Original Research

Studying the Effectiveness of Emotion Regulation Training on Illness Perception, Resilience, and Hope for Life in Patients with Osteoporosis

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Abstract:

Background:

Osteoporosis is a skeletal disease characterized by a decrease in bone mineral density. Monitoring the mental health of patients is an integral part of their treatment process. Given the lack of studies on emotion regulation training in patients with osteoporosis, along with the high prevalence of osteoporosis, indicating its importance in society, there is a significant gap in such studies. Therefore, we aimed to design a study titled "The effectiveness of emotion regulation training on illness perception, resilience, and hope for life in patients with osteoporosis.

Methods: In this semi-experimental pre-test and post-test study, participants aged 50 to 60 years, all of whom were female, were conveniently sampled from the Imam Khomeini Medical and Educational Center in Sari, Iran, from patients registered at the Orthopedic Research Center. Finally, 40 patients who met the necessary criteria for participation and attended the emotion regulation training sessions were selected for statistical analysis. The Conner & Davidson Resilience Questionnaire, Miller Hope for Life Questionnaire, and Burden of Disease Perception Questionnaire were completed by the volunteers before and after emotion regulation training.

Result: The mean scores of the Miller Hope for Life Questionnaire for the patients included in the study were estimated to be 15.22 ± 151.57 before the training sessions and 19.37 ± 187.52 after the sessions, showing a significant difference ($P \leq 0.05$). The Conner & Davidson Resilience Questionnaire was interpreted based on the obtained scores. The mean scores of the resilience questionnaire for the patients included in the study were estimated to be 8.9 ± 53.8 before the sessions and 16.5 ± 61.1 after the sessions, showing a significant difference ($P \leq 0.05$). The illness Perception Questionnaire was also interpreted based on the obtained scores. The mean scores of the perception questionnaire for the patients included in the study were estimated to be 11.35 ± 44.39 before the intervention and 15.8 ± 51.5 after the sessions, showing a significant difference ($P \leq 0.05$).

Conclusion: According to the results of this study, emotion regulation training sessions can significantly increase hope for life, resilience, and illness perception in women with osteoporosis. These findings can be used to improve the quality of life of these patients and design necessary interventions and strategies for healthcare providers.

Keywords: Osteoporosis, Resilience, Hope for Life, Emotion Regulation

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Introduction

Osteoporosis is a skeletal disease characterized by a reduction in bone mineral density. This decrease in density weakens the mechanical strength of bones, making them more susceptible to fractures (1). Osteoporosis is diagnosed when a patient's bone density is 2.5 standard deviations or more below the average of young individuals (2). It is less common in men compared to women, possibly due to men having higher bone mass across all ages and not experiencing a physiological equivalent of menopause (3). Osteoporosis is a major contributing factor to fragility fractures (4), which can occur in various parts of the body, particularly in the hip, spine, and wrist (5), with hip fractures being the most dangerous. In 1990, the global prevalence of fragility fractures was approximately 1.3-1.7 million cases, and it is estimated to reach three million cases by 2025 (6). In a large population-based study in Iran, the standardized prevalence of osteoporosis in men was 24.6%, and in women over the age of 60, it was 62.7% (7). Approximately 85% of the global burden of osteoporosis and 12.4% of the osteoporotic fracture burden in the Middle East are attributed to Iran (8). The prevalence of osteoporosis and osteopenia in Iran is significantly higher in the northern regions compared to the southern regions, and the prevalence of both conditions is much higher in individuals aged 50-69 compared to those aged 30-49 (9). To date, numerous studies have been conducted on the effectiveness of emotion regulation training in various diseases. For example, a study by Ebrahimpoor-Ghavvi et al. showed a significant decrease in depression scores among children with cancer in the post-test compared to the pre-test, indicating that emotion regulation training has a significant impact on reducing depression in these children (10). Another study by Ghiasvand and Ghorbani concluded that emotion regulation training could be an effective approach in improving emotional regulation difficulties and controlling serum glucose levels in individuals with type 2 diabetes (11). Considering that there is a lack of research on emotion regulation training in patients with osteoporosis despite its high prevalence and societal significance, it is essential to fill this research gap. Therefore, the aim of this study is to investigate the effectiveness of emotion regulation training on illness perception, resilience, and hope for life in patients with osteoporosis.

Method

The present study is among the semi-experimental studies conducted with pre- and post-tests, employing a pre-test and post-test design. The participants in the study were females between the ages of 50 and 60. They were selected through convenience sampling from the Imam Khomeini Medical Center in Sari, among patients diagnosed with osteoporosis and registered at the Orthopedic Research Center. Contact was made with these patients to identify 52 volunteers willing to participate in the research project. The General Health Questionnaire (GHQ) was used to assess the participants' psychological disorders. Eventually, 40 patients who met the necessary conditions and attended training sessions were selected for the statistical analysis of the chosen study. Individuals who did not participate in more than two therapy sessions, those who suffered from acute psychotic disorders, and those who were not interested in participating in the study were excluded.

After obtaining research and ethical approvals from relevant authorities, all eligible patients entered the study after completing an informed consent form, and their names and information remained confidential. After introducing the program, individuals who expressed their readiness to participate in group therapy sessions were included in the study. The research variables were measured during the pre-test phase. Emotion regulation training was

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conducted in eight group sessions, lasting 90 minutes each, for a total of 40 days. The Conner & Davidson Resilience Questionnaire, Miller's Hope for Life, and the Illness Perception Questionnaire (IPQ) were completed by the volunteers before and after emotion regulation training. The data were analyzed using statistical methods such as frequency, percentage, mean, standard deviation, and multivariate analysis of covariance (MANCOVA) through SPSS software version 23. After collecting the data through questionnaires and tests, the information was entered into SPSS software version 23. Paired t-test was used for data analysis. The data were reported using statistical methods such as frequency, percentage, mean, and standard deviation. The significance level for the analysis results in this study was set at $p < 0.05$.

Result

In this study, 40 patients with a mean age of 60.7 ± 8.0 years participated in the training sessions. All patients were female, and 70% were married. In terms of education level, 53% of the patients had a diploma, 26% had a bachelor's degree, and 21% were illiterate.

The mean scores of Miller's Hope for Life questionnaire for patients enrolled in the study were evaluated before the training sessions, with a score of 151.57 ± 15.22. After the training sessions, the mean score of the questionnaire was estimated to be 187.52 ± 19.37, indicating a significant difference between pre- and post-sessions ($P \leq 0.05$). Conner & Davidson questionnaire was interpreted based on the obtained scores. The mean scores of the resilience questionnaire for patients enrolled in the study were estimated to be 53.8 ± 8.9 before the sessions and 61.1 ± 16.5 after the sessions, indicating a significant difference between them ($P \leq 0.05$). The Burden Assessment of Illness Scale questionnaire was interpreted based on the obtained scores. The mean scores of the perception of illness questionnaire for patients were estimated to be 44.39 ± 11.35 before the intervention and 51.5 ± 15.8 after the sessions, showing a significant difference between them ($P \leq 0.05$).

Discussion

According to the results of this study, emotion regulation training sessions significantly increase hope, resilience, and disease understanding in patients with osteoporosis (12). Osteoporosis is a disease characterized by a decrease in bone density and quality, leading to skeletal weakness and an increased risk of fractures, especially in the spine, wrist, hip, and arm. The goal of osteoporosis educational intervention is to reduce environmental risk factors for women and provide information that influences attitudes, beliefs, and behavioral change through weight-bearing, physical activity, and calcium intake. The osteoporosis educational intervention was based on changing health beliefs and emphasized the observable intensity of health threats. Psychological factors have been found to predict medication adherence in various chronic diseases (13), and there is evidence that this is also the case in osteoporosis. For example, researchers have found that patients' beliefs about their perceived need for medication, concerns about medication, experience of side effects, and discomfort with dosing regimens are all associated with non-adherence (14, 15). A low understanding of osteoporosis risks can also contribute to medication non-adherence. Studies have shown that even patients who have previously experienced fractures may not perceive a high risk of future fractures (16, 17), indicating a lack of awareness of the need for osteoporosis medications. Additionally, these studies have shown that patients often attribute the cause of their fractures to accidents rather than osteoporosis. According to the results of our study, this hypothesis is supported, and resilience increased after emotion regulation training in patients with osteoporosis. In previous studies conducted by Karimi Afshar et

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al., the impact of emotion regulation intervention on resilience and death anxiety in women with breast cancer was investigated at Shahid Afzali Hospital in Kerman. The experimental group received eight sessions of emotion regulation intervention, while the control group did not receive any intervention during this period. The results of this study showed that emotion regulation intervention sessions had a significant effect on increasing resilience and reducing death anxiety in women with breast cancer. Emotions are socially useful and can facilitate the expression of emotions to others and constructive social interaction, playing a significant role in resilience and death anxiety in women with cancer (18). Similar studies conducted by Bagheri et al. on the impact of emotion regulation training on the resilience of patients with advanced cancer demonstrated that selected emotion regulation strategies by patients with advanced cancer could influence their resilience (19). According to the results of our study, educational sessions on emotion regulation significantly increased resilience in patients with osteoporosis. Considering the significant role of resilience in the improvement and treatment adherence of patients with osteoporosis, emotion regulation training can potentially play a role in their treatment process. Similar to breast cancer, osteoporosis is a chronic disease, and the results of this study align with the mentioned study. According to the results of our study, this hypothesis is supported, and hope increased after emotion regulation training in patients with osteoporosis. In a study conducted by Xu, Peh, et al. to examine the role of hope and emotion regulation on psychological outcomes in patients recently diagnosed with cancer, 101 patients were examined. The results of this study showed that hope and reappraisal were related to the well-being of patients (20). Hope and emotion regulation are often important for coping with cancer treatment methods. A study by Novović et al. aimed to demonstrate whether pre-chemotherapy hope status influences post-chemotherapy quality of life in patients with colorectal cancer. The results of this study showed that hope had a direct and indirect effect through emotion regulation, and both were significant predictors of quality of life (21). According to the results of our study, emotion regulation training significantly increased hope in patients with osteoporosis. Considering the important role of hope in chronic diseases like osteoporosis, emotion regulation training can potentially contribute to improving the quality of life and mental health of these individuals.

According to the results of our study, this hypothesis is supported, and the perception of illness increased after emotion regulation training in patients with osteoporosis. A significant association has been observed between illness perception and well-being in patients with breast cancer, thus strengthening perceived social support can be beneficial in improving their well-being (22). Perception of illness and medication are interconnected. Aspects that are not directly related to adaptation also indirectly influence it (23). In previous studies on cardiac patients, a weak perception of illness was a strong predictor of non-participation or poor participation in cardiac rehabilitation programs (24). Based on the results of our study, emotion regulation training led to a significant increase in illness perception in patients with osteoporosis, which can potentially predict their adherence and regular participation in treatment programs. Illness perception is an important component in treatment adherence and progress and can predict patient engagement in therapy sessions and regular follow-up. Emotion regulation training can increase illness perception in patients with osteoporosis and potentially promote their regular attendance in therapy sessions.

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Limitations of this study include a small sample size and the absence of a control group. Given the need for regular participation in emotion regulation training programs, it requires high patient engagement. It is also suggested that future studies include a control group alongside the intervention group to examine the effects of emotion regulation training programs with greater accuracy. In general, emotion regulation training programs can improve hope for life, illness perception, and resilience in patients with osteoporosis, which potentially leads to increased participation in treatment, regular follow-up, and improved quality of life for these patients. It is recommended to incorporate emotion regulation training sessions into osteoporosis treatment programs.

Conclusion

According to the results of this study, emotion regulation training sessions can significantly increase hope for life, resilience, and illness perception in women with osteoporosis. These findings can be utilized in improving the quality of life for these patients and designing necessary interventions and strategies for healthcare providers.

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