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Evaluation of the Effectiveness of Morita Therapy on General Health and Pain Catastrophizing in Older Adult Women with Chronic Knee Pain

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The concept of pain, not only as a physiological and mechanical response of neurons to stimuli but also as a more complex structure, social, behavioral, and psychological response to unpleasant stimuli, is an intellectual turning point that inspires research and therapy options. This study aimed to evaluate the effectiveness of Morita therapy on general health and pain catastrophizing in older adult women with chronic knee pain. The research design was pre-test and post-test with a control group. The study's statistical population included older adults with chronic knee pain from May to August 2020 in Tabriz, Iran. The sample consisted of 30 female patients aged 60-70 years with chronic knee pain who entered the study by convenience sampling method and

were randomly assigned to experimental and control groups (15 patients in each group). The research instruments included the Rosenstiel and Keefe Coping Strategy Questionnaire (CSQ) and the Goldberg 12-item General Health Questionnaire (GHQ). In the experimental group, Morita therapy was held during nine sessions for 90 minutes once a week. The results of multivariate analysis of covariance showed significant effectiveness of Morita therapy on pain catastrophizing and general health ($p < .001$). Compared to the control group, Morita therapy significantly reduced pain catastrophizing scores ($\eta^2 = .75$) and increased the general health scores ($\eta^2 = .68$). Morita therapy can help reduce pain catastrophizing, increase general health, and can be used along with other therapies.

Keywords: chronic pain, general health, pain catastrophizing, Morita therapy, older adults

Chronic pain may be caused by injury or disease but persists with factors that are pathogenetically and physically far from the early cause (Fishman, Ballantyne & Rathmell, 2010). Chronic pain is a common problem worldwide. Today, due to the rapid growth of the older adult population, chronic pain is recognized as a global health problem. The prevalence of chronic pain in older adults is between 25 and 76%. This rate reaches 93% in nursing homes (Schofield, 2018). Physical injury is the most important health-related change with age (McPhee, French, Jackson, Nazroo, Pendleton, 2016). In the meantime, proper limb function is important for physical activity (Jindo, Kitano, Tsunoda, Kusuda, Hotta, et al., 2017). One of the main reasons for activity limitation in older adults is knee osteoarthritis. Knee osteoarthritis is a disease that worsens with age, and women are more likely to get it (. Bavardi Moghadam, Shojauddin, Akbar Nejad., 2017). In addition, in most parts of the world, there is a gender gap in life expectancy. This means the number of older adult women is more than that of older men (World Health

exaggerating or magnifying the perceived threat of pain feelings (Sullivan, Thorn, Haythornthwaite, Keefe, Martin, 2001), which leads to a greater focus on the negative aspects of the situation, the interpretation of physical arousal to pain symptoms, fear of pain, and finally avoidance behaviors (Vlaeyen & Linton, 2000). Repeated periods of pain experience create learned helplessness that leads to a negative emotional and cognitive schema, and eventually, more catastrophizing appears (Ogata, Williams & Burri (2017). Cross-sectional studies have shown that catastrophizing is associated with increased pain, increased illness behavior, and impaired physical and mental functioning among both clinical and non-clinical populations. Prospective studies suggest that catastrophizing may predict the onset of musculoskeletal pain in the general population (Severeijns, Vlaeyen, van den Hout & Picavet, 2004) and greater pain intensity and less recovery after surgery (Granot, Ferber, 2005). Pain catastrophizing is also associated with poor general health and negative therapy outcomes (Schütze, Rees, Smith, Slater & O'Sullivan, 2020).

Patients with chronic disease have little knowledge of managing it; therefore, it negatively affects their lives (Namukwaya, Murray, Downing, Leng & Grant, 2017). Today, research has provided a basic understanding of the dimensions of health among patients with chronic disease. Chronic pain has direct (frequent visits to the doctor, hospitalization, and medication) and indirect (absence from work and disability) economic and social effects (Willich, Reinhold, Selim, Jena, Brinkhaus, et al., 2006). The psychological status is associated with poor outcomes after any therapeutic interventions, even after knee surgery (Riddle, Wade, Jiranek & Kong, 2010).

indicates that specific psychological disorders or pain-related beliefs are not well understood. The recommended social approach for the older adult population, which aims to create a friendly world, requires transforming health systems and moving from a disease-centered model to integrated care. Therefore, more research is needed to gain a clear view of how chronic pain is managed in the daily lives of older people. Due to the phenomenon of population aging in the world, especially in Iran, education and the use of therapy methods for older adults to control chronic pain can be effective in improving their quality of life. In particular, studies show that a self-management program can reduce the multifaceted symptoms of women's pain (Salayani, Asghari Ebrahim Abad, Mashhadi, Attarzadeh Hoseini, et al., 2017).

One of the therapies based on self-management is Morita therapy. This therapy is based on Eastern philosophy (Kitanishi & Mori (1995). This includes a structured behavioral program that tries to eliminate physical and anxiety symptoms of patients and convince them to accept these symptoms as natural symptoms in life and increase their social performance (Li & He, 2008). Catastrophizing is associated with anxiety because, in anxiety, too, there is a tendency to overemphasize the possibility of a catastrophic outcome (Clark, 2013). Catastrophizing thoughts are initially considered a coping strategy and positive concern but become a negative concern through repetition (Wells & Carter, 1999). Morita also introduced neural predisposition and habitual and learned cognitive patterns of anxiety, and rejecting this preparation is not one of its goals, but changing dysfunctional cognitions and fruitless behavioral patterns is the goal of this method of therapy

(Ishiyama, 1986). Studies show that therapies that target positive activity interventions (list of three good things a day) in chronic pain report improvement in pain within six months (Hausmann, Parks, Youk & Kwoh, 2014). A study evaluating the effect of catastrophizing thoughts and self-efficacy on pain self-management showed that self-efficacy had a direct and positive effect.

In contrast, catastrophizing thoughts had a negative effect on self-management (Bazyari Meymand et al., 2017). In studies, patients with chronic pain who engaged in Morita therapy and positive activities showed a greater improvement in pain intensity and pain control than the control group (Müller, Gertz, Molton, Terrill, Bombardier et al, 2016; Hausmann, Parks, Youk & Kwoh, 2014; Dehghan, Isazadegan, & Soleimani, 2021a; Dehghan, Isazadegan & Soleimani, 2021b). Therefore, due to the few studies in the field of Morita therapy, the purpose of this study was to evaluate the effectiveness of this intervention on catastrophizing and the level of general health.

Method

This study was an experimental pre-test–post-test control group design. The study's statistical population included all older women aged 60-70 with chronic knee pain who were referred to daycare rehabilitation centers for adults in Tabriz, Iran.

Inclusion criteria for the participants included primary education and higher, a minimum of physical and cognitive ability according to the patient's medical file to participate in intervention sessions, a mean knee pain intensity of 50mm or more on a Visual Analog Scale (VAS), no anti-anxiety and anti-depressant drug use according to the patient's medical files. All

the older adults were taking painkillers prescribed by a doctor who was not aware of the research plan.

Exclusion criteria were absence from more than two consecutive sessions, other psychotherapy participation, a history of fractures, and lower limb surgery. According to the patient's medical files, out of those referred to the older adult daycare rehabilitation center, 30 literate women aged 60 to 70 years with radiological evidence of knee osteoarthritis by convenience sampling method were included in the study. Patients marked the level of their pain on a 100 mm on the right (extreme pain) and a 0 mm on the left (no pain), and when the pain intensity score, according to the self-reports, was above 50 mm, each file was assigned a number 1 to 30, and then those were placed in a box without following any special order. Next, the numbers were mixed, and 30 selected numbers were assigned individually to the Morita and control groups by simple random sampling. All patients completed questionnaires on demographic variables at the initial assessment, CSQ, and GHQ-12 at the pre-test and post-test.

Instruments

Demographic variables questionnaire included age, education level, and pain intensity based on VAS.

Pain Catastrophizing Questionnaire

The subscales of catastrophizing thoughts have 6 terms. A higher score indicates more catastrophizing thoughts in the face of pain (Rosenstiel & Keefe, 1983). The psychometric property of the questionnaire through Cronbach's alpha coefficient for the coping strategy of pain catastrophizing was 0.80 in the research

by Asghari Moghadam and Golak (2005). In this study, Cronbach's alpha was .79.

General Health Questionnaire

Older adult general health is assessed using the 12-item form of the Goldberg General Health Questionnaire (GHQ) (1972). The questions of this questionnaire are based on the Likert method and are scored on a 4-item scale with scores of 0, 1, 2, and 3, respectively, with a lower score indicating better mental health (Goldberg, 1972). According to the study of Ebadi et al. (2002), the best cutting point for this method is 14.6. The validity and reliability of the Persian version of this questionnaire in Iran have been confirmed by the Jihad University Health Sciences Research Institute, and its Cronbach's alpha coefficient has been reported between .77 and .90 (Seyfzadeh, Haghighatian& Mohajerani, 2019). In this study, Cronbach's alpha was .88.

Intervention Program: Morita Therapy

Morita therapy sessions based on the article by Sugg, Frost, and Richards (2019) and using Morita theory (Morita,1998) in 9 sessions once a week and in three groups of 5 people were held for 1.5 hours from 9:00 AM to 10:30 AM (Table 1). First, each person was numbered, and then the numbers were placed in a box; the first selected number was randomly assigned to group A, the second to group B, and the third to group c. Thus, three groups of five were formed, each receiving intervention sessions once a week. During this time, the control group engaged in routine clinic programs. It was suggested that after proving the

effectiveness of Morita therapy, these therapy sessions will also be performed on the control group.

Ethical Consideration

This research is based on the ethical code approved by the Medical Committee of Urmia University with the number of IR.URMIA.REC.1399.003. In addition, we observed the principle of participant confidentiality, obtained consent from the participants, and gave them the right to withdraw from the study at any time.

The SPSS 22 software was used to analyze the data. Descriptive statistics were applied to describe the findings. To assess data, a multivariate analysis of covariance was done to assess the effectiveness of the therapy.

Results

The mean and standard deviation of the variables of catastrophizing thoughts and general health are reported in Table (2). Participants aged 60 to 70 had a mean age of 67.4 and a standard deviation of 1.82. In the experimental group, the mean age was 66.8, and the standard deviation was 1.59 years. The mean age of the control group was 68.2, and the standard deviation in this group was 1.43. The mean and standard deviation of pain intensity in the experimental group were, respectively, 8.73 and 1.53. As seen in Table 2, the mean and standard deviation of the pre-test and post-test decreased in catastrophizing thoughts, and the mean and standard deviation of the pre-test and post-test of the experimental group in general health increased after intervention.

To observe the normality of the data, the Kolmogorov-Smirnov z statistic showed that the number of catastrophizing thoughts and general health variables were respectively 0.423 and 0.198 at the level of $P \leq .05$, which was not significant. It means that the distribution of variables among the sample with its distribution in the statistical population was normal.

Based on the results of Levene's Test, the level of statistics F was not significant for all studied dependent variables ($P \geq .05$). Hence, the variance of error of these variables was not different between participants among both groups, and variances were equal. Also, the Box test was used to test the hypothesis of homogeneity of covariance, and the results showed that the box value was not significant ($P = .437$, $F = .905$, and $BOX = 2.94$). Thus, the default difference between co-variances was established. The results of Table 3 show that the significance levels of all tests allow multivariate analysis of covariance. These results showed a significant difference between the experimental and control groups in at least one of the dependent variables. To determine which of the dependent variables was more affected by the independent variable, a multivariate analysis of covariance (MANCOVA) was used, presented in Table 4.

As the results of Table 4 show, there was a statistically significant difference between the experimental group and the control group in catastrophizing thoughts and general health ($P \leq 0.001$). In other words, the mean score of catastrophizing thoughts and general health in the experimental group was different after Morita therapy interventions. This means that after the intervention of Morita-based therapy, the score of the experimental group compared to the control group in the overall

score of the catastrophizing thoughts test had decreased. Also, the mean score of general health of the experimental group compared to the control group increased significantly, which indicates an increase in mental health. These results indicate the effectiveness of this intervention method.

Table 1

Meetings, Content, and Assignments of Morita-Based Therapy Steps

	Content	Homework
1	Introduce the group leader and explain the goals. Perform conscious mind breathing exercises along with the barriers to breathing awareness.	Do mindfulness breathing exercises, identify at least three daily distractions that interfere with the experience, and consider the full presence of the "here and now."
2	Discuss the automatic guide and generalize it to our ignorance or lack of awareness. Implement consciously eating apple slices in the group with attention to feelings, thoughts, and barriers to awareness.	Perform mind-conscious daily activities such as conscious walking, eating, and conscious breathing.
3	Understand the unstable nature of unpleasant feelings, get acquainted with human nature positive and negative aspects, challenge beliefs about how to deal with emotions, and practice abdominal breathing.	Identify pleasant and unpleasant emotions, pay attention to the stability and instability of existing emotions, and identify several cases of coexistence of positive and negative aspects of human nature.
4	Introduce different types of awareness (self-awareness and environmental awareness), use the hot seat technique on a volunteer member, and list superficial and deep feelings and possible behavioral consequences.	Complete the following questions: What I do is: thoughts, feelings, and behaviors that I have no control over while doing.... are: ... (Kondo,1992).
5	Practice abdominal breathing with mental imagery of anxiety. Pay attention to the fluidity of thoughts, changing emotions through changing focus and	Practice focusing on different subjects (objects or thoughts), perform at least three effective behaviors despite unpleasant

	attention. Challenge beliefs in controllable and uncontrollable areas.	feelings and pay attention to the outcome.
6	Encourage familiarity with the Morita concept of anxiety. In this way, constructive desires are on the other side of the anxiety coin, directing energy and attention from focusing on anxiety to performing efficient behaviors in line with constructive desires.	Pay attention to different areas of life, including physical, emotional, and constructive desire as on the other side of the anxiety coin and a behavioral step towards constructive desires.
7	Empirically understand the fear of death and the desire for life, pay attention to the remaining opportunities of life, and take effective measures towards constructive desires.	Identify goals and needs and prioritize them. Take behavioral steps in line with prioritized goals and needs.
8	Identify realistic and perfectionist desires and examine slides of self-destructive attitudes.	Perform at least three cases of efficient and consistent behavior in line with realistic desires and identify behavioral attitudes.
9	Train Problem-solving skills, consolidate learning, review unfinished work in the group and members' concerns in the final stage, evaluate and deal with feelings of separation, and express unfinished feelings of group members towards each other at the end of the session.	

Table 2

Mean and Standard Deviation of the Variables of Catastrophizing Thoughts and General Health

Test	Variable	Experimental group		Control group	
		M	SD	M	SD
Pre-test	Catastrophizing thoughts	20.60	1.40	20.20	1.61
	General Health	11.66	2.38	11.60	1.63
Post-test	Catastrophizing thoughts	13.80	1.42	19.80	2.14
	General Health	14.46	2.09	11.66	1.71

Table 3

Results of Validity Indexes of Significance Test of Multivariate Analysis of Covariance on Variables

Source	Test	Value	F	df hypothesis	df error	P	Eta
Groups	Pillai's Trace	.859	76.21	2.00	25.00	.000	.859
	Wilks Lambda	.141	76.21	2.00	25.00	.000	.859
	Hotelling's Trace	6.09	76.21	2.00	25.00	.000	.859
	The root of the error	6.09	76.21	2.00	25.00	.000	.859

Table 4

Results of the MANCOVA Test on Variables in Experimental and Control Groups

source	Dependant variable	Sum of squares	df	mean squares	F ratio	sig	Eta Square
Group	Catastrophizing thoughts	270.73	1	270.73	78.52	.000	.751
	General Health	52.51	1	52.51	57.65	.000	.689

Discussion

This study aimed to evaluate the effectiveness of Morita therapy on older adult women with chronic knee pain. In particular, this intervention had two general objectives. The first was to evaluate the effectiveness of this intervention in reducing chronic pain catastrophizing. Catastrophizing is a coping strategy to gain the social support of others in response to pain that can change in different situations (internal modes and environmental conditions). As Sullivan et al. (2001) showed, catastrophizing changes with purposeful interventions align with the findings of the present study. In another study, changes in pain catastrophizing through cognitive-behavioral therapy significantly reduced pain intensity in people with chronic back pain (Smeets, Vlaeyen, Kester & Knottnerus, 2006). In this study, Morita therapy also reduced the catastrophizing knee pain.

In Morita, instead of paying attention to introspection and physical symptoms, older adults are encouraged to identify essential daily tasks and activities and a short-term and long-term personal plan to achieve life interests. In this therapy, the older adults are focused on the area of interest, and objective methods of actualizing are also taught. When older people find strong evidence, healthy interests, and personal goals within themselves, more attention and energy flow to the objective and practical ways of personal goals. Engaging in purposeful activities gradually removes the older adult from reinforcing their self-pathologizing beliefs (Ishiyama, 2003) and consequently catastrophizing changes. Catastrophizing is also associated with anxiety because, in anxiety, there is a tendency to overemphasize the possibility of a catastrophic outcome

(Clark, 2013). In Morita therapy, the older adult learns to reinterpret anxiety by understanding its meaning, seeing it as a desire for productivity, perfection, and meaningful social existence (Ishiyama, 1986). The second was to evaluate the effectiveness of this intervention in increasing the level of general health. According to the findings, the participants who received Morita therapy had a higher level of general health after therapy than the control group.

Positive psychological interventions show that pain control in people with chronic pain increases significantly after therapy (Müller, 2016). Consistent with the present study, people who reported more mental well-being significantly showed less pain (Furrer, Michel, Terrill, Jensen & Müller (2019). Mental well-being, happiness, and positive thinking lead to pain relief physiologically (Ong & Allaire, 2005) and psychologically (Tugade & Fredrickson, 2004). The blocked flow of attention and mental energy, caused by cognitive inflexibility and preoccupation with certain aspects of mental and physical experiences, is an obstacle to a full "here and now" experience (Morita, 1998). In Morita's therapy, the older adult learns to take a positive view of their unpleasant feelings and use them for practical activities toward effective goals (Ishiyama, 1986). Also, in the intervention of the present study, there are exercises such as empirical understanding of the fear of death and desire for life, paying attention to the remaining opportunities of life, and taking effective measures towards constructive desires. As older people learn to control their behavior correctly by considering the facts, paying attention to what reality brings to them reduces complaints and pain (Reynolds, 1989). In Morita therapy, the older adult's energy is directed to "what they can do

and choose," and they avoid trying in vain to change immutable conditions and physiological reactions such as anxiety, fear, obsessive thoughts, and physical symptoms. In addition, increasing the awareness of the older adult and involvement in practical tasks increases the set of behaviors and outcomes in life that challenge his beliefs and assumptions. Openness to experience every moment, allowing the flow of spontaneous thoughts and feelings without getting stuck in it, and experiencing oneself and the environment completely in the "here and now" improves mental health. In this study, the low number of older adults referring to clinics made it impossible to select subjects randomly. Instead of performing therapy in a group of 15, it was performed in three groups of 5. Also, the small number of samples in the present study may lead to research bias. Another limitation is generalization because the therapy was performed only in the older adult female population. It is recommended that experimental designs be done by completely random selection. Research to be done in the future that can control intervening variables to demonstrate the effectiveness of this therapy in a wide range of variables.

The study showed Morita therapy can help reduce pain catastrophizing and increase general health, which indicates an increase in mental health in older adult women with chronic knee pain and can be used along with other therapies.

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Conflicts of Interest

There are no potential conflicts of interest concerning this article's research, authorship, and/or publication.

Author contribution

B. D., and A. I., S.I. Contributed to the research design and implementation, the analysis of the results, and the writing of the manuscript.

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