. The results of this analysis verified the assumption of multivariate normality (multivariate kurtosis of -2 and -2).

The Pearson correlation test illustrated a significant correlation between the physical complaints variable and the variables of depression (r = 0.675), anxiety (r = 0.717), stress (r = 0.729), psychological characteristics (r = 0.743), physical fatigue (r = 0.790), mental fatigue (r = 0.764), and chronic fatigue (r = 0.812) (Table 2).

Moreover, the variable of chronic fatigue was found to have a significant correlation with the variables of depression (r = 0.749), anxiety (r = 0.731), stress (r = 0.775),psychological characteristics (r = 0.790), and physical complaints (r = 0.812).

Table 1. The mean ± standard deviation of the studied variables

Variables	Mean ± SD	Skewness	Kurtosis
Depression	1.91 ± 3.73	1.020	-0.115
Anxiety	1.73 ± 3.27	1.107	-0.067
Stress	2.80 ± 4.88	1.115	0.434
Psychological characteristics	6.44 ± 11.88	1.147	0.253
Physical fatigue	3.27 ± 9.55	0.963	0.521
Mental fatigue	3.57 ± 12.10	0.788	0.004
Chronic fatigue	6.56 ± 21.65	0.889	0.076
Physical complaints	3.05 ± 6.82	0.976	-0.272

Table 2. Pearson correlation matrix for the research variables

	1	2	3	4	5	6	7	8
1	1							
2	0.675**	1						
3	0.717**	0.836**	1					
4	0.729**	0.878**	0.868	1				
5	0.743	948**	0.941**	0.967**	1			
6	0.764**	0.727**	0.693**	0.768**	0.769**	1		
7	0.790**	0.707**	0.706**	0.719**	0.746**	0.834**	1	
8	0.812**	749**	0.731**	0.775**	0.790**	0.954**	0.961**	1

1: Physical complaints; 2: Depression; 3: Anxiety; 4: Stress; 5: Psychological characteristic; 6: Mental fatigue; 7: Physical fatigue; 8: Chronic fatigue
** Significance: P < 0.01

Table 3 shows the fit indices of the output model. Given the results shown in table 3, the chi-square index ($\chi 2 = 345.751$), relative chi-square ($\chi 2/df = 2.98$), goodness of fit index (GFI = 0.95), normalized fit index (NFI = 0.913), comparative goodness of fit index (CFI = 0.936), and root mean square error of approximation (RMSEA = 0.08) indicate the average fit of the output model. After making sure of the observance of the regression assumptions, the results of structural equation modeling can be seen in figure 1 and tables 3 and 4.

According to figure 1 and table 4, the standard coefficients of psychological characteristics on chronic fatigue ($\beta = 0.85$; $P < 0.001$), chronic fatigue on physical complaints ($\beta = 0.54$; $P < 0.001$), and psychological characteristics on physical complaints ($\beta = 0.30$; $P < 0.001$) were statistically significant. With the increase in psychological characteristics scores, fatigue in employees also increased, which in turn resulted in an increase in physical complaints in employees; thus, psychological characteristics affect and increase employees' physical complaints. Then, to test the mediating relationships of the structural model and to obtain the significance of the indirect coefficients, the Amos software bootstrap test with the sample number and default confidence interval (CI) in the program were used (Table 4). As shown in table 4, chronic fatigue, through increasing psychological characteristics, affects physical complaints ($\beta = 0.096$; $P = 0.020$), that is, as a result of the increase in psychological characteristics, employee fatigue is increased, which in turn increases employees' physical complaints.

Discussion

The present study showed that the psychological characteristics of depression, anxiety, and stress with the mediating role of chronic fatigue affect the physical complaints of employees in military units. The other results suggest that psychological characteristics are correlated with chronic fatigue, which is consistent with the results of some previous studies (Sadock et al., 2015; Committee on the Diagnostic Criteria for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, Board on the Health of Select Populations, & Institute of Medicine, 2015; Gadermann et al., 2012; Shahhosseini & Vaez Mousavi, 2017; Maslach et al., 2001; Haddadi et al., 2014; Taheri & Sajjadian, 2018; Tyrer, 1976).

Table 3. Fit indices of the output model

Indices	χ^2	df	χ^2/df	GFI	NFI	CFI	RMSEA	P
Output model	345.751	116	2.98	0.95	0.913	0.936	0.08	< 0.001

GFI: Goodness of fit index; NFI: Normed fit index; CFI: Comparative fit index; RMSEA: Root mean square error of approximation

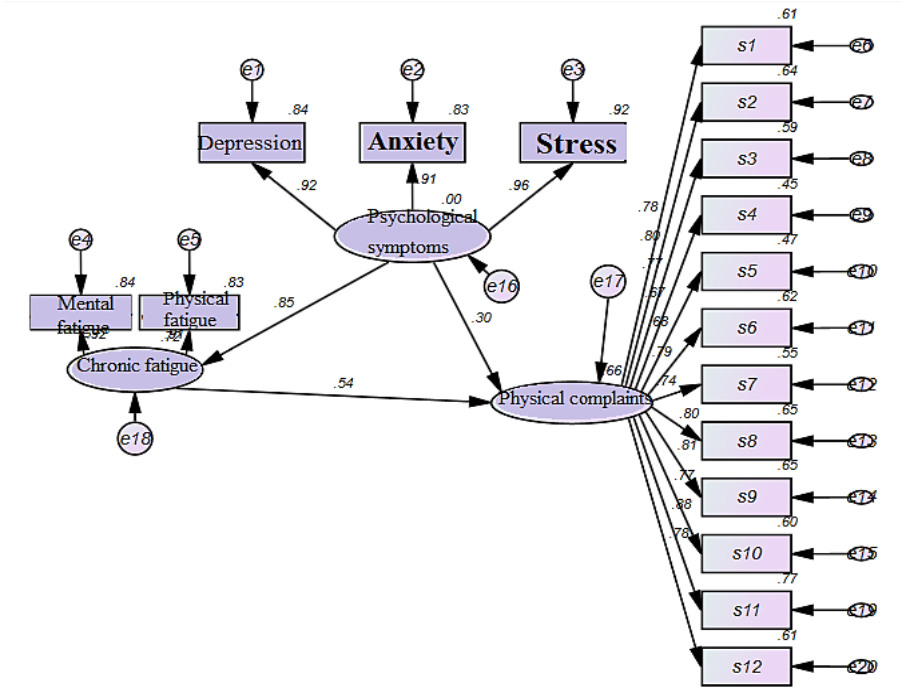

Figure 1. The output model of the mediating role of chronic fatigue in the relationship between psychological characteristics and physical complaints

In explaining the results of the present study, it can be stated that unfavorable health and working conditions in military units, heavy responsibilities and the inappropriate status of employees in the units, increased number of criminals, intensive work shifts, and job insecurity cause psychological symptoms such as depression, anxiety, and stress among employees. Moreover, with the increase in employees' psychosocial problems, the prevalence of CFS will increase among employees. According to studies, most of the employees who have the diagnostic criteria for CFS also have some psychiatric diagnostic criteria, especially anxiety and depression disorders (Taheri & Sajjadian, 2018; Tyrer, 1976; Sharpe, 1997). According to Sharpe (1997), there is a strong relationship between MDD and CFS. Furthermore, the examination of diagnostic criteria shows that the physical symptoms of anxiety are similar to that of CFS (Sharpe, 1997).

Table 4. Direct and indirect effects of the mediating role of chronic fatigue in the relationship between psychological characteristics and physical complaints

Research variables	Total effect (standard)	Direct effect	Indirect effect	Results
Psychological characteristics → Chronic fatigue	β = 0.85 P < 0.001	β = 0.713 P = 0.043		Direct effect
Chronic fatigue → Physical complaints	β = 0.54 P < 0.001	β = 0.135 P = 0.029		Direct effect
Psychological characteristics → Physical complaints	β = 0.30 P < 0.001	β = 0.063 P = 0.021		Direct effect
Psychological characteristics → Chronic fatigue → Physical complaints			β = 0.096) P = 0.020	Mediating role

According to Baker's theory, it can be said that due to the persistence of criminals, repetition of crimes, and continuous encounter with criminals for prolonged periods of time in military units, their guards more than others suffer from stress and mental fatigue (Baker, 1997). If a person is exposed to stressors for a long period, he/she will use a great deal of energy to adapt to this situation, and thus, his/her energy may not be sufficient to respond to his/her needs, thus may place the individual at risk of illness or mental balance disturbance (Navidian, Salar, Hashemi Nia, & Keikhaei, 2001). This is why CFS occurs in employees of military units.

Another result of the present study was that there was a relationship between psychological characteristics and physical complaints which is consistent with the results of some other studies (Ghaddar et al., 2008; Golparvar & Sadeghi, 2016; Haftgoli et al., 2010; Shakoor et al., 2010; Demyttenaere et al., 2004; van Hooren, Vermeiren,
& Bolman, 2008; Sadock & Sadock, 2010; Hekmat Ravan et al., 2012; Nielsen & Einarsen, 2012; Nakao, 2010; Sadock et al., 2015; Committee on the Diagnostic Criteria for Myalgic Encephalomyelitis/Chronic Fatigue Syndrome, Board on the Health of Select Populations, & Institute of Medicine, 2015). In explaining this result it can be said that employees with psychological symptoms (depression, anxiety, and stress) also have physical complaints, and the physical complaints that are related to depression include joint pain, limb pain, back pain, gastrointestinal problems, fatigue, and changes in psychomotor activity. The primary complaints of a high percentage of patients with depression are only related to physical symptoms (Shakoor et al., 2010). Experiencing psychological symptoms can have detrimental effects on a person's physical and mental health. For example, occupational stress can cause nervous, mental, and emotional stress, and exacerbate physical and cardiovascular problems, musculoskeletal pains, and psychosomatic disorders (Nakao, 2010). Moreover, employees in military units who have a poor security attitude, due to helplessness and lack of self-confidence in dealing with issues, experience more physical and psychological harms. These employees do not trust in the procedures and safety measures of the workplace and do not believe that one can reduce physical and psychological hazards by adherence to principles and rules. Thus, they get involved in situations that cause them psychological and physical distress and this causes them to have more complaints about physical and psychological hazards (Kiani & Khodabakhsh, 2015). From a cognitive perspective, a person's judgment, or in other words, his/her cognitive evaluation of a situation affects his/her adaptation to the mentioned situation. A cognitive factor, which is also one of the major cognitive errors of individuals, is physical complaints which are mainly affected by depression and anxiety (Arnow et al., 2011).

The researcher also found that there is a relationship between chronic fatigue and physical complaints and this is consistent with the results of some previous studies (Sadock et al., 2015; Carruthers et al., 2003; Gadermann et al., 2012; Saeedi Dhaghani, Babapoor, & Esmaeelpoor, 2014; Aggarwal, McBeth, Zakrzewska, Lunt, & Macfarlane, 2006). In explaining this result, it can be said that chronic fatigue is caused by sleep disturbances and distresses caused by the pressure of difficult working conditions. Some of the employees of military units, due to being responsible for difficult and supervisory missions, have chronic fatigue; this has caused their nervous system to become inflamed, which has caused cardiovascular diseases (CVDs), back pain, gastrointestinal disorders, and eventually, physical complaints. CFS can get worse with physical activities. Researchers have shown that

patients with CFS have a cognitive bias toward threatening stimulus and information received about their physical health (Saeedi Dhaghani et al., 2014). This is consistent with the findings of Aggarwal et al. (2006) who reported that people with chronic fatigue have many concerns about their health scares.

The present study had some limitations, one of which is that the research population consisted of the employees of only one military unit in the city of Tabriz, and thus, caution should be taken in generalizing the results. It is also suggested that authorities plan and consider strategies with the help of psychologists and counselors to reduce psychological characteristics and improve chronic fatigue and adaptation to the working environment in military units in order to reduce physical problems and pains, including physical complaints, among the employees.

Conclusion

The present study showed that people with fatigue due to anxiety and stress are typically tired and distressed during sleep and work activities, and thus, the incidence rate of physical complaints is high among them. While fatigue due to depression varies among different cases, it is almost always accompanied by other symptoms of depression (including a persistent low mood along with pessimism, cognitive changes, and mental disorders). Patients with fatigue report that they are unable to perform specific activities due to lack of energy or power. This is while the descriptions provided by depressed individuals is more general, for example, they mention that they are not able to do anything. However, fatigue can be both a cause of depression and imitate symptoms of depression. Therefore, employees with fatigue complain of lack of energy, mental fatigue, poor muscle endurance, back pain, delayed recovery after physical activity, and lack of restful sleep. Therefore, chronic fatigue causes increased physical complaints including muscular pain, gastrointestinal pain, and headache. Hence, these common physical complaints and their alleviation methods should be seriously investigated.

Conflict of Interests

Authors have no conflict of interests.

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At all stages of this research, ethical considerations such as the ethical principle of scientific trusteeship, the intellectual property of authors, confidentiality, and informed consent have been respected.

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Comparing Fredrickson's Positive Emotion Training Program and Psychodrama Program in Terms of Emotion Regulation in Students with Dyslexia

Mandana Sepanta[1], Ahmad Abedi[2], Amir Ghamarani[3], Salar Faramarzi[2]

[1] PhD, Department of Psychology, School of Educational Sciences and Psychology, University of Isfahan, Isfahan, Iran
[2] Associate Professor of Psychology and Education of Children with Special Needs, Department of Special Education, School of Educational Science and Psychology, University of Isfahan, Isfahan, Iran
[3] Assistant Professor of Psychology and Education of Children with Special Needs, Department of Special Education, School of Educational Science and Psychology, University of Isfahan, Isfahan, Iran

Corresponding Author: Ahmad Abedi; Associate Professor of Psychology and Education of Children with Special Needs, Department of Special Education, School of Educational Science and Psychology, University of Isfahan, Isfahan, Iran; Email: a.abedi@edu.ui.ac.ir

Quantitative Study

Abstract

Background: The present study was aimed at comparing a positive emotion training program based on Fredrickson's broaden-and-build model of positive emotions with the psychodrama program in terms of emotion regulation in students with dyslexia.

Methods: This experimental study was conducted with 3 groups (2 experimental groups and 1 control group), pretest-posttest design, and a follow-up. The statistical population included all fifth-grade female, middle-class, 10-11-year-old primary-school students with specific learning disabilities who were studying in public schools of the 5 educational regions of Isfahan, Iran. Multistage random sampling was used for the selection of the participants. The reading and dyslexia test was administered to identify learning disabilities in the students, and as a result, 38 students with a reading disorder were selected and randomly assigned to experimental group 1 (Fredrickson's positive emotion training program), experimental group 2 (psychodrama program), and control group. Students completed the Cognitive Emotion Regulation Questionnaire (CERQ) at pretest, posttest, and follow-up. Prior to the treatment, the students completed the CERQ. The follow-up phase of the study was conducted 3 months after the end of the treatment. The interventions consisted of 10 sessions (45 minutes each) devoted to positive emotion training and 10 sessions (45 minutes each) devoted to psychodrama program training. The data were analyzed using descriptive (mean and standard deviation) and inferential statistics (repeated measures ANOVA) in SPSS software.

Results: The findings indicated that a positive emotion training program exerted a significant effect on emotion regulation, while the effect of the psychodrama training program was not statistically significant.

Conclusion: It can be concluded that positive emotion training has a more significant effect than the psychodrama training program.

Key Words: Positive emotion training program, Psychodrama, Emotion regulation, Dyslexia, Students

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Introduction

Specific learning disorder with a prevalence of 5-15% is the most common cause of poor academic performance. In the Diagnostic and Statistical Manual of Mental Disorders (DMS), learning disorder is classified as a neurodevelopmental disorder. This disability is manifested in learning problems and deficits in acquiring school-age related skills during early school years. These problems last for at least 6 months even though they are not related to mental disabilities and developmental or neurological disorders, including reading, writing, and mathematical computations disorders (Abedi, 2007). Individuals suffering from learning disabilities are a highly heterogeneous group with different needs (Amaury Samalot-Rivera, 2007). To put it differently, learning disorder encompasses a much wider range of cognitive and educational problems that are often neglected at school, and a thorough understanding of this disorder necessitates attending to the social, emotional, and behavioral areas of the individual's life (American Psychiatric Association, 2013).

In many cases, due to the frequent academic failures of students with learning disabilities, belief about lack of progress and achievement will be formed, which, in itself, causes problems that go beyond the major disorder. Studies indicate that children and adolescents with learning disabilities have problems with interpersonal skills, social information processing, social interactions, and mood and depression disorders (Asher & Taylor, 1981). These children frequently encounter the negative reactions of parents, adults, and other children, and ignoring these children will have devastating consequences for both their families and community (Bauminger & Kimhi-Kind, 2008). Students with learning disabilities commonly experience considerable problems (Blatner, 2000). For this reason, when learning and education are subject to repeated and recurrent failures and are harshly criticized by parents and school principals, these children are unable to adequately respond and control the severity or the degree of their emotions. Some of these students display impulsive and aggressive behaviors, while others exhibit passive, inactive, and indifferent behaviors and attempt to protest or attract the attention of others. Such misconduct and misbehavior result in being blamed and scolded by adults and might even lead to mental and physical punishment (Brackett & Salovey, 2004).

Learning disabilities and their social-emotional consequences are the cause of the possible impairment in emotion regulation in these students (Bayrami, Hashemi, & Shadbafi, 2017). Theorists argue that individuals who are unable to manage and correctly regulate their emotions in everyday events display most of the diagnostic symptoms of internalizing disorders such as depression and anxiety (Casson, 2004). In addition, recent theoretical models have shown a correlation between successful emotion regulation and positive health outcomes, interpersonal relationships, desirable career, and academic performance (Diekstra, 2008).

Psychodrama and a positive emotion training program based on Fredrickson's broaden-and-build model of positive emotions , due to the application of absorbing and interesting emotional techniques, are the best interventions for teaching emotion regulation skills to children with learning disabilities (Dogan, 2010). Several psychological treatments have been provided for children with special needs; nonetheless, their social and emotional needs have not been fully taken into consideration and only those needs that negatively influence their educational achievement have been considered (Fredrickson, 2001). However, awareness of these children's behavioral, social, and emotional problems has significantly increased in recent years. Therefore, one of the

interventions that can be used to regulate the emotions of students with a specific learning disorder is Fredrickson's broaden-and-build model of positive emotions (Fredrickson, 2004).

The broaden-and-build theory of positive emotions was proposed by Fredrickson in 1998. According to this theory, specific, objective, positive emotions, although phenomenologically distinct, share the ability to expand thought-action repertoires of individuals and develop personal enduring resources (i.e., intelligence, physical, psychological, and social resources). In general, positive emotions expand the thought-action repertoires, neutralize the remaining negative emotions (Fredrickson, 2001), strengthen psychological flexibility, and ultimately trigger upward spirals towards better psychological well-being (Fredrickson, 2013). Freilich and Shechtman (2010) established the broaden-and-build theory of positive emotions to explain the mechanisms through which positive emotions impact survival. This theory opposes the traditional models grounded in specific action tendencies since the specific action tendencies triggered by negative emotions narrow the thought-action repertoires of an individual (Garnefski, Kraaij, & Spinhoven, 2002). According to this model, positive emotions (i.e., joy, gratitude, serenity, interest, hope, pride, amusement, entertainment, owe, and love) increase one's awareness of and interest in new, diverse, and exploratory actions and thoughts (Gartland & Strosnider, 2007). Individuals who experience positive emotions display considerably flexible thought patterns (Gatta et al., 2010). One study found that cognitive-emotional interventions could predict socio-emotional behaviors and were effective in modifying complex behaviors in children suffering from learning disabilities (Gervais & Wilson, 2005).

Another intervention that might influence the emotion regulation of students with learning disabilities is the psychodrama program, yet it has not been fully taken into consideration by researchers. In general, use of the therapeutic effect of drama dates back to ancient Greece and Aristotle's views on the positive psychological effects of drama; in the history of psychology, figures such as ILjine, Frenczi, and Moreno were the first theorists in this regard. They emphasized the positive effect of drama on counseling and psychotherapy. However, it was only Moreno who was able to put forward his ideas as a comprehensive counseling and psychotherapy approach, which later became one of the most famous and most effective approaches to counseling and group psychotherapy (Hulbert- Williams & Hastings, 2008).

This impromptu drama, which was developed and practiced by Moreno, laid the foundation for what is today called "psychodrama." Using the stage, employing spontaneous techniques, and the application of elements such as the first person and the auxiliary ego were all components of his approach that still form the core of psychodrama (Johnson, 2005). Therefore, the present study was conducted to compare the positive emotion training program based on Fredrickson's broaden-and-build model with the psychodrama program on emotion regulation of students with learning disabilities in primary schools of Isfahan, Iran.

Methods

In the present study, 38, fifth-grade, middle-class, female students with a reading disorder whose ages ranged between 10 and 11 years were selected and randomly assigned to experimental group 1 (emotion training based on Fredrickson's model) (n = 13), experimental group 2 (psychodrama program) (n = 13), and the control group (n = 12). The participants were selected through multistage random sampling; from among the 5 educational regions of Isfahan, 3 were randomly selected, and from them, 4 schools and 3 classes were randomly selected.

The inclusion criteria were moderate or above-average intelligence, no visual and hearing problems, no emotional-behavioral disorder, meeting the learning disability criteria included in the checklist for the diagnosis of a specific learning disorder, and lack of comorbid disorders. The study exclusion criteria were absence from training sessions, suffering from a specific illness, drug use, and the presence of problems and disorders that affect the intervention process. It should be mentioned that the interventions consisted of 10 sessions (45 minutes each) of positive emotions' training based on Fredrickson's model and 10 sessions (45 minutes each) of psychodrama training, and the follow-up was conducted 3 months after the end of the treatment.

Cognitive Emotion Regulation Questionnaire: This questionnaire, which was developed by Garnefski, Kraaij, and Spinhoven (2002), is a multidimensional self-report questionnaire and includes 36 items. The adult and children versions of the questionnaire are distinct and different. The items of the Cognitive Emotion Regulation Questionnaire (CERQ) are scored based on a 5-point Likert type scale ranging from always to never, and every 4 items measure 1 factor. The CERQ includes 9 factors, namely self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame. The results of principal component analysis (PCA) indicated that it is a 7-factor questionnaire including positive refocusing/planning (0.91), positive reappraisal (0.72), self-blame (0.80), other-blame (0.79), rumination (0.65), catastrophizing (0.66), and acceptance (0.62). The results of the alpha coefficient and test-retest for subscales indicated that this questionnaire was valid (Karami Noori & Moradi, 2008). Moreover, the correlation of the subscales with the total score of the Depression, Anxiety, and Stress Scale (DASS) showed convergent and divergent validities (Lousada, 2005; Lyubomirsky & Layous, 2013). It should be noted that only the total score of this questionnaire was used in the present study. The reliability of the questionnaire, estimated using Cronbach's alpha, was 0.80 for the present study.

Wechsler Intelligence Scale for Children-Fourth Edition: The Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) was used to ensure that the sample group demonstrates a normal level of intelligence, which is one of the criteria for identifying learning disabilities. Wechsler, in 2003, developed the WISC-IV for children aged between 6 and 16 years, and it measures the full-scale IQ and 4 indexes, namely verbal comprehension, perceptual reasoning, working memory, and processing speed. Abedi (2007) validated and standardized this scale on a sample of Iranian children. The test-retest reliability of the subscales ranged between 0.65 and 0.95, and the split-half reliability coefficients ranged between 0.71 and 0.86.

Reading and Dyslexia Test: In addition to referring to the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for dyslexia, , the reading and dyslexia test, developed and standardized by Karami Noori and Moradi (2008), was used to diagnose students with dyslexia and measure their level of ability to read. These researchers validated this test in 1614 students (770 male and 844 female students) in 5 educational levels in Tehran, Sanandaj, and Tabriz, Iran. This test aims to determine the reading ability of normal monolingual and bilingual students in primary school and to diagnose children with reading problems and dyslexia. Considering the cut-off score of 157 for this test, a student whose score is 157 or less (114 or more wrong answers) is recognized as a student with dyslexia. The raw score of each sub-test was recorded in the report summary of each student, and by referring to the tables of each sub-test for each

grade, the corresponding score was estimated, and finally, the student profile in the reading test was prepared (Mauss et al., 2011; Merrifield, 2011). It should be mentioned that the Cronbach's alpha coefficient of the reading and dyslexia test estimated in the present study was 0.81.

As previously mentioned, the aim of the study was to compare two training programs, namely psychodrama and a positive emotion training program based on Fredrickson's broaden-and-build model of positive emotions. A brief description of each program, including 10 sessions, is presented in tables 1 and 2.

Results

The descriptive statistics of the present study, including means and standard deviations, are presented in table 3.

The results of Levene's test indicated the equality of variances; therefore, to test the hypothesis of the present study, repeated measures ANIVA was used. The Kolmogorov–Smirnov test was used to check the normal distribution of variables. The results confirmed the normality of distribution since the P-values exceed the 0.05 level of significance. The covariance assumption of the two groups was tested using the Box test the result of which confirmed this assumption. To check the sphericity of the variance matrix of the dependent variable, Mauchly's test of sphericity was used. Since the result of this test was not statistically significant (P = 0.07) for emotion regulation, the values of F statistics and degrees of freedom were reported. The results of the multivariate analysis of variance (MANOVA) are presented in table 4.

Table 1. Summary of positive emotions training sessions

No	Emotion	Summary
1	Positive and negative	Familiarity with various positive and negative emotions
2	Positive	Familiarity with positive emotions with an emphasis on Fredrickson's positive emotions
3	Joy	Familiarity with joy and its various aspects and how to make yourself and others feel joy
4	Gratitude	Familiarity with gratitude and its various aspects and how to express it to others
5	Serenity	Familiarity with serenity and its various aspects and how to make yourself and others feel calm
6	Interest	Familiarity with interest and its various aspects and how to make yourself and others interested
7	Hope	Familiarity with hope and its various aspects, how to boost hope in yourself and others
8	Pride	Familiarity with pride and its various aspects, and how to make yourself and others feel proud
9	Amusement	familiarity with amusement and its various aspects, and how to amuse ourselves and others
10	Awe	familiarity with owing and its various aspects, and how to feel awe and transfer it to others

Table 2. Summary of psychodrama training sessions

No	Summary
1	The first session included preparing and creating a relaxed and safe atmosphere for better communication, and moving to the drama stage (physical warm-up and mental preparation). In the first session, the trainer or therapist performs a humorous play on a variety of individual roles in the community in different situations or performs the possible reaction to the current events in that situation.
2	The second session included continuing warm-up, and then, massaging the face, training to express the feelings needed and appropriate for the facial expressions, and doing the "talking face" practice. The goal is to know and express facial emotions and their impact on social relationships and to point out that we are trying to create a positive emotion in the community, but due to the negative or neutral feedback on the face and its non-compliance with the positive emotion we seek to convey, our social presence may be poor.
3	The content of session 3 consisted of recreating past emotional experiences, controlling negative emotions, and expressing positive emotions. In practicing this technique, the trainer asks the team to individually pantomime their previously experienced emotional reactions using their face and body language. Participants are supposed to visualize the person they encountered in the real and negative experiences, and then, represent the real story, recreate it, and then, analyze it.
4	The techniques practiced on the fourth session were empty seats, psychic refinement, and emotional outpouring. In performing this technique, each person sits in front of an empty seat and imagines this seat is taken by a person with whom he/she has had problems in situations that led to severe negative emotions and impulses.
5	Session 5 consisted of the reconstruction of various scenes of the group members' lives (secret police of the individual's life). In this technique, the members are grouped, and then, each group member practices a situation in his life that led to negative emotional responses, asks another member of the group to play the role he had in that situation, and looks at his life as a secret police officer.
6	The content of session 6 consisted of a 1-minute negative monologue and a 1-minute positive monologue. In this technique, a platform is placed in the middle of the class, and other students gather around it. The trainer then stands on the platform and recounts some of the worries, fears, and frustrations of life in just 1 minute.
7	The content of the seventh session included preparing the participants to answer 5 questions (Who am I?; Where am I?; Why am I here?; How am I?; In which time am I?). In this session, the instructor will explain the different situations in which the individual is present and the different social roles he/she takes. Moreover, the instructor teaches the appropriate rules, behaviors, and norms, all of which are the requisites for different behavioral responses.
8	The eighth session consisted of the darkroom technique, and identifying weaknesses and overcoming them. Considering the formation of friendly relationships between people in the group, after explaining the strengths and weaknesses of social relationships, especially among close friends, the trainer or therapist requests one of the participants to stand in the corner of the room and turn his/her back to the others. Others are supposed to express their views on the strengths and weaknesses of that participant. In such a situation, one can hear the impact of one's own behavior and personality on others who have witnessed his/her behavior and better identify and act on his/her defects.
9	The ninth session included the discussing, processing, and reviewing of past techniques. In this session, the trainer explained to the group that each performance was part of the life of a member of the group, and that everyone's efforts to represent events and happenings was aimed at bring awareness, training, or teaching the group.
10	The final session consisted of saying goodbye to students, and getting ready to enter the community, practice emotional control, and express positive emotions. The trainer or therapist stated that, after this session, they will experience the world differently, i.e., with positive and strong emotions. Students are then asked to look at each other and say positive and energetic words and phrases aloud to each other.

As shown in table 4, the four tests related to the difference among research variables in emotional regulation, considering both test and group membership, were statistically significant. In other words, emotion regulation training and psychodrama influenced emotional regulation and its dimensions in the posttest and follow-up stages ($P < 0.0001$).

Table 3. The mean and standard deviation of pretest, posttest, and follow-up of emotional regulation and its dimensions in the experimental and control groups

Variables	Test	Group		
		Control	Positive emotions training Program	Psychodrama
		Mean ± SD	Mean ± SD	Mean ± SD
Emotion regulation	Pretest	91.91 ± 7.03	93.00 ± 10.60	92.53 ± 6.52
	Posttest	92.33 ± 6.51	142.53 ± 10.98	98.46 ± 6.67
	Follow-up	93.66 ± 6.52	141.30 ± 9.65	100.76 ± 6.52

SD: Standard deviation

Considering that the estimated F value is significant at 0.001, it can be stated that the independent variables have influenced the students' emotion regulation. To determine which training method exerted a significant effect on emotion regulation, a pairwise comparison was made the results of which are reported in table 5.

As shown in table 5, the difference between the positive emotions training group and the control group was statistically significant. However, no significant difference was observed between the psychodrama and the control group. Moreover, the difference between the positive emotions training group and psychodrama group was statistically significant.

Discussion

The aim of this study was to compare the effect of the positive emotion training program based on Fredrickson's broaden-and-build model of positive emotions with the psychodrama program on the emotional regulation of primary school students with a reading disorder. Comparing the results of the groups revealed that the positive emotional training program based on Fredrickson's broaden-and-build model of positive emotions was more effective in enhancing emotion regulation of students with a reading disorder compared with the psychodrama program.

In justifying the effectiveness of the positive emotion training program based on Fredrickson's broaden-and-build model, it might be asserted that emotion regulation is related to interpersonal relationships and desirable academic performance (Packman, 2002; Wren, 2006). As previously stated, children with learning disorder have unconscious negative emotions; therefore, the initial step in emotion regulation is teaching emotions, preferably positive emotions. Therefore, a positive emotion training program based on Fredrickson's broaden-and-build model paves the way for developing an awareness of positive emotion, and then, through their juxtaposition with negative emotions and their selection over the negative ones, the children might be able to regulate their emotions. As Gartland and Strosnider (2007) asserted, positive emotions have been expressed as an opposing force against restlessness, fear, or anhedonia in the psychopathology of emotional disorders.

Table 4. Multivariate Analysis of Variance for the effect of group membership on emotion regulation in the experimental and control groups

Source		Sum of Squares	df	Mean Square	F	P	Effect size
Factor	Greenhouse-Geisser	44373.21	1.59	27776.28	4266.40	0.0001	0.98
Factor *group	Greenhouse-Geisser	34156.66	3.50	3545.25	821.02	0.0001	0.98
Error	Greenhouse-Geisser	406.86	53.45	7.61			

df: Degree of freedom

Table 5. Pairwise comparison of emotion regulation scores in the three groups

Variable	Group (i)	Group (j)	Mean difference	Error	P-value
Emotion regulation	Positive emotions training	Control	32.97	2.96	0.0001
		Psychodrama	23.35	2.90	0.0001
	Psychodrama	Control	4.61	2.96	0.12
		Positive emotions training	28.35	2.90	0.0001

Furthermore, as stated by Porges, Doussard-Roosevelt, and Maiti (1994), positive emotion training leads to increased vagal tone, which in turn directly impacts emotion regulation. Consequently, this program potentially improves the emotion regulation skills of children with learning disabilities.

In explaining the findings of this study, it can be stated that the positive emotion training program based on Fredrickson's broaden-and-build model leads to building sustainable personal resources by generating positive emotions and accumulating them over time. Sustainable personal resources result in positive emotions in a reciprocal framework. In later stages, this reciprocal effect forms an upward spiral that leads to higher levels of psychological health (Samani & Sadeghi, 2010).

In fact, positive emotions reinforce the path of individual growth in a positive direction, and repeated experience of these emotions leads to optimal performance (Sepanta, 2018). Positive emotions reinforce the individuals' tendency toward positive and healthy behaviors. When these behaviors are displayed and generate positive results, the individual is further motivated to repeat these behaviors. In the long run, this cycle can keep a person away from what threatens his optimal performance.

The positive emotion training program focuses on creating a fundamental gradual change over time, while children with learning disabilities usually find their disability gradually increasing after school and beginning reading assignments. These disabilities, along with misperceptions and negative feedback from the environment, threaten their self-concept, and result in the severe deterioration of psychological health (Sepanta, Abedi, Yarmohammadian, Ghomrani, & Faramarzi, 2019). Positive emotions can create conditions that influence one's way of interpreting the current situation, and what has so far been an unchanging stereotype of one's own disability will be improved.

The excitement of fun creates lasting social bonds. If a child's learning disorder isolates him or her and disrupts his or her social relationships, the excitement of fun and amusement can improve these relationships by creating lasting sources of social bonds, to the extent that creating creative relationships and sharing funny things provides the opportunity to resume relationships and create happiness. In general, all emotions, either directly or through some links, provide the path to individual well-being. As stated by Fredrickson, positive emotions, though transient, accumulate and combine over time and develop sustainable human resources. Moreover, as positive emotion experiences predict the increase in individual resources, individual resources might also predict the increase in positive emotions. This interaction represents an upward spiral, which leads to higher levels of well-being and functioning over time (Tugade & Fredrickson, 2004).

Regarding the target group of the present study who were students with reading disorder and considering the fact that this is a developmental and neuropsychological disorder, which is not the result of defective relationships, methods that provide direct training on the basic concepts and details, such as training emotions prior to emotion regulation, seem more effective on this group. Since many of these children suffer from secondary problems such as deficit in social relationships, due to the failure schemata, training programs that target their deficits might be more effectual.

Psychodrama deals with each problematic situation separately, while for a child

with a learning disorder whose problem affects all his/her situations, examining individual situations and proposing solutions for each is impossible since he/she might experience many different situations in a day. It seems more important and useful to look at the cognitive and emotional framework of individuals and to develop it so that their emotional system alters and becomes responsive in different situations; however, psychodrama is less capable in this regard since it focuses more specifically on situations than on the processes that shape emotional responses to situations.

No study is devoid of limitations, and the current study is no exception. The first limitation was the small sample size. The second was that the study was carried out in Isfahan, Iran; therefore, the findings might not be generalizable to other cultures or countries. Additionally, this study was conducted only on female primary school students with reading disorder aged between 10 and 11 years, so the generalization of the results to other age groups and educational backgrounds should be cautiously made. According to the results of the present study, besides emphasizing the educational issues of students with dyslexia, a program should be designed and developed that considers their emotional issues. Fredrickson's positive emotion training program and psychodrama, which have fun and entertaining techniques for children, can have a great impact on the regulation of emotions in students with dyslexia, and rehabilitation centers can also benefit from the outcomes of such treatments.

Conclusion

It can be concluded that positive emotion training has a more significant effect than the psychodrama training program.

Conflict of Interests

Authors have no conflict of interests.

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The Effect of Online Medical and Psychological Consultation on the Mental Health of Pregnant Women

Seyed Morteza Tavakoli[1], Elham Zarghami[2], Maryam Behnam Moradi[3]

[1] Department of Psychology, Varamin-Pishva Branch, Islamic Azad University, Varamin, Iran
[2] Assistant Professor, Department of Nursing and Midwifery, Varamin-Pishva Branch, Islamic Azad University, Varamin, Iran
[3] Assistant Professor, Department of Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran

Corresponding Author: Elham Zarghami; Assistant Professor, Department of Nursing and Midwifery, Varamin-Pishva Branch, Islamic Azad University, Varamin, Iran
Email: zarghami50@gmail.com

Quantitative Study

Abstract

Background: Pregnancy and childbirth are exciting and enjoyable events in the life of women and are considered as the most sensitive periods in the life of every woman. The purpose of this study was to determine the effect of online medical and psychological consultation on the mental health of pregnant women.

Methods: The present semi-experimental research was conducted with a pretest-posttest design and a control group. The statistical population consisted of pregnant women of the Niniban website (http:www.niniban.com) in the winter of 2019 in Tehran, Iran. A sample of 50 pregnant women who were in their first to sixth months of pregnancy was selected. They were randomly divided into 2 groups of control and experimental (25 individuals in each group). Data were obtained using the Symptom Checklist-90-Revised (SCL-90-R) (1990).

Results: The results showed that online medical and psychological consultations were fruitful in the experimental group and that the mental health of the experimental group improved ($P < 0.001$).

Conclusion: It can be concluded that the online medical and psychological consultations were effective on the mental health of pregnant women.

Keywords: Female; Pregnancy; Mental health; Pregnant women

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Introduction

Pregnancy and childbirth are exciting and enjoyable events in the life of women and are considered as the most sensitive periods in the life of every woman (Witt et al., 2010). Pregnancy is an important experience that causes various psychological changes in a woman (Suto, Takehara, Yamane, & Ota, 2017). Mental health is of great importance in this period as many adulthood issues originate from inappropriate conditions during the fetal period and childhood, and injuries that have occurred during the pregnancy period for the fetus can be the underlying cause of many physical and mental disorders in the following years of the person's life (de wit et al., 2015). Hitherto, most training and effort in the area of health during pregnancy has focused on maintenance and improvement of the health of the mother and fetus, and less attention has been paid to the very important issue of mental health during pregnancy (Lee King, Duan, & Amaro, 2015). Pregnancy is accompanied by very important physiologic and physiological changes, which, despite the enjoyable feeling of motherhood, sometimes causes emotional instability. These changes can be severe or weak depending on the trimester (Miller, 2009).

A history of depression or mental disorder in the pregnant woman or her close family, the dissatisfaction of the wife and husband with having a child, lack of emotional connection with the spouse, history of adverse life events, concern about the acceptance of the infant's gender by family and friends, fear of incompetency in motherhood duties, concern about abortion as well as fear of labor pains, and death and existence of the infant as a competitor for the husband's love are among the factors that cause anxiety in this period (Biratu & Haile, 2015). Decreasing family conflicts, tensions, and economic pressures and increasing affection and emotional support of the pregnant woman by her husband and family members are all factors that can decrease or eliminate the grounds for the incidence or intensification of psychological disorders and diseases during pregnancy (Hantsoo, Podcasy, Sammel, Epperson, & Kim, 2017).

The psychological status of the mother during pregnancy has a significant effect on the physical and mental health of the infant. The fetuses of mothers who experience a high level of tension, anxiety, and disturbance during pregnancy are more likely to be born underweight, preterm, and with hyperactivity disorder later in their life (Kingston, Mcdonald, Austin, Hegadoren, Lasiuk, & Tough, 2014). At-risk women should consult with a physician before pregnancy and be under supervision during this period for mental problems in order to be mentally ready for giving birth and motherhood. Online psychological consultation has great advantages, and can be revised based on the patient's condition (Oram, Khalifeh, & Howard, 2017).

Many people, due to their special psychological conditions, avoid in-person sessions. Moreover, in some cases, the problems of the individuals are of a nature that they cannot state them face-to-face, so online psychological consultation is the best available way for them (Kingston, Mcdonald, Tough, Austin, Hegadoren, & Lasiuk, 2014). Individuals who cannot use in-person consultation sessions due to their distance from the centers, such as small-town residents and those who reside outside the country, can benefit from online psychological consultations (Huizink, Delforterie, Scheinin, Tolvanen, Karlsson, & Karlsson, 2016). Online psychological consultation sessions impose less cost, and thus, can be more suitable for those who want to incur less cost. Some people have superficial mental problems that prevent them from participating in face-to-face sessions. These people prefer to solve these

superficial problems through online psychological consultation instead of spending time on in-person sessions (Bogaerts, Devlieger, Nuyts, Witters, Gyselaers, & Van den Bergh, 2013).

With feedback and accurate information, most mental disorders during this period can be improved, and it is expected that, with timely diagnosis and immediate and correct treatment, symptoms be improved promptly, but if treatment is delayed the disease will become resistant and will need a longer time to be treated (Kingston et al., 2015). However, face-to-face psychological consultation is not accessible to everyone, especially those who live in rural areas or pregnant women who cannot pay the costs of consultation and transportation (Ashley, Harper, Arms-Chavez, & LoBello, 2016). This deprivation may result in side effects and irreparable damages for the patients. This problem can be solved easily with online consultation. The purpose of this study was to determine the effect of online medical and psychological consultation on the mental health of pregnant women.

Methods

The present research was a semi-experimental study with a pretest-posttest design and a control group. The statistical population consisted of all pregnant users of the Niniban website (https: www.niniban.com) in Tehran, Iran, in 2018. In the control group, 25 individuals were included. In total, 50 individuals participated in this study. They were selected using stratified random sampling and assigned to the two control and experimental groups (25 people in each). The study inclusion criteria were to be pregnant, between the first and sixth months of pregnancy, a healthy fetus (determined through ultrasonic), no history of miscarriage, and no history of mental illness before the pregnancy. At the first stage, the mental health questionnaire was sent to the subjects after coordination, and all 50 individuals answered the questionnaire at the informed time. The questionnaires were scored, and the scores were recorded. At the second stage, a schedule was made for the experimental group (25 people), and 5 minutes of online consultation was determined for each person. This study was conducted in 5 two-hour sessions. Online medical and psychological therapy sessions are presented in table 1.

Symptom Checklist-90-Revised: The Symptom Checklist-90-Revised (SCL-90-R) includes 90 questions that measure psychological symptoms and are answered by the subject. It was first designed and introduced by Derogatis et al. in 1990 (Alhusen, Ayres, & DePriest, 2016). This scale consists of 9 sections, and every section includes several questions. The subjects considered in the items include physical complaints, obsessive-compulsive disorder (OCD), interpersonal sensitivity, depression, anxiety, aggression, phobia, paranoid thoughts, and psychosis. The items are scored based on a 5-point rating scale ranging from 1 to 4 [never (1), to some extent (2), strongly (3), and very strongly (4)]. Concurrent validity showed that the highest and lowest correlations with the symptom checklist subscales were observed in the depression criterion with 0.73, and the phobia criterion with 0.36. The validity of the questionnaire was assessed in a study with 100 samples, and the results indicated a Cronbach's alpha coefficient of 0.79 (Alhusen, Frohman, & Purcell, 2015).

The collected data were analyzed using descriptive and inferential statistics in SPSS software (version 22, IBM Corporation, Armonk, NY, USA). Mean and standard deviation indices were used to describe the data, and in inferential analysis, after testing the validity of the underlying assumptions, multivariate analysis of covariance (MANCOVA) was applied.

Table 1. Online medical and psychological therapy sessions

Sessions	Content
1	On the first session, the pregnant women were provided with training on the physical and psychological symptoms that are related to physiological changes during pregnancy in order to improve their behavior. For example, they were provided with some information about common physical issues during pregnancy, such as food craving, nausea, vomiting, back pain, sleep and fatigue, and skin changes. They were also provided with some information about psychological changes during pregnancy, such as doubt and frustration, lack of self-confidence and emergence of emotional reactions, fear of pregnancy, unstable emotions, a sense of disarray in appearance, and feeling ugly or unattractive in the third trimester of pregnancy.
2	On the second session, correct information about behavior was provided with the aim of acceptance of pregnancy changes. The content of this session included some information about the importance of mental health during pregnancy and the effect of mental disorders on pregnancy outcome. The participants were asked to read some books about pregnancy, delivery, and caring for the baby. They were asked to have balanced physical activity and do mild exercises.
3	On the third session, training was provided with an emphasis on the role of important and influential persons in the life of the pregnant woman, including her husband and mother, and their role in changing behaviors related to the mental health of the pregnant woman was emphasized. For example, it is emphasized that pregnant women should ask for the physical and psychological support of these important persons during their pregnancy.
4	The focus of the fourth session was the skills required to change behavior, such as problem-solving and communicational skills.
5	On the fifth session, some self-calming techniques were taught, and the pregnant women were asked to use these techniques (relaxation, deep and regular breathing, painting, and drawing) under stressful circumstances. At the end of the session, a summary and a conclusion of all sessions were provided.

Results

The mean ± SD of age was 35.7 ± 6.4 and 35.1 ± 6.7 years in the experimental and control groups, respectively. The experimental and control groups were similar in terms of age ($F = 0.55$; $P > 0.05$). Descriptive statistics of mental health in the pretest and posttest in the two groups are presented in table 2.

Table 2. Mean ± SD of mental health in the pretest and posttest in the experimental and control groups

Variables	Group	Posttest	Pretest
		Mean ± SD	Mean ± SD
Physical complaints	Control	2.09 ± 0.39	3.00 ± 0.39
	Experimental	2.09 ± 0.49	2.99 ± 0.39
Obsessive-compulsive symptoms	Control	1.68 ± 0.53	1.68 ± 0.53
	Experimental	12.1 ± 3.00	1.68 ± 0.52
Interpersonal sensitivity	Control	2.43 ± 0.57	2.44 ± 0.57
	Experimental	1.71 ± 0.36	2.44 ± 0.57
Depression	Control	2.23 ± 0.48	2.28 ± 0.48
	Experimental	2.68 ± 0.83	2.68 ± 0.83
Aggression	Control	2.10 ± 0.52	2.10 ± 0.52
	Experimental	1.27 ± 0.48	2.1 ± 0.50
Phobia	Control	1.45 ± 0.69	1.45 ± 0.69
	Experimental	0.86 ± 0.21	1.46 ± 0.69
Paranoid thoughts	Control	1.09 ± 0.33	1.09 ± 0.33
	Experimental	0.81 ± 0.17	1.09 ± 0.33
Psychosis symptoms	Control	1.34 ± 0.35	1.26 ± 0.35
	Experimental	1.06 ± 0.45	1.26 ± 0.34
Mental health (Total)	Control	2.05 ± 0.48	2.05 ± 0.48
	Experimental	1.21 ± 0.29	2.05 ± 0.49

SD: Standard deviation

Data normality assumption was significance (higher than 0.05), which indicates that the data are normal. Therefore, parametric tests were used. The analysis of covariance (ANCOVA) should illustrate equal variances in the control group. For this reason, Levene's test was used. Variances in both groups were homogenous, and thus, this assumption was acceptable with a 95% confidence interval (CI). Furthermore, F covariate interaction was 1.04 ($P > 0.05$), which was not significant, and it can be concluded that the null hypothesis was not rejected. The assumption of the homogeneity of the regression slope was observed. The results of ANCOVA in the two groups are presented in table 3.

As table 3 indicates, after controlling for the pretest effect, there was a significant difference between the experimental and control groups in terms of the posttest mental health scores ($P < 0.001$). The online consultation sessions held for the experimental group were effective, and the mental health of the pregnant women in the experimental group Increased.

Discussion

This study was conducted to determine the effect of medical and psychological online consultation on the mental health of pregnant women. The results of the study are consistent with that of the studies by Andaroon, Kordi, Kimiaee, and Esmaily (2018), Mukherjee, Pierre-Victor, Bahelah, and Madhivanan (2014), and Sandmire, Austin, and Bechtel (1976). Psychological- educational intervention for pregnant women gives them the ability to deal with stressful situations during pregnancy and better control their physical and psychological condition. Moreover, these interventions decrease their fears and concerns about pregnancy and increase their satisfaction with their pregnancy period.

The most obvious change which occurs is an enlargement of the woman's abdomen. Gradually, as the fetus grows and needs more space, it presses on the other organs. This means that the volume of the lungs decreases, and therefore, shortness of breath occurs. The intestines and stomach become smaller. With hormonal changes in the body, heartburn decreased bowel activity, and constipation may occur. In addition, the swelling of the body organs, especially the legs, can be a little frustrating.

Table 3. Results of the analysis of covariance in the experimental and control groups

Variables			df	MS	F	P-value
Physical complaints	Group	16.28	2	8.14	2742.741	0.0001
	Error	0.134	45	0.003		
Obsessive-compulsive symptoms	Group	11.355	2	5.66	314.186	0.0001
	Error	0.812	45	0.018		
Interpersonal sensitivity	Group	15.503	2	7.751	176.663	0.0001
	Error	1.974	45	0.044		
Depression	Group	22.022	2	11.011	502.541	0.0001
	Error	0.986	45	0.022		
Aggression	Group	59.547	2	29.773	76.22	0.0001
	Error	1.762	45	0.039		
Phobia	Group	17.061	2	11.011	123.805	0.0001
	Error	3.101	45	0.022		
Paranoid thoughts	Group	14.867	2	7.433	144.347	0.0001
	Error	2.317	45	0.051		
Psychosis symptoms	Group	3.742	2	1.871	145.867	0.0001
	Error	0.577	45	0.013		
Mental health (Total)	Group	6.251	2	3.126	100.741	0.0001
	Error	1.396	45	0.031		

SS: Sum of squares df: Degree of freedom; MS: Mean of squares

An enlarged abdomen places pressure on the legs, waist, and spinal cord, and may cause back pain (Siegel & Brandon, 2014). Nausea and vomiting in the first few months, sensitivity to the smell of food, and changes in complexion and skin may occur during pregnancy (World Health Organization, 2016). Thus, it is necessary that women be informed about these changes so that they can differentiate between natural changes and diseases for which they need to refer to the physician. From the first moment that women realize they are pregnant, they experience anxiety and various concerns about their competency as a mother, the baby not being stillborn and its future, about the delivery, and many other issues. Sadness and unhappiness may be experienced during this period. Moreover, irritability and higher sensitivity to other factors are common. This means that women experience mood swings and need more attention and care (WHO and United Nations Population Fund, 2008).

The emotional needs of pregnant women can be investigated in different parts in terms of the support they need for different emotions they may experience. Defiantly, obviating these needs and neglecting them will have negative consequences on the health status of the mother and fetus. During the pregnancy period, women experience countless changes (Substance Abuse and Mental Health Services Administration, 2018). The hormonal arrangement of their body changes to make them ready for childbirth, motherhood, and raising children. Indeed, women's mood changes greatly under the influence of hormonal changes, and therefore, their needs in this period will be different. Given the importance of anxiety during this period and its negative effects on the fetus and mother, the importance of consultation during the pregnancy period in order to decrease anxiety is clear (Vesga-Lopez, Blanco, Keyes, Olfson, Grant, & Hasin, 2008).

The mental status of the mother during the pregnancy has a great influence on the psychological and physical health of the infant. The fetuses of mothers who experience a high level of tension and anxiety and disturbance during pregnancy are more likely to be born underweight and preterm, and have hyperactivity disorder later in their life. At-risk women should consult with a physician before pregnancy and be under supervision during this period for mental problems in order to be mentally ready for giving birth and motherhood (Siu, 2015). Since mental health directly affects the body of the individuals. Anxiety, insomnia, eating disorders, depression, and isolation from social activities all are among the symptoms that, if they emerge and continue, will put the health of the mother and child at risk. Psychological disorders during pregnancy are curable, and if they are diagnosed and treated on time, no problem will occur for the fetus and the mother's mental status will improve. However, many pregnant mothers in the country do not have access to a counselor and psychiatrist due to various reasons such as financial problems or place of residence, consequently, they may incur irreparable damages. Considering that today the internet is available nearly to all people around the country, online consultation and providing information on websites can be useful and have a positive and significant effect with little time.

The present study had some limitations. This study was conducted on 50 subjects; thus, generalization should be made with care. Moreover, data collection was performed using a questionnaire and through self-report, and this imposes some restrictions. The provision of educational and psychological programs plays a great role in the mental health of pregnant women. However, many pregnant women are not provided with mental healthcare, as a part of routine care before birth. It is suggested that more information be provided in mass media about online

consultation. It is suggested that gynecologists provide information about the benefits of consultations to pregnant women and encourage their patients to use consultation during pregnancy. It is recommended that pregnant women be trained relaxation techniques in order to decrease anxiety. Exercise classes designed exclusively for pregnant women such as pregnancy yoga can be very beneficial for the health of the fetus. It is suggested that enough information be provided before pregnancy about mental health and women be educated in this regard in order to prevent psychological disorders during the pregnancy period. It is also suggested that the women's spouses be provided with consultation and information so that they can decrease the mental pressures on the pregnant women by taking their emotional needs into account. Pregnant women need the attention, affection, and approval of their husbands. They may have some concerns and anxieties, and their husbands with their support can play a great role in controlling their anxieties. Considering that this is a novel topic, it is suggested that this study be performed in different statistical populations and on a larger number of subjects.

Conclusion

It can be concluded that the intervention and online counseling sessions were effective in the experimental group and that the mental health of the experimental group has improved.

Conflict of Interests

Authors have no conflict of interests.

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The Effectiveness of Acceptance and Commitment Therapy on Self-care Behavior and Hope in Patients with Irritable Bowel Syndrome in Isfahan, Iran

Farzaneh Foroozanfar[1], Mojtaba Ansari-Shahidi[2]

[1] Department of Psychology, Najafabad Branch, Islamic Azad University, Najafabad, Iran
[2] Assistant Professor, Department of Psychology, Najaf Abad Branch, Islamic Azad University, Najafabad, Iran

Corresponding Author: Mojtaba Ansari-Shahidi; Assistant Professor, Department of Psychology, Najaf Abad Branch, Islamic Azad University, Najafabad, Iran
Email: dransarishahidi@gmail.com

Quantitative Study

Abstract

Background: Irritable bowel syndrome (IBS) is one of the most common gastrointestinal disorders. The aim of this research was to evaluate the effectiveness of acceptance and commitment therapy (ACT) on self-care behavior and hope in patients with IBS.
Methods: The present study was conducted with an experimental and pretest-posttest design. The statistical population of this study included all patients with IBS referring to health centers in Isfahan, Iran, from June to September 2012. The research sample consisted of 60 individuals chosen using easy sampling method. The participants were divided into the experimental and control groups (30 individuals). The evaluation instruments included the Self-care Behavior Questionnaire and Snyder Hope Scale (SHS). The pretest was performed in both groups before the intervention. The experimental group then took part in the 8 sessions of intervention. After the intervention, posttest was conducted in both groups. Data analysis was performed using multivariate analysis of covariance (MANCOVA) and one-way analysis of covariance (ANCOVA).
Results: The mean (SD) age of the experimental and control group participants was 33.5 (6.90) and 34.76 (5.19) years, respectively. The results showed that the mean (SD) of the self-care score increased from (49.11) to 49.7 (74.7) in the posttest ($P > 0.001$), but the mean (SD) of the self-care score in the control group (6.9) was 9.50 in the pretest and (51.9) in the posttest, which was 3.3%. This difference between the groups was not statistically significant ($P < 0.05$). The mean (SD) of the hope score of the experimental group increased from (3.6) in the pretest to 1.36 (35.4) in the post-test ($P <0.001$). The mean (SD) of the hope score in the control group was 26.4 (4.9) in the pretest and 8.28 (6.21) in the posttest; this difference was not statistically significant ($P <0.05$).
Conclusion: It can be concluded that in people with IBS, ACT is effective on self-care activities and hopefulness.
Keywords: Acceptance and Commitment Therapy; Self-care behavior; Hope; Irritable bowel syndrome

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Introduction

Irritable bowel syndrome (IBS) is recognized as one of the most severe psychosomatic conditions in the field of gastrointestinal disorders. It is characterized by stomach pain and alterations in bowel movements, which are treated in the absence of pathological conditions. The prevalence of IBS in the population is high and is estimated to be between 7.1 and 20% (Bohn et al., 2015). IBS may present as one of three clinical forms. The patient with spastic colic complains of chronic abdominal pain and constipation. The symptoms in patients with chronic diarrhea are intermittent and often painless, and they have both clinical manifestations mentioned above and alternately suffer from constipation and diarrhea (Allen, Clarke, Cryan, Quigley, & Dinan, 2017). IBS usually begins in late adolescence or early adulthood, and the ratio of male to female affection is 1 to 2 (Cenac et al., 2015). In Iran, it is considered as one of the most common diagnoses among outpatients referred to specialized clinics (Ganji, Safavi, Nouraei, Naseri Moghadam, Merat, Vahedi, 2006). The relatively high prevalence of IBS and high co-occurrence of this disorder with psychological problems have encouraged researchers to evaluate the effectiveness of various psychological therapies on this disorder (Sundin et al., 2015).

The self-care intervention involves empowering people to correctly implement self-care programs (Avraham, Van Dijk, & Simon-Tuval, 2016). Self-care is defined as a regulatory function of humankind that is used to provide and maintain the necessary equipment to survive and maintain physical and mental function and growth within the natural and proportional range of life and performance comprehensiveness (Dionne-Odom et al., 2016). The main goal of self-care interventions is to help patients improve the quality of self-care. This kind of intervention, which is mainly performed in the context of the relationship between the nurse and the patient, evaluates individuals' potential for self-care, trains them in appropriate care skills, and is a good communication skill (Chen, Fan, Belza, Pike, & Nguyen, 2017). In addition, it gives people the hope for flexibility, vitality, and the ability to dispose of the problems that life imposes on them, and increases life satisfaction (Webb, 2013). Hope has many effects on patient adjustment (Lepherd & Graham, 2016). The positive effects of the structure of hope on physical and mental health have been studied while there has been growing attention toward the structure of hope (Ginevra, Sgaramella, Ferrari, Nota, Santilli, & Soresi, 2017). The role of hope in patients' lives is also seen as a positive factor contributing to the growth and improvement of human quality of life (QOL) (Malinowski & Lim, (2015).

There are various treatments to improve patients' self-care and hopefulness behaviors; acceptance and commitment therapy (ACT) is considered as one of these strategies. ACT is considered as one of the most common types of emotional acceptance and flexibility therapy. It is rooted in a philosophical theory called functional contextualism, which is based on a research program on language and cognition called the theory of the framework of mental relationships (Livheim et al., 2015). The aim of this therapeutic method is to help clients achieve a more valuable and satisfying life through increasing psychological resilience, and it consists of the 6 central processes of cognitive defusion, acceptance, connection with the present time, self as a context, values, and committed action that lead to psychological resilience (Bricker et al., 2014). The cognitive defusion process is aimed at preventing cognitive fusion. In cognitive fusion, the individual considers him/herself, the self, and his/her thoughts as a fused entity. Cognitive defusion is to accept that our thoughts are separate from us, and there is nothing temporary more than private events.

Acceptance is creating a space for unpleasant feelings, sensations, desires, and other private experiences without trying to change them, escape from them, or pay attention to them again. Communication with the present moment is the complete awareness of the experience of the here and now with openness, curiosity, recognition, concentration, and full attention to what is going on (Hulbert-Williams, Storey, & Wilson, 2015). Self-observation is self-awareness, which does not change and is always present and resistant to injury. These phenomena change, but the person himself is continually constant. Commitment values and actions mean that a person recognizes what is most important and profound to him/her, sets goals accordingly, and acts committedly and effectively to achieve them (Trompetter, Bohlmeijer, Veehof, & Schreurs, 2015; Hacker, Stone, & MacBeth, 2016). Such problems are eliminated by providing tolerance and dedication treatment to people with IBS. The goal of this research was therefore to evaluate the effectiveness of recognition and dedication counseling on self-care and positive actions in people with IBS.

Methods

The present research was a clinical trial. The study population included all patients with IBS who had been admitted to medical centers in Isfahan, Iran, between June and September 2017. The survey was conducted on 30 patients chosen through voluntary screening and randomly divided into trial and control groups. The inclusion criteria were patient's willingness to participate in the research, definitive diagnosis of IBS, and a minimum education of high school deploma. The exclusion criteria were a history of psychiatric illness, severe physical illness (such as cancer), and drug addiction. The research plan was explained to the extent that was understandable to the subjects. In addition, the rights of the participants were protected, the confidentiality of their information and their privacy were maintained, and they were not harmed.

Self-care Behavior Questionnaire: This questionnaire was used by Conn, Taylor, and Wiman (1991) in 1991) and Coyle (2012) in 2009, and was evaluated by Niakan, Paryad, Kazemnezhad, and Sheikholeslami (2015) in Iran. The tool consisted of 20 items scored on a 4-point Likert scale, with a score of 1 indicating a low probability and a score of 5 indicating a high probability of following self-care behaviors. This tool consists of the dimensions of physical activity, healthy diet, stopping smoking, using a medication regimen, and adjusting the effects of stressful variables. The minimum and maximum total score of the scale is 20 and 100, respectively. A score of 20-79 indicates undesirable self-care behavior, and a score of 80-100 indicates desirable self-care behavior. The reliability of the questionnaire was determined through calculating Cronbach's alpha coefficient of the whole instrument. The reliability of the subscales of dietary follow-up, stopping smoking, physical activity, using a medication regimen, and adjusting the effects of stressful variables after hospital discharge was approved with a Cronbach's alpha of 0.95, 0.98, 0.81, 0.92, and 0.80, respectively. The validity and reliability of the whole scale were 0.79 and 0.86, respectively.

Snyder Hope Scale: The Snyder Hope Scale (SHS) is a self-report scale developed by Snyder et al. in 1991 to measure hope. It consists of 12 phrases, 4 phrases for measuring factor thinking, 4 phrases for measuring strategic thinking, and 4 phrases for deviance. The SHS includes the 2 subscales of factor and strategy. Numerous studies have approved the reliability and validity of this scale (Gardner & Moore, 2012). The internal consistency of the whole scale was 0.74-0.84, and its test-retest reliability was 0.80, and the periods longer than 8-10 weeks are even higher. The

internal consistency of the factor subscale is 0.71-0.76, and the strategic subscale is 0.63-0.80. Lin et al. (2017) reported that the correlation of this questionnaire with Beck's Despair Questionnaire was -0.51, and with Beck's Depression Inventory (BDI) was -0.42, thus indicating the validity of this questionnaire. The reliability of this scale was calculated as 0.79 using Cronbach's alpha .

Results

In the present study, 30 participants underwent the tolerance and participation counseling group and 30 participants were tested in the study group before and during preparation using testing methods. The mean (standard deviation) age of the study group and control group participants was 33.50 (6.90) and 34.76 (5.19) years, respectively. The two groups did not significantly differ in terms of average age ($P < 0.050$; $t = 0.037$). Descriptive statistics of the research variables in the pretest and posttest are presented in table 1.

The results presented in table 2 show a significant difference between the experimental and control groups in terms of at least one of the predictors (self-care or hopefulness behavior) in pretesting the significance rates of all studies ($P < 0.0001$ and $P < 0.710$).

The study and control groups differed significantly different in terms of hope in the pre-testing control group ($P < 0.0001$ and $F = 28.38$). This effect or discrepancy is 0.54. Moreover, 54% of individual variations in the posttest hope score was correlated with the effect of cognitive-behavioral therapy.

Discussion

This research was conducted to evaluate the effectiveness of ACT on self-care and hopefulness in people with IBS. ACT has been shown to influence self-care and luxury behaviour in people with IBS. These findings are consistent with the findings of Mirsharifa, Mirzaian, and Dousti (2019) and Wynne et al. (2019), who found that ACT was effective on depression, psychological capital, and psychological stress in patients with IBS.

The results indicate that ACT has a significant effect on self-care and self-help. ACT therefore affects and improves self-care and hopefulness. As a result of ACT, people report high rates of satisfaction, suggesting that psychological acceptance and versatility play an important role in selfcare behaviors. All of them are considered as the cause of anxiety, i.e., every human being has a set of abilities and through gaining knowledge of the extent of these talents the goals of one's life are determined. As previous studies have found, increasing ACT will improve self-care behavior through its training. People learn to accept their feelings without hesitation during ACT and free themselves from the annoying content of their thoughts by focusing more consciously on their thinking process and associating it to goal-based action (Wynne et al., 2019).

Table 1. The mean ± standard deviation of scores of research variables in the pretest and posttest

Variable	Group	Posttest	Pretest	P-value
		Mean ± SD	Mean ± SD	
Self-care	Control	49 ± 11.4	74.7 ± 17.8	0.0001
	Experimental	50.9 ± 6.9	51.3 ± 6.9	0.54
Hopefulness	Control	26.1 ± 4.3	35.7 ± 4.4	0.0001
	Experimental	26.4 ± 4.9	26.8 ± 6.1	0.30

SD: Standard deviation

Table 2. The results of the multivariate analysis of covariance on the mean posttest of hope and self-care behavior scores of experimental and control groups with the pretest of the control group

Test	Value	df hypothesis	df error	F	P-value	Eta square
Pillai's Trace	0.48	2	22	51.07	0.0001	0.48
Wilks' Lambda	0.01	2	22	51.07	0.0001	0.48
Hotelling effect	54.71	2	22	51.07	0.0001	0.48
Roy's largest root	54.71	2	22	51.07	0.0001	0.48

df: Degree of freedom

Acceptance, therefore, is especially necessary when one's unpleasant experience cannot be changed, such as the experience of lifelong IBS (Hayes, Pistorello, & Levin, 2012).

In addition, ACT encourages people to connect with and be fascinated by the true values of their lives. Avoiding experiences creates a traumatic process that contributes to the creation and expansion of conflicts (Buhrman et al., 2013). Acceptance leads to ineffective debates about reopening purity and fundamental change and opens up space for people to think their thoughts and feel their feelings without trying to change. These exercises help individuals to directly deal with their stressful events, especially during therapy sessions, and experience their undesirable thoughts and emotions instead of controlling or fighting with them. Not only does one have a complete experience of thoughts and emotions, but it also allows the other party to have such an experience. ACT increases body image anxiety (McCracken & Gutierrez-Martinez, 2011).

In future research, it is suggested that under controlled experimental conditions psychotherapy methods effective on IBS be compared. The results of this study show that the effectiveness of psychological therapies can increase when used in conjunction with medical therapies and can be effective in reducing the duration of drug treatments. It should also be noted that due to the existing limitations, the results of this study can be generalized only within the community.

Conclusion

It can be concluded that in people with IBS, ACT is effective on self-care activities and hopefulness.

Conflict of Interests

Authors have no conflict of interests.

Table 3. The results of one-way analysis of covariance in the multivariate analysis of covariance text on posttest mean scores of hopefulness and self-care behavior of experimental and control groups with the pretest control group

Variable	Source of changes	Total squares	df	Mean squares	F	P-vlaue	Eta square	Statistical power
Self-care	Pretest	3558.65	1	3558.65	293.94	0.0001	0.88	1.00
	Control	343.60	1	343.60	28.38	0.0001	0.43	1.00
	Error	447.94	27	12.10				
Hopefulness	Pretest	302.79	1	302.79	49.06	0.0001	0.57	1.00
	Group	270.43	1	270.43	43.81	0.0001	0.54	1.00
	Error	228.35	27	6.17				

df: Degree of freedom

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The Effectiveness of Improving Body Awareness Skills on Anxiety, Depression, and Quality of Life in Patients after Cardiac Surgery

Fateme Naji[1], Maryam Rahnamay-Namin[2], Hamid Reza Rohafza[3], Mohammad Reza Sharbafchi[1]

[1] Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[2] PhD in Psychology, Department of Psychology, Takestan Higher Education Non-Governmental Institute, Takestan, Iran
[3] Psychiatrist, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Corresponding Author: Maryam Rahnamay-Namin; PhD in Psychology, Department of Psychology, Takestan University, Takestan, Iran; Email: maryamrahnamay@ymail.com

Quantitative Study

Abstract

Background: Anxiety and depression are prevalent in patients who have undergone cardiac surgery, both of which affect the quality of life (QOL). Undesirable QOL is associated with the exacerbation of disease severity. This study was conducted with the aim to assess the effect of body awareness improvement on QOL, anxiety, and depression among patients after cardiac surgery.

Methods: This randomized, clinical trial was performed with intervention and control groups (two groups with three measurements). All patients who had undergone cardiac surgery in hospitals in Qazvin, Iran, during 2018-2019 comprised the statistical population of this study. After convenience sampling (50 patients with cardiac disease at least 1 month after their surgery), patients were randomly assigned to experimental and control groups (25 individuals each). The measurement tools used were the Depression, Anxiety, Stress Scales (DASS-42) and MacNew QOL Questionnaire. Body awareness training was implemented twice a week for 6 weeks. Data were analyzed using analysis of variance (ANOVA) in SPSS software.

Results: The study results showed that improving body awareness can reduce anxiety and depression, and enhance QOL significantly in patients after cardiac surgery ($P < 0.01$).

Conclusion: The results showed that improving body awareness can effectively reduce anxiety and depression and enhance QOL in patients after cardiac surgery.

Keywords: Body awareness; Anxiety; Depression; Quality of life; Cardiac patients; Bioenergy economy

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Introduction

Coronary artery disease (CAD) accounts for 28% of total deaths around the world. There is evidence indicating that the prevalence of the condition is on the rise in Iran (Hadaegh, Harati, Ghanbarian, & Azizi, 2009), and it is considered to be the cause of approximately 50% of all deaths per annum (Hatmi, Tahvildari, Gafarzadeh, & Sabouri, 2007). As predicted by the World Health Organization (WHO), cardiovascular disease (CVD) was the leading cause of mortality in 2015, with a mortality rate of more than 20 million individuals (Bhupathy, Haines, & Leinwand, 2010). As announced by the Centers for Disease Control and Prevention (CDC) (2005), the prevalence of coronary heart disease (CHD) is 5.5% higher in men compared to women.

However, a study on people aged 30 years and older in Tehran, Iran, reported that CHD was more prevalent in women than in men (22.3% versus 18.8%). After a heart attack and cardiac surgery, most patients have mental illness, depression, and anxiety, and their concerns are exacerbated by job loss and fear of returning to work and ordinary life (Homayoni & Khosropanah, 2005). Moreover, when the individual experiences stress, discomfort, or anxiety, the mind sends a message to the body to reduce energy consumption in order to deal with the disease, which increases the vulnerability to disease (Alipor, Aliakbari Dehkordi, Hasanzadeh Pashang, Faraji, 2016).

Anxiety is one of the most prevalent mental disorders in human societies and stressful life events, in particular long-term problems such as some physical diseases, can be the cause of its incidence and continuation (Nazemian, Ghafari, & Poorghaznein, 2008). Anxiety and stress have always been the most common symbiont with humans and are as old as human history. Anxiety is an emotional state characterized by developing a state of disquiet and concern (Mohammad Aliha, Ghani dehkordi, Ganji, Hoseini, 2010). Problems such as pain, limited physical activity, anxiety, fatigue, and sleep problems are prevalent in heart patients and cause a reduction in quality of life (QOL) in these patients.

Anxiety in a patient with chronic disease results from the several factors including medical, psychological, and social factors. Anxiety experienced by heart patients is partly due to diagnosis and treatment, followed by poor health and impaired roles and communications (Mohammad Aliha et al., 2010). Anxiety and depression increase the risk of CVD recurrence after a heart attack, both of which are predictors of death and recurrence of coronary events. Anxiety is prevalent in patients after a heart attack and can persist for months after this event. Depression and anxiety affect heart rate, blood pressure, clotting time, and blood coagulation, increase the secretion of cortisol and adrenaline, and disrupt the metabolism of the body (Mohammad Aliha et al., 2010).

In 2012, a meta-analysis on the timing of depression showed that depression both before and after acute cardiac stress was a predictor of mortality and exacerbation of heart disease. The onset of depression during the 30 days after an acute cardiac event is strongly correlated with heart disease and mortality. The cardiovascular system is also sensitive to changes occurring in the environment or one's emotional states such as anxiety, fear, anger, happiness and instant excitement, and depression, and undergoes changes in heart rate, heart rhythm, and overall cardiac output. The increasing prevalence of cardiac surgery necessitates paying greater attention to such patients and determining their postoperative QOL.

Healthcare providers have generally realized that physical aspects alone cannot be considered in the treatment of patients. Different aspects of patients' lives should be taken into consideration to help them achieve a healthy life. Over the past 20 years, there has been a dramatically increasing interest in evaluating daily performance and improving QOL in patients with chronic diseases, in particular heart disease. Clinical trials have demonstrated that QOL can be considered as an indicator of health care quality and part of the treatment plan, and its measurement in chronic diseases is a useful guide for the improvement of care quality (Rahnavard, Zolfaghari, Kazemnejad, & Hatamipour, 2006).

QOL is determined based on an individual's perception of his/her life situation in

relation to cultural factors, goals, ideas, and beliefs. QOL is influenced by factors that make life worthwhile and create positive experiences, with different meanings for different people. An individual's QOL is a personal opinion determined by the individual (Park & Park, 2002). Health-related QOL is a reflection of disease and treatment consequences according to patients' views and experiences (Hofer, Benzer, Schussler, von, & Oldridge, 2003). Undesirable QOL is associated with exacerbation of disease severity, lower survival rate, elevated hospitalization days, and declined functional activities in heart patients (Hofer et al., 2003; Havik et al., 2007).

Body awareness and improvement of its related skills are among the abilities needed to manage daily stress and improve QOL, and thus, reduce anxiety and depression. Training body awareness is effective on both the prevention and treatment of pain (Gard, 2005). In this method, appropriate exercises and conscious breathing are used in fully relaxed conditions, including light, soothing sounds and minimized verbal concentration, in order to pay attention to different body senses and the link between different parts of the body (Catalan-Matamoros, Helvik-Skjaerven, Labajos-Manzanares, Martinez-de-Salazar-Arboleas, & Sanchez-Guerrero, 2011).

According to the literature, training patients on body awareness, paying attention to it using relaxation techniques, and coordinating the mind and body can reduce anxiety and depression. Since no study has been conducted in Iran on training heart patients on the promotion of body awareness and given the importance of this issue, the present research was conducted to investigate the effectiveness of promoting body awareness skills on anxiety, depression, and QOL among patients after cardiac surgery in Bu Ali Hospital, Qazvin, Iran.

Methods

This randomized clinical trial was conducted with an applied research design and a control group. All postoperative patients in the cardiac surgery ward of hospitals in Qazvin from February 2018 to May 2019 comprised the statistical population of this study. In this study, 50 male and female heart disease patients were randomly selected from a total of 96 patients at least 1 month after surgery through convenience sampling (due to the limited number of surgical patients) and were randomly divided into experimental and control groups (each with 25 individuals). The experimental group participants took part in body awareness training 2 hours a week for 6 weeks. The participants of both control and experimental groups took part in the pretest, posttest, and 2-month follow-up. The inclusion criteria were cardiac surgery patients, willingness to participate in the research, informed consent, full awareness, the necessary ability to participate in the study, and 18-65 years of age. The exclusion criteria included a history of mental disorders based on DSM-5 diagnostic criteria excluding depressive disorder, the use of narcotics and stimulants, and the death of close relatives over the past 3 months. The data collection tools used in this study were the Depression, Anxiety, Stress Scales (DASS-42) and MacNew QOL questionnaire. The content of the intervention sessions is provided in table 1.

Table 1. The content of intervention sessions

Sessions	Content
1	Introduction, general explanation of the training used in the sessions, deep breathing exercises, and playing music for body relaxation
2	Physical examination exercise, sitting vibration exercises, opening and closing the body, and daily exercises
3	Daily exercise feedback, pelvic relaxation exercise, contension exercise, daily exercise
4	Attention and body awareness training, conscious touch of hands and standing vibration exercises training
5	Physical examination exercise, pelvic relaxation exercise in different modes, con-tension training, daily exercises
6	Group gathering and individual presentation of feedback on feelings after the exercises to the whole group, followed by a farewell

The current study followed the Declaration of Helsinki on Biomedical Research Involving Human Subjects and was approved by the Ethics Committee of Isfahan University of Medical Sciences (code: 1398.211). All participants provided written informed consent for participation in the study.

The Depression, Anxiety, Stress Scale: The DASS-42 was developed by Lavibund (1995). The short form of this scale contains 21 questions and has been translated and validated in Iran (Sahebi, Asghari, & Salari, 2005). This questionnaire consists of 3 scales designed to measure negative emotional states in depression, anxiety, and stress. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia and inertia. The anxiety scale includes autonomic arousal, effects of muscular muscles, situational anxiety, and mental experience of anxiety. The stress scale determines non-specific chronic arousal levels; it consists of the subscales of problems in calmness, nervous arousal, becoming upset or anxious easily, becoming irritable or restless easily, and being impatient.

Questions Were scored on a 4-point Likert scale, which indicate an increase in the level of exposure to the experience in the past week. Depression, anxiety, and stress scores were calculated based on the total score of questions in each scale. The short form (21-item form) of this questionnaire includes 7 items in each scale, and the score of each scale is calculated with a factor of 2. The 21-item questionnaire has a high internal reliability (α = 0.93) in the depression (α = 0.88), anxiety (α = 0.82), and stress (α = 0.90) scales. The 21-item questionnaire was translated into Persian and validated by Sahebi et al., who approved the reliability of the depression (α = 0.77), anxiety (α = 0.79), and stress (α = 0.78) scales of the Persian version of this questionnaire.

The MacNew Heart Disease Health-Related Quality of Life Questionnaire: The MacNew QOL questionnaire was developed by Valenti, Lim, Heller, and Knapp (1996) and validated by Jafari and Yousefi (2005) in Iran. This questionnaire, which is for heart patients, is a valuable tool for measuring and evaluating the QOL in cardiovascular patients. It was designed to assess the impact of heart disease, particularly CHD, and its treatment on the physical, emotional, and social activities of patients. The questionnaire is sensitive to changes in health-related QOL following medical intervention for heart patients. This questionnaire consists of 27 questions, with an average time of 10 minutes to answer the questions. The questions are divided into the 3 areas of emotional functioning (14 questions), physical functioning (14 questions with 5 questions assessing chest pain symptoms, dyspnea, fatigue, dizziness, and leg pain), and social functioning (13 questions).

The questions are distributed in the questionnaire in a way that each question can cover 1, 2, or 3 domains. The score of each domain is obtained by calculating the average score in that domain, and the final score for QOL is obtained by averaging all the questions. This questionnaire has acceptable validity and reliability compared with other HRQOL assessment tools (Hofer et al., 2003). It was adjusted for heart patients in Isfahan Province, Iran, with a reported reliability of 0.94 based on Cronbach's alpha coefficient (Jafari & Yousefi, 2005).

Table 2. Results from the descriptive study of demographic variables in the experimental and control groups

Variables	Experimental		Control		P-value
	Frequency	%	Frequency	%	
Gender					0.519
Female	۷	۰,۳۵	۹	۰,۴۵	
Male	۱۳	۰,۶۵	۱۱	۰,۵۵	
Total	۲۰	۰,۱۰۰	۲۰	۰,۱۰۰	
	Mean ± SD		Mean ± SD		
Age	60.60 ± 8.48		61.70 ± 8.19		0.679

SD: Standard deviation

Table 3. Results of the descriptive study of the quality of life variable in the experimental and control groups before and after the intervention and at follow-up

	Measurement stages	Experimental group	Control group
		Mean ± SD	Mean ± SD
Physical functioning	Before the intervention	51.55 ± 7.33	50.85 ± 9.71
	After the intervention	62.90 ± 7.95	51.20 ± 7.09
	Follow-up	61.00 ± 8.72	47.05 ± 8.71
Social functioning	Before the intervention	55.50 ± 8.12	54.75 ± 10.77
	After the intervention	68.05 ± 8.92	55.15 ± 8.20
	Follow-up	67.00 ± 9.48	51.45 ± 10.01
Emotional functioning	Before the intervention	61.20 ± 7.72	59.00 ± 11.34
	After the intervention	73.50 ± 9.33	60.40 ± 9.42
	Follow-up	71.40 ± 11.10	55.35 ± 10.10
Quality of life	Before the intervention	116.50 ± 14.63	113.20 ± 21.26
	After the intervention	141.60 ± 17.99	115.10 ± 16.75
	Follow-up	137.05 ± 20.42	106.30 ± 19.08

SD: Standard deviation

The participants of both experimental and control groups underwent pretest, posttest, and 2-month followed-up. In this research, descriptive indicators (mean and standard deviation) and inferential statistics [repeated measures analysis of variance (ANOVA)] were used to compare the pretest, posttest, and follow-up data, and normality of variables was examined. The data analysis was conducted using the per-protocol approach. All statistical analyses were conducted using SPSS software (version 15; SPSS Inc., Chicago, IL, USA). P-value < 0.05 was considered as significant.

Results

Demographic data (age and gender) did not significantly differ between the two groups (P-value > 0.05) (Table 2).

Results of the descriptive study of the QOL variable and its dimensions in the experimental and control groups in the pretest, posttest, and follow-up are provided in table 3.

Mauchly's test was used to examine the sphericity of the covariance matrix; the sphericity hypothesis was rejected based on the value of the obtained Sig. (Table 4). Due to the rejection of the sphericity hypothesis, the F statistic was obtained using the adjusted degrees of freedom.

The results presented in table 5 show that the results of ANOVA are significant with effect factors of 0.479 and 0.261 for the group and time, respectively (P < 0.01), which rejects the assumption of similarity of mean observations at different stages; in other words, it indicates changes in the average QOL at different measurement stages. This means that the QOL of patients (control and experimental groups) is affected over time as a result of improving body awareness skills.

Table 4. Sphericity test of the covariance matrix for the quality of life variable

Internal effect	Mauchly's te	X^2	df	P	ε		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Intervention	0.83	6.57	2	0.037	0.860	0.921	0.500

df: Degree of freedom

Table 5. Results of repeated measures analysis of variance

Variable	Source	SS	df	MS	F	P-value	Eta coefficient
QOL	Group	12221.008	1	12221.008	34.902	> 0.001	0.479
	Error	13305.783	38	350.152			
	Time	2713.537	1	2713.537	13.455	0.001	0.261
	Error	7663.792	38	201.679			
	Group × time	598.504	1	598.504	2.968	0.093	0.073

SS: Sum of squares; df: Degree of freedom

Results of the descriptive study of depression and anxiety in the experimental and control groups in the pretest, posttest, and follow-up stages are presented in table 6.

Mauchly's test was used to examine the sphericity of the covariance matrix; the sphericity hypothesis was confirmed based on the value of Sig. (Table 7). Hence the sphericity hypothesis was not rejected.

Table 8 shows that the results of ANOVA are significant with effect factors of 0.150 and 0.168 for the group and time, respectively, ($P < 0.01$) for depression. Moreover, they were significant with effect factors of 0.135 and 0.116 for the group and time, respectively, ($P < 0.01$) for anxiety. These reject the assumption of similarity of mean observations at different stages and indicate changes in depression and anxiety at different measurement stages. This means that the depression and anxiety of patients (control and experimental groups) are affected over time as a result of improving body awareness skills.

Discussion

Considering the increasing number of heart patients who are at high risk of heart consequences due to their high anxiety, this study sought to determine the factors that reduce the risks which threaten these patients. Body awareness and improvement of its related skills are among the skills needed to manage daily stress, and thus, reduce anxiety and depression, and improve QOL. Body awareness training is effective on both the prevention and treatment of pain.

The present study results showed that the QOL of patients (control and experimental groups) is influenced over time as a result of improving body awareness skills. The experimental group showed an increasing trend from the pretest to posttest, followed by a decrease until the follow-up stage. In all 3 stages, the mean QOL score of the experimental group was higher than that of the control group. In Finland, Jarvinen, Saarinen, Julkunen, Huhtala, and Tarkka (2003) reported that although QOL in patients with underlying diseases was lower than that in non-affected patients before and after cardiac surgery, improvement in QOL after 1 year was similar to that of non-affected patients, which is in line with the present study. The improvement of body awareness skills influenced depression and anxiety among patients in the control and experimental groups over time. In the experimental group, there was a decreasing trend from the pretest stage to the posttest stage, and then an increasing trend to the follow-up stage. In

Table 6. Results of the descriptive study of depression and anxiety in the experimental and control groups in the pretest, posttest, and follow-up

	Measurement stages	Experimental group	Control group
		Mean ± SD	Mean ± SD
Depression	Pretest	8.50 ± 4.77	9.80 ± 4.25
	Posttest	5.70 ± 4.07	8.10 ± 5.18
	Follow-up	7.95 ± 4.07	10.60 ± 5.18
Anxiety	Pretest	9.55 ± 3.96	9.90 ± 5.21
	Posttest	6.65 ± 4.14	8.50 ± 4.35
	Follow-up	7.85 ± 3.93	11.25 ± 5.66

SD: Standard deviation

Table 7. Sphericity test for the covariance matrix of the Depression, Anxiety, Stress Scales score

Internal effect	Mauchly's statistic	X^2	df	P	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Intervention	0.83	6.57	2	0.037	0.860	0.921	0.500

df: Degree of freedom

all 3 stages, the mean depression and anxiety scores of the experimental group were higher than that of the control group. It has previously been shown that 40-50% of patients suffer from depression and anxiety several months after cardiac surgery (Spiegel et al., 1999; Mussgay & Ruddel, 2004).

Moreover, Kaviani, Hatami, and Shafieabadi (2009) found that mindfulness-based cognitive therapy (MBCT) reduced anxiety and depression levels.

Similarly, previous studies (Neff, 2003; Roth & Robbins, 2004; Mace, 2008; Bohlmeijer, Prenger, Taal, & Cuijpers, 2010) presented evidence that mindfulness therapy can help in adjusting negative behaviors and thoughts, inducing positive health-related behaviors, increasing one's attention to and awareness of physical and mental feelings, and teaching people to deal with negative emotions and thoughts and to experience positive mental events. It seems that body awareness training has desirable impacts, similar to those of mindfulness, on depression and anxiety in patients after cardiac surgery.

Relaxation techniques are among the complementary methods for the treatment of anxiety, which have been shown to mitigate anxiety and cause a mild to moderate reduction in depression in patients with chronic diseases. Active or progressive muscle relaxation (PMR) is a method which creates deep relaxation, and thus, reduces anxiety through active contraction and relaxing certain muscle groups in a progressive state. The mechanism of effect of PMR on depression is not known, but an existing hypothesis is that PMR reduces depression and improves QOL through the reduction of anxiety (Lolak, Connors, Sheridan, & Wise, 2008). A study by Davidson (2003) also showed that meditation and relaxation increase the activity of the left frontal lobe of the brain, which is an indicator of anxiety. In this regard, Bastani, Hidarnia, Kazemnejad, Vafaei, & Kashanian (2005) studied the effect of PMR on the reduction of anxiety in pregnant women and found that relaxation improved mental health and reduced anxiety. Relaxation seems to reduce anxiety through neuropsychological and psychological systems (Hudetz, Hudetz, & Reddy, 2004).

Furthermore, Ghielen et al. (2015) showed that integrated body awareness intervention, combination of physical therapy principles with acceptance and commitment therapy (ACT), can be utilized to teach patients to deal with wearing-off related anxiety (WRA). The study by Ghielen, et al. showed that this new intervention, named BEWARE, will be more effective than the usual treatment in increasing self-efficacy.

Table 8. Results of repeated measures analysis of variance

Variable	Source	Sum of squares	df	Mean of squares	F	P-value	Eta coefficient
Depression	Group	134.408	1	134.408	6.704	0.014	0.150
	Error	761.850	38	20.049			
	Time	142.604	1	142.604	7.686	0.009	0.168
	Error	705.025	38	18.553			
	Group × time	1.204	1	1.204	0.065	0.800	0.002
Anxiety	Group	104.533	1	104.533	5.942	0.020	0.135
	Error	668.500	38	17.592			
	Time	113.438	1	113.438	4.979	0.032	0.116
	Error	865.725	38	22.782			
	Group × time	0.004	1	0.004	0.000	0.989	0.001

df: Degree of freedom

Conclusion

This study showed that improving body awareness can effectively reduce anxiety and depression and enhance QOL in patients after cardiac surgery.

Research limitations and recommendations: Due to the limited number of hospitalized patients and typically short hospitalization duration, a limited number of participants were available for this study, and the control group received no interventions. It is recommended that in future studies the method used in the present study be compared with other treatment methods by considering more variables.

Conflict of Interests

Authors have no conflict of interests.

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Psycho-oncology Curriculum Needs Assessment in Postgraduate Education

Omid Amani[1], Mohammad Reza Sharbafchi[2]

[1] Department of Psychology, School of Educational Sciences and Psychology, Shahid Beheshti University, Tehran, Iran
[2] Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences AND Ala Cancer Prevention and Control Center (MACSA), Isfahan, Iran

Corresponding Author: Mohammad Reza Sharbafchi; Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences AND Ala Cancer Prevention and Control Center (MACSA), Isfahan, Iran; Email: sharbafchi@med.mui.ac.ir

Quantitative Study

Abstract

Background: As the survival rate has increased among cancer patients, awareness of their psychological needs has also increased, and several countries have begun to plan psycho-oncology. However, this is not the case in Iran. This study was aimed at assessing the needs of the psycho-oncology curriculum in postgraduate education.

Methods: The study was conducted using the Delphi technique from 2018-2019. The statistical population included all psycho-oncology experts, 36 of whom were selected using purposive sampling. In the first step, the tasks of the cancer psychologist in the areas of education, health care, management, and research were extracted by reviewing the texts, and a preliminary list of needs was defined in a focus group. In the next step, experts were asked to review the defined tasks and add their suggested needs. In the second round of Delphi, a questionnaire was designed to prioritize and determine the importance and capability of performing tasks in Iran. Experts were asked to give a score of 1 to 5 to each of the educational needs based on the tasks of a cancer psychologist. Descriptive indicators of the obtained data were calculated using SPSS software.

Results: The results of the first round of Delphi provided a consensus on 172 educational needs in 4 areas, including 63 in health care, 42 in research, 39 in education, and 28 in management. After merging similar tasks into a group, the final list of tasks (including 107 important and agreed-upon tasks in 58 items) was developed in the second round of Delphi. Moreover, shared tasks were categorized as larger general educational needs, which included 12 general needs.

Conclusion: The findings indicated the importance and variety of the tasks of a cancer psychologist in the areas of health care for patients and their families. It is hoped that this needs assessment will be useful in developing theoretical and practical courses in psycho-oncology with the aim of improving patients' quality of life (QOL).

Keywords: Psycho-oncology; Curriculum; Needs Assessment

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Introduction

Despite remarkable advances in medical sciences and the development of human knowledge, cancer can still be considered a serious disease that threatens a significant part of the human race (Epstein, 2019; Kagawa-Singer, Dadia, Yu, & Surbone, 2010; Lee, 2015). In addition to its many physical and psychological injuries, such as anxiety, depression, despair, and suicide, in patients and survivors (Bober, Kingsberg, & Faubion, 2019; Chiriac, Baban, & Dumitrascu, 2018), cancer threatens the family system (Oechsle et al., 2020) and imposes many costs on society (Mousavi Diva, Moghadamfar, & Amani, 2017). Recently, with increase in the survival rate of patients, awareness of the social and psychological needs of this group of patients has also increased, and the focus of treatments has shifted from improving the survival of patients to increasing their quality of life (QOL) (Die- Trill & Holland, 1995; Goldstein & Morrison, 2012; Vanbutsele et al., 2020; Watson, Ward, Vallath, Wells, & Campbell, 2019). This shift has highlighted the need for a context in which mental health experts can be trained for this group of patients (Kalus et al., 2008), resulting in the development of psycho-oncology as a sub-specialty between oncology and psychiatry in the late 1970s (Breitbart & Alici, 2009; Holland, 2018). Psycho-oncology focuses on two psychological dimensions of cancer: 1) the emotional responses of the patient, family, and caregivers at different stages of the disease, and 2) the psychological, behavioral, and social factors affecting patient mortality. The field was developed to provide optimal and comprehensive care, and address important elements such as identifying at-risk families and diagnosing mental disorders that are common among cancer patients. With the increasing demand for cancer care in the 1980s, psycho-oncology centers developed in many countries (Holland, 2002). In turn, with the increase in the number of these centers in the 1990s, behavioral issues and habits became increasingly important, and experts in this field considered improving patients' QOL as one of the most important criteria. Subsequently, the need for curriculum development and training of experts in this field increased (Holland, 2010). In line with these centers and research institutes, the International Psycho-Oncology Society (IPOS) was established in 1984 to operate in clinical, educational, and research areas related to the psychological and social dimensions of cancer, including responding to patients and their families, and staff about cancer and its treatments, and identifying the psychological, social, and behavioral factors that affect tumor severity and survival rates (Holland, Watson, & Dunn, 2011).

In addition to these centers, psycho-oncology is taught as an active major in countries such as the United States, Australia, and Canada, and at universities such as McGill University, and the University of Florida, University of San Francisco, and University of Sydney. Many students study this field in their postgraduate courses. In Iran, like other communities, there are some research groups and centers and NGOs focused on the field of psycho-oncology, such as the Ala Cancer Prevention and Control Center (MACSA), the Psychosomatic Research Center and Department of Psychiatry of Isfahan University of Medical Sciences, the Cancer Research Center of Shahid Beheshti University of Medical Sciences, the Department of Psycho-Oncology of Mashhad University of Medical Sciences (Razavi Hospital), and the Psycho-Oncology Research Center of Shahid Beheshti University. These research centers provide clinical and research services to a wide range of cancer patients and cancer survivors, and their families. However, the main weaknesses of the centers are the lack of a special curriculum in the field of psycho-oncology and the lack of human resource training. Therefore, it seems that a needs

assessment of the necessity of developing a curriculum for this field is required.

A needs assessment is the process of collecting and analyzing information based on the recognized needs of individuals, groups, organizations, and communities (Fathi Vajargah, 2002). Recognizing the concept of educational needs in conducting an educational needs assessment is of particular importance. These needs fall within the areas of knowledge, skills, and attitudes and can be met through education (Khosravi, Fathi Vajargah, & Arefi, 2009). This is the first step in developing curricula. Through needs assessment, the quality of education can be increased and the curriculum can be made more efficient (Slade & Thornicroft, 2020). The Delphi method is one of the most popular techniques for collecting data for a needs assessment. It is a well-known technique for finding the degree of consensus through measuring and evaluating the opinions of a group of experts in order to examine the priorities and decision-making used (Burns & Grove, 2001). Today, the need for psychological services by a team of mental health experts is felt more and more due to the relatively high prevalence of cancer in our country, and the need to pay attention to the fact that cancer is no longer equivalent to death. Moreover, the currently available therapies are focused on improving QOL rather than just keeping the patient alive (Graham & Clark, 2020). A review of literature showed that this task is performed in general and through disciplines that are partly related to mental health in cancer patients. Moreover, it illustrated that there is no specialized field related to the mental health of cancer patients in Iran and very few studies have been performed on the need for psycho-oncology. The need for further research in this field is becoming increasingly apparent with the consideration of the interactions between body and mind and the role of psychological injuries in the possibility of the disease's recurrence. Therefore, this study was aimed at assessing the needs of the psycho-oncology curriculum in postgraduate education.

Methods

This needs assessment study was performed in Iran from 2018-2019 using the Delphi technique. Various methods have been used to conduct needs assessments, including organizational analysis, opinion polls, needs assessments based on performance evaluation, and job analyses in which data from human subjects are collected using tools such as interviews and questionnaires (Mirzabeigi, 2001). Among the reasons for using this technique are the important role of the opinions of psycho-oncology experts in the tasks of psycho-oncology graduates and the impossibility of having all these experts in one place at the same time. The statistical population of the present study included all psycho-oncology experts (faculty members, department heads, educational assistants, heads of psychology and psychiatry faculties, and Ph.D. students in psychology and psychiatry). Because the Delphi technique is used to measure expert opinions in order to make predictions and decisions and because of limited available experts of the subject, scientific sources report that samples should contain between 30 and 60 participants when using this technique (de Meyrick, 2003). A sample of 36 participants was selected from the statistical population using purposive sampling. The inclusion criteria were having expertise and experience in the field of psycho-oncology, being knowledgeable in education, and providing informed consent for participation in the research. The exclusion criteria included lack of completion of research questionnaires and an unwillingness to participate in the research.

In the first step, the roles and tasks of the cancer psychologist in the areas of

education, health care, management, and research were extracted by reviewing texts. Then, a preliminary list of educational needs was defined by modeling similar curricula in the world within a focus group that was attended by researchers from the needs assessment team (researchers and experts specializing in curriculum planning). Accordingly, a questionnaire was designed to assess the opinions of experts in order to implement the first round of the Delphi technique. This questionnaire was examined within the focus group, and the experts were asked to provide yes or no answers to questions about the tasks and roles of a cancer psychologist. One part of the questionnaire asked the experts to provide suggestions. After determining the face and content validity of the questionnaire using expert opinions, the developed list was presented to the experts so that they could review their opinions.

The addresses and office numbers of the experts were collected for the purpose of distributing the questionnaire. After communicating with these experts and obtaining their consent to participate in the research, we sent a copy of the questionnaire to each expert, along with an informed consent form and information on returning the questionnaire (which could be done either face-to-face, by email, or by post). The process of completing the questionnaire was reviewed through telephone calls 3 days after the questionnaires were sent. The experts were assured of the confidentiality of their information to ensure their receipt of the package and further cooperation. After the deadline, unanswered questionnaires were identified, and up to 4 phone calls were made in an attempt to receive the questionnaires; this process led to the returning of 90% of the remaining questionnaires. The questionnaires were then reviewed, and all roles and tasks were listed in order of importance and frequency from high to low. In the next step, the second questionnaire was designed with the aim of prioritizing and determining the importance and capability of performing tasks in Iran according to the prepared list and psycho-oncology resources. This questionnaire was sent to the same participants who filled out the first questionnaire. The effect of assigned tasks on increasing psycho-oncology knowledge refers to improving the QOL of patients and their families, as well as disease prognosis. The capability of performing refers to the possibility of performance of tasks by cancer psychologists, considering educational and research facilities and the social and cultural conditions of families over the next 10 years.

A questionnaire was given to 10 experts to determine the face or qualitative validity, and it was examined in terms of appearance, punctuation, smoothness, and fluency of writing, clearness, and appropriate wording. After reviewing the comments, if necessary, changes were applied (Lawshe, 1975). Content validity ratio (CVR), and content validity index (CVI) were used to assess content validity. To determine CVR, 10 experts were asked to examine each item and score them based on a 3-point Likert scale (necessary, useful but not necessary, and not necessary). Then, the answers were calculated based on a formula and the items that had an appropriate CVR were retained. According to the Lawshe table, the minimum acceptable value of CVR was 0.59, so items with a value higher than 0.59 were retained and those with a value of less than 0 were eliminated. In the case of expressions with a score between 0 and 0.59, the average of the comments for each expression was calculated, and if this average was higher than 2, that expression was preserved applied (Lawshe, 1975).

The Waltz and Basal method was used to calculate CVI. Accordingly, 10 experts were provided with the tool and were asked to determine the rate of the clarity and fluency of each of the items by scoring them on scale ranging from 1 to 4. The CVI score for each item was calculated by dividing the number of experts who had scored

the item 3 or 4 by the total number of the experts. Then, based on the average CVI scores of all items of the questionnaire, the average CVI of the tool was calculated. In this method, a score higher than 0.79, 0.79-0.70, and less than 0.70 is considered appropriate, needing correction, and unacceptable, respectively (Hyrkas, Appelqvist-Schmidlechner, & Oksa, 2003; Yaghmaei, 2003).

After determining the face and content validity of the questionnaire based on expert opinions, the questionnaire was distributed among the experts of the first section, and the participants were asked to give a score of 1 to 5 to each of the educational needs based on the tasks of a psycho-oncologist. This Delphi process was repeated in 2 rounds. There was no need for a third round as consensus was reached by the experts in the scoring (Speziale, Streubert, & Carpenter, 1999). Then, mean scores were presented; these represented the importance of each educational need, which was extracted after analyzing the answers and examining the consensus of experts on the educational needs related to the tasks of a cancer psychologist. Descriptive indicators of the obtained data were calculated using SPSS software (SPSS Inc., Chicago, IL, USA).

Results

This needs assessment study was performed on 36 psycho-oncology experts. This group of experts included 23 faculty members of psychology and psychiatry departments (each with more than 5 years of experience of teaching and working with cancer patients), 7 experts who hold a Ph.D. in health psychology, and 6 experts who hold a Ph.D. in clinical psychology. The results of the first round of Delphi included a set of tasks of a cancer psychologist extracted from a literature review along with the opinions of experts, specifically, 172 tasks in 4 areas (63 in health care, 42 in research, 39 in education, and 28 in management). After merging similar tasks into 1 group, the final list of tasks, which included 107 necessary and agreed-upon tasks from 58 items, was developed in the second round of Delphi. Moreover, similar tasks were categorized into 12 larger general categories of educational needs. In the second round, based on the assigned tasks, the experts gave each task a score of 1 to 5. Then, the mean score of educational needs was determined, and the tasks were prioritized accordingly. The final list of needs included the 2 categories of general needs (Table 1) and specific needs (Tables 2).

The means and standard deviations of the general educational needs scores in psycho-oncology postgraduate education can be observed in table 1. According to this table, all tasks received a priority score of higher than the mean, indicating the necessity of these factors.

Table 1. The mean and standard deviation of general educational needs scores in the psycho-oncology postgraduate education

Professional tasks	Educational tasks	Mean ± SD
Education	Understanding the process of general (employees) and specific (patients and family) education	4.70 ± 0.55
	Understanding interdisciplinary educational technologies	4.60 ± 0.74
	Understanding teamwork and the patient referral system	4.80 ± 0.69
Health care	Understanding team-group interventions	5.00 ± 0.00
	Understanding the principles of interdisciplinary care	4.40 ± 1.07
	Understanding the levels of prevention	4.80 ± 0.50
Management	Understanding health care organizations	4.90 ± 0.33
	Understanding needs assessment methods	4.70 ± 0.69
	Understanding the principles of human resource management	4.50 ± 1.02
Research	Understanding the principles of interdisciplinary research	5.00 ± 0.00
	Understanding teamwork in the research process	5.00 ± 0.00
	Understanding the ethical principles of interdisciplinary research	4.80 ± 0.39

SD: Standard deviation

Table 2. The mean and standard deviation of scores of specific educational needs in psycho-oncology postgraduate education

Psycho-oncology	Mean ± SD	Basics of biosociology of cancer	Mean ± SD
Understanding the definition, concepts, place, foundations, and scope of psycho-oncology	4.80 ± 0.60	Understanding the biological foundations of behavior such as the nervous system, the immune system, the endocrinology system, the physiological structure of the brain, and its relationship to behavior	4.70 ± 0.48
Understanding the applications of psycho-oncology	4.80 ± 0.42	Understanding the components and actions of the central nervous system	4.60 ± 0.83
Understanding cancer in different genders, and types and methods of treatment	4.80 ± 0.48	Understanding the function and biochemistry of nerve cells	4.60 ± 0.82
Understanding the physical problems caused by cancer	4.90 ± 1.60	Understanding the relationship between the brain and high cognitive activities, and the effect of the central nervous system on behavior	4.40 ± 1.07
Understanding the mental disorders caused by cancer	4.80 ± 0.39	Understanding the effects of chemotherapy on the brain of cancer patients, the phenomenon of the chemo-brain	4.80 ± 0.44
Understanding behavioral health, health models, and culture-based prevention in psycho-oncology	5.00 ± 0.00	Understanding common neurological disorders and the neuroanatomical and neurochemical basis of these disorders	4.80 ± 0.52
Understanding the patient referral methods in health and support systems	4.8 ± 0.39	**Psychopharmacology**	
Psychological Interventions in Cancer		Understanding the basics of psychopharmacology	4.70 ± 0.66
Understanding the fear and anxiety of diagnosis, bad news, acceptance process, and cultural issues in the diagnosis process	5.00 ± 0.00	Understanding the psychopharmacology in cancer patients	4.80 ± 1.06
Understanding the styles of coping with the psychosocial crises of diagnosis, cultural issues of mourning, meaning crisis, and patient suicide risk	4.8 ± 0.42	Understanding sedative and hypnotic medications	4.70 ± 0.97
Understanding the sources of support and psychosocial reactions of family, during hospitalization and at the beginning of treatment	5.00 ± 0.00	Understanding anti-anxiety, anti-depressant, and anti-psychotic medications	4.80 ± 1.22
Understanding the theoretical basis and protocols of individual therapy approaches in psycho-oncology	4.90 ± 0.57	Understanding drug adherence, physician recommendations, and drug interactions	4.50 ± 0.79
Understanding the theoretical basis and protocols of group therapy approaches in psycho-oncology	4.8 ± 0.62	Understanding drug abuse	4.90 ± 0.28
Understanding evidence-based psychological interventions in reducing anxiety in cancer patients	4.90 ± 0.78	**Palliative Medicine**	
Understanding evidence-based psychological interventions in reducing depression in cancer patients	4.4 ± 0.97	Understanding the basis, concepts, and scope of palliative care	4.90 ± 0.82
Understanding the cognitive rehabilitation of cancer patients	5.00 ± 0.00	Understanding the role and place of palliative care in psycho-oncology	4.80 ± 0.77
Understanding evidence-based psychological approaches to pain control in dying patients	4.1 ± 1.13	Understanding the nature of palliative care based on the bio-psycho-social model	4.90 ± 0.89
Understanding coping with death, bereavement, and grief	4.8 ± 0.31	Understanding the use of palliative medicine at home and caring for cancer patients	5.00 ± 0.00

Table 2. The mean and standard deviation of scores of specific educational needs in the psycho-oncology postgraduate education (continue)

Psycho-oncology	Mean ± SD	Basics of biosociology of cancer	Mean ± SD
Family and Cancer		Understanding preventive care, home care, and social work in palliative care	4.80 ± 0.99
Understanding the changes in marital relationships following cancer	4.6 ± 0.42	**Clinical Internship and Professional Skills in Psycho-oncology**	
Understanding family functioning and parent-child relationships in cancer patients	4.8 ± 0.50	Understanding the use of counseling and psychotherapy in cancer patients	5.00 ± 0.00
Understanding fertility and infertility in cancer patients	4.90 ± 0.23	Understanding the teaching of skills of behavioral change and lifestyle modification in patients	4.90 ± 0.63
Understanding sexual function and health, sexual satisfaction, and sexual problems in cancer patients	5.00 ± 0.00	Understanding psycho-oncology concepts and theories education for medical teams	5.00 ± 0.00
Psychoneuroimmunology and Cancer		Understanding the use of clinical skills in psycho-oncology in the oncology ward	5.00 ± 0.00
Understanding the basics and concepts of psychoneuroimmunology	4.70 ± 0.63	Understanding the use of clinical skills in pain control and palliative care for cancer patients	4.80 ± 0.83
Understanding the effects of the central nervous system on the immune system	4.50 ± 1.02	Understanding the application of clinical skills and psychological interventions in cancer patients	5.00 ± 0.00
Understanding the effects of the immune system on the central nervous system	4.50 ± 1.94	**Research in Psycho-oncology**	
Understanding the effects of the neuroendocrine system on the central nervous system	4.00 ± 1.45	Understanding library models use methods, the ability to search important databases in the field of psycho-oncology	5.00 ± 0.00
Understanding the effects of psychological functions on the central nervous system and the immune system	4.30 ± 1.04	Understanding simple and complex statistical research methods	4.90 ± 0.28
Understanding the relationship between behavior, psyche, and immune system	4.20 ± 1.10	Understanding the basics of advanced designs of descriptive statistics	4.80 ± 0.42
Understanding a variety of autoimmune diseases, symptomatology, and diagnosis and medical treatment methods	4.30 ± 0.99	Understanding the basics of advanced designs of inferential statistics	4.80 ± 0.39
		Understanding the components of proposal writing, budgeting and estimating the required workforce, and designing executive protocol	5.00 ± 0.00

SD: Standard deviation

According to the above tables, the participants scored all the defined educational needs higher than the mean (3), indicating their perceived importance. These scores indicated the priority and effectiveness of the defined educational needs in the field of psycho-oncology.

Discussion

This study was conducted with the primary aim of defining and prioritizing the most important professional needs and tasks of the psycho-oncology curriculum from the perspective of experts. Based on the results of the first round of Delphi, a set of tasks

was defined for a cancer psychologist. These were divided into the 4 roles of education (including understanding the process of general and specific education and the referral system), health care (including understanding team interventions and interdisciplinary care), management (including understanding health care organizations, human resources management, and needs assessment methods), and research (including understanding the principles of interdisciplinary research, teamwork in the research process, and principles of ethics in interdisciplinary research). These educational tasks were prioritized in the second round of the Delphi technique in the form of specific educational needs and were approved by experts with a score higher than the mean. The tasks defined in the study can be considered as being in line with the tasks set by the World Health Organization (WHO), which emphasize the prevention, management, and care of people with chronic diseases such as cancer (Graham & Clark, 2020). In addition, these tasks were consistent with those defined in the literature (Die-Trill & Holland, 1995) and with the standard curricula in psycho-oncology at universities such as McGill University, and the University of Florida, University of Sydney, and University of San Francisco. One of the first studies on curriculum design for training psycho-oncology experts was conducted by Die-Trill and Holland (1995). They developed a skill-oriented and guided training program for psycho-oncology instructors (mostly oncologists, nurses, and social workers) that included 7 general goals and 6 specific goals. In terms of general goals, the program emphasized the development of criteria for improving a cancer psychologist's skills in working with patients and their families, the process of educating the patient and therapist, teamwork, communication skills training for oncology staff, and psycho-oncology development as a scientific discipline. Regarding specific goals, the program emphasized training the psychological and psychiatric aspects of cancer care, symptomatology, diagnosis of the most common psychiatric disorders, training practitioners to work with staff to reduce patient stress, and learning to plan research related to this field. By examining the program presented in the study by Die-Trill and Holland, 1995, it can be seen that this study pays attention to all the mentioned aspects and broadly defines them in the form of general and specific needs.

In its lesson plan, the IPOS (Holland et al., 2011) addresses educational topics and curricula such as suicide risk management, adaptation to the disease and depression and anxiety disorders, sexual and family problems, mourning, palliative care, the ethical issues of working in the field of psycho-oncology, evaluation methods, evidence-based psychological interventions, communication, and interpersonal skills. The IPOS also considers these topics as the priorities in psycho-oncology. In this study, these topics were adapted to the needs of the Iranian society according to expert opinions, thus indicating their compatibility with the needs discussed by the IPOS. The British Psychological Society (BPS) (Kalus et al., 2008) examined the role of psychology in end-of-life care and identified the role of psychologists in this type of care. This role was divided into the 4 dimensions of communication, patient evaluation and formulation, service delivery, and psychological and research intervention. These dimensions are consistent with the general educational tasks discussed in the present study.

Psychological interventions in cancer were one of the main areas identified in the set of specific tasks for curriculum planning presented in our study. The curriculum begins with educational tasks such as understanding the process of disease diagnosis, fears and anxieties of diagnosis, and providing bad news to the patient. It then continues with understanding styles of coping with psychosocial crises of diagnosis,

grief, meaning crises, suicide risk, and supportive resources during hospitalization. It then defines evidence-based psychological approaches when initiating psychotherapy and ways to improve patients' QOL. The difference between the subject of the psychological interventions discussed in the present study and those presented in the literature (Die- Trill & Holland, 1995) is the comprehensiveness of the defined tasks. In a survey by Die- Trill and Holland (1995), the emphasis was on providing intervention for psychological disorders, and the process of initiating this issue was not studied. However, experts in this study saw counseling and psychotherapy as a spectrum and considered it from the beginning to the end. Moreover, culture is one of the critical areas in the process of diagnosing and treating cancer patients. Cultural issues, beliefs, and differences between people's beliefs must be taken into account, and the related educational needs must be determined (Kagawa-Singer et al., 2010). Cultural differences affect the treatment of cancer, and in a review study on cultural factors related to the diagnosis of breast and cervical cancer by Lee (2015), the essential roles of family, embarrassment, acceptance of appreciation, and preventive approach were emphasized. According to the results, embarrassment is an important issue at the time of diagnosis of this group of diseases, and sick women are embarrassed to talk to male doctors about this and refuse to start treatment on time. Due to the cultural diversity of Iran, in the present study, cultural and social needs were also considered and examined as educational tasks. Cultural and social needs are among the critical determining factors in the treatment of the disease. In addition to psychological interventions, addressing issues such as family and cancer are the further distinguishing features of this study. The main focus of the current psycho-oncology curricula in the world is the patient, while limited attention is paid to the patient's family in the form of supportive and social interventions. However, the family, as a strong source of support for the patient, plays a crucial role in the treatment of the disease, and the literature suggests that this source of support is affected by cancer. Family functioning (Mousavi Diva et al., 2017), sexual functioning, and marital satisfaction (Bober et al., 2019) are among the psychological factors affected by cancer. In this study in which the Delphi technique was employed, educational tasks such as family injuries, the evolution of marital satisfaction, family functioning, fertility and infertility, and sexual function and sexual health were defined within the topic of family and cancer. Due to these important factors, the study expanded the treatment process from the individual to the family and involved the patient's emotional bonds in the treatment process.

Palliative care was also one of the educational tasks considered by experts as one of the main priorities of psycho-oncology in completing educational needs. This topic, which extensively considers the nature, application, and services of palliative care, such as pain control, spiritual support, and traditional, complementary medicine, has a broad connotation. According to the WHO, palliative care refers to comprehensive group work provided by experts in various fields to solve the physical, psychological, spiritual, and social problems of people with severe illnesses (Graham & Clark, 2020). This kind of care begins by treating the disease simultaneously to and with emphasis on improving patients' QOL. Additionally, this kind of care is taken into account if the disease treatment is ineffective, and it is specifically used to reduce the severity of the patient's psychological problems (Goldstein & Morrison, 2012). The psychologist accompanies the patient and the family in the 4 stages of diagnosis and treatment, disease progression, death, and bereavement for the survivors, as well as the other clinicians who provide medical,

nursing, rehabilitation, and social welfare services. In addition to the topics discussed, psychoneuroimmunology and cancer, the basics of biopsychology, psychopharmacology, internships, and professional skills in psycho-oncology, and research in psycho-oncology were among the important topics covered in the educational needs assessment that were closely related to the educational needs in other studies. Despite the many commonalities between the proposed curriculum and similar curricula in other countries, the present study was more accurate in cases such as professional skills, practical aspects, and clinical details and implications.

Conclusion

The results of the present needs assessment indicated that needs such as the basics of biopsychology, psychological interventions, psychopharmacology, psycho-oncology, palliative care, family and cancer, internships and clinical skills, psychoneuroimmunology, and research in psycho-oncology, which fall into the 4 general categories of educational needs, health care, management, and research, must be considered to determine the tasks of a cancer psychologist. The needs defined in this study are specific to their particular space and time and are more extensive than those defined by the IPOS and other universities around the world. Moreover, the specific curriculum presented in this study demonstrates the need for attention to the specific curricula of each country and not merely imitating them.

The present study faced some limitations, the most important of which was the limited time of busy experts for implementation of the Delphi technique, which led to a prolongation of the research process and the low number of samples. Based on the results of this study, researchers are recommended to develop psycho-oncology courses, modify existing curricula for other related disciplines, and develop additional complementary disciplines that are in line with the discipline under review to improve the mental health of patients with chronic diseases according to the defined needs and tasks.

Conflict of Interests

Authors have no conflict of interests.

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