

ARTICLE

THE EFFECT OF EIGHT WEEKS OF HYDROTHERAPY ON LIFE QUALITY AND DEPRESSION IN ELDERLY WOMEN OVER 50 YEARS OF JAHROM CITY IN IRAN

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ABSTRACT

Background: Generally, exercise and movement are effective approaches in preventing aging disorders and postponing the process of aging. It is possible to enhance different factors of life quality in elderly individuals and help them to be more independent in daily activities and have a successful aging process by using a regular program of exercise and physical activity. So the objective of this study is to investigate the effect of eight weeks of hydrotherapy on life quality and depression in elderly women over 50 years of Jahrom city in Iran. **Methods:** The present study is quasi-experimental with pre-test and post-test. The statistical population includes 15 people of elderly women over 50 years that were selected by convenience sampling. Hydrotherapy was implemented for 8 weeks (24 sessions). The levels of depression and life quality were measured before and after the implementation of hydrotherapy by using Beck depression inventory and also the questionnaire of life quality SF36. Data analysis was done using descriptive and inferential statistics and paired t-test and also Kolmogorov-Smirnov test. **Findings:** The mean age of the 15 women participated in the study was 55.62± 4.48. The results of paired t-test show that there is a significant difference between mental aspects of life quality before and after the intervention (p-value=0.001). The results of this test also show that there is a significant difference between the physical aspects of life quality before and after the intervention (p-value=0.002). T test results show that there is a significant difference between the depression level of elderly women before and after the intervention of hydrotherapy exercise (p-value=0.004). **Conclusions:** According to the results of the present study, it appears that the practice of hydrotherapy is effective on reducing depression and increasing the life quality in elderly women and can be considered as an effective method of intervention.

INTRODUCTION

Increasing and rapid growth of aging population and the deep influence of this phenomenon on the social and economic conditions have provided the field of multilateral approaches such as social, physical and psychological attitudes [1]. Aging is considered as a biological phenomenon that is natural and inevitable [2]. Aging is associated with declines in physical and psychological abilities. This issue is associated with machine and sedentary lifestyle of today and it accelerates the process of aging and has doubled physical, mental and social problems. It also imposes enormous costs on society for protecting the health of elderly people [3]. Increasing older population due to the reduction in birth, health improvement and increased life expectancy have increased the necessity to attention to the problems of this group of the society. According to statistics provided by the World Health Organization in 2000, the number of people aged 60 and more was 600 million, and by 2025 this number will reach 2.1 billion [4]. In Iran, according to the census of 1385 (2006), country's aging population will be more evident after 1410 (2031), and the population of people aged 60 and more is estimated as 27.7% and it is expected that elderly population of Iran will show off after 1410 and in this year, about 25 to 30 percent of the population will have more than 60 years and according to several issues, it will highlight elderly people [5]. As a spread word, Life quality consists of different concepts such as physical status, social cohesion, emotional status and health perception and based on medical assessments, it describes issues such as health, the performance of the patient, effect of the treatment and eventually the quality and effectiveness of treatment and patient care [6-7]. Health-related quality of life is affected by disease and its treatment, it is also affected by features such as the ability to cope with problems, living conditions and socio-economic status of an individual [8-9]. In many elderly individuals, aging is associated with loss of energy and fitness and all of these factors reduce the quality of life [10]. In recent years, life quality has become one of the most important clinical research topics and it is used for distinguishing the differences between patients, predicting the consequences of disease and the diagnosis of the extent of effectiveness of interventions in improving patients [9]. Depression is one of the major issues of elderly period and involve many elderly individuals as a result of various factors relevant to the last phase of life such as chronic diseases, the lost of friend and loved ones and the inability to perform one's favourite activities. Elderly people feel that they have lost control of their own lives as a result of poor eyesight, hearing and other physical changes as well as external pressures such as limited financial resources. This kind of issues and problems leads to negative emotions such as sadness, anxiety, low self-esteem, social exclusion and dejection in elderly people and the depression is the most serious mental disorder and a serious and perilous result of these emotions [12]. Various approaches can be used in order to reduce depression and enhance the quality of life. One of the most useful methods is the physical activity and exercise. In addition to the physical benefits, exercise has many psychological benefits among which we can cite stress reduction and life quality enhancement. In general, we can say that aging is associated with continuous and gradual changes that increase chronic discomforts and restrictions in movements [19-20]. As studies have shown, people over 60 years have

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turned significantly from sport and 40% of people aged 65 to 74 years are inactive. However, older adults and elderly people need to exercise to improve their health. By doing exercises, they can have better sense and perceptions of life [21]. And it seems that the most appropriate manner for older people who have restrictions in exercises out of the water is the exercise in water that has a long and considerable history and leads to mental relaxation and pain relief cause buoyancy reduces weight, as a result, it provides comfort and ease in movement in water for people who have trouble moving on land. Resistant properties of water can also have some sort of resistance training conditions and in addition to the physical benefits; they make also spiritual interests [22-23]. Since several studies have been conducted in Iran about elderly people, by reviewing available articles until the present study, we didn't find any research about the effects of hydrotherapy on two factors of life quality and depression in older people and most studies have investigated only one of these two factors. The existence of such a vacuum and also the importance and effectiveness of self-control and non-pharmaceutical intervention methods like training and exercises in water (hydrotherapy) made us conduct the present research with the aim of investigating the effectiveness of hydrotherapy on life quality and depression of elderly women.

MATERIALS AND METHODS

Research Approach

The present study is quasi-experimental with pre-test and pas-test. The statistical population consists of 15 people of elderly women over 55 years that were selected by convenience sampling method. Subjects have voluntarily participated in this study after the completion of consent form. After choosing samples, Beck depression inventory and the questionnaire of life quality were given to them. Then subjects have done exercises in water for 8 weeks under the supervision of experienced instructors in the pool of the city of Jahrom. They did water therapy exercises for 24 sessions (three 60-minute sessions per week). The sessions of water therapy exercises consist of three parts of warming up, exercise and cooling down. The sessions began with ten minutes of walk in water and then the main program began that included stretching, strength and endurance exercises. In the final ten minutes of each session, cooling and balance exercises were done. Finally, at the end of each session, stretching and flexibility exercises were carried out for 5 minutes for taking back elderly people to rest position. After 8 weeks of hydrotherapy, the questionnaires were given again to elderly people. The exercises were performed in afternoon for all patients. Measuring tools of this study consist of: 1.The questionnaire of life quality & 2. Beck depression inventory.

The questionnaire of life quality

For investigating the life quality related to the health position, life quality questionnaire (SF36) were used. Montazeri et al. investigated the validity and reliability of this questionnaire in 2005. This questionnaire contains 36 items with 8 subscales about health conditions. The score is determined according to the number of options for each item. Generally, the questionnaire was divided in two dimensions of physical and mental health. Physical health included subscales of public health, role limitation due to physical reasons, bodily pain and physical function and the factor of mental health included subscales of role limitation due to emotional reasons, social functioning, vitality and mental health. The score of each dimension is calculated based on the score of its subscales. The total score of subscales is calculated and this number will be divided in the number of subscales and in this way, the score of physical and mental factors is calculated. To calculate the total score of the questionnaire, total numbers drawn from each subscale were divided into 8 (total subscales) and the obtained number should be a number between 0 and 100. The lowest score in this questionnaire is 0 and the highest score is 100. 0 shows the worst position and the number of 100 shows the best position in terms of exercises.

Depression inventory

The severity of depressive symptoms of elderly women is measured by Beck Depression Inventory (1961). This inventory contains 28 items. Each item (4 sentences) evaluates one aspect of depressive symptoms that were graded in terms of severity of symptoms. The score will be between 0 (for inexistence of the sign) and 3 (For the most intense position of the sign). The total score of this inventory varies between 0 & 63 and shows respectively the mildest to the most severe degree of the symptom. The total score of an individual will be calculated by adding the scores of each item. The following scores can be used for showing the general level of depression: the score of 0-13 indicates the non-existence or a low degree of depression, the score of 14-19 indicates a mild depression, the score of 20-28 indicates a moderate depression and the score of 29-63 shows an intense depression. Beck reported 81% as the coefficient of Cronbach's alpha [25-26]. Obtained data were analysed by inferential statistics. Normal distribution of data was tested by Kolmogorov-smirnov test, also the calculations of the mean and the standard deviation of the data were done by descriptive statistics methods and the comparison between groups was by inferential statistics (T test and Wilcoxon test). The significance level of P in considered as less than 0.05 (Alpha less than 0.05).

RESULTS
FINDINGS

The mean age of the 15 women participated in the study was 55.62 ± 4.48 . The mean BMI (Body Mass Index) of the women participated in the study was 30.74 ± 5.66 before the intervention and 30.24 ± 5.35 after the intervention of hydrotherapy. The average level of depression before the study was 12.07 ± 7.32 and this level was 4.87 ± 5.30 after the study. This decline in depression level is appropriate. The averages of variables of heart rate, diastolic and systolic blood pressure, weight, BMI and depression have been reduced. The average of other variables have increased.

Table 1: The effect of 8 weeks of hydrotherapy on the physical dimension of life quality

Variable		Difference between before and after	Standard deviation	Confidence interval		t	p-value
				up	down		
Physical dimension of life quality	Before	26.43	6.89	41.22	11.64	3.834	0.002
	After						

The score of physical dimension was obtained from the questionnaire of life quality. This score is between 0-100. T test results in [Table 1] show that there is a significant difference in the physical dimension of life quality, before and after the intervention of hydrotherapy (p-value=0.002). This result shows that 8 weeks of hydrotherapy enhanced the physical dimension of life quality. The rate of this enhancement was 26.43.

Table 2: The effect of 8 weeks of hydrotherapy on the mental dimension of life quality

Variable		Difference between before and after	Standard deviation	Confidence interval		t	p-value
				up	down		
Physical dimension of life quality	Before	23.61	4.35	32.96	14.27	5.423	0.001
	After						

The score of mental dimension was obtained from the questionnaire of life quality. This score is between 0-100. T test results in [Table 1] show that there is a significant difference in the mental dimension of life quality, before and after the intervention of hydrotherapy (p-value=0.001). This result shows that 8 weeks of hydrotherapy enhanced the mental dimension of life quality. The rate of this enhancement was 23.61.

Table 3: Comparison of depression level of elderly women before and after the intervention of hydrotherapy

Variable		Difference between before and after	Standard deviation	Confidence interval		t	p-value
				up	down		
Physical dimension of life quality	Before	-7.2	2.09	11.65	2.70	-3.435	0.004
	After						

The results of T test in [Table 3] show that there is a significant difference in the depression level of elderly women before and after the intervention of hydrotherapy (p-value=0.004). The depression level has decreased after the intervention of hydrotherapy. This result shows that this period of the hydrotherapy practice has been effective on the depression of elderly women and has decreased it.

DISCUSSION

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In many elderly people, the process of aging is associated with loss of power, energy and fitness and all these factors are considered as lowering of life quality. Components of improvement of functional performance that include muscle strength, endurance, balance strength, flexibility and range of motion, both separately and in combination will help elderly people to do a range of everyday required movements and have a more active life and enhance their life quality. In addition, through coherence and effective programs for the improvement of the functional ability, they can prevent the loss of their physical functionality and decrease and postpone it. According to the findings of the present study, there is a significant difference in the life quality of elderly women, before and after the intervention of hydrotherapy. In a study conducted by Bahram et al. (2011) with the objective of investigating of the effectiveness of 12 weeks of selective training of Pilates on life quality of non-athlete elderly men, the results showed that different dimensions of the life quality of elderly men would enhance after one period of selective training of Pilates [27]. Also Igor et al. (2007) have concluded in a study that exercise and physical activity promote the physical function and muscle strength and enhance the score of the evaluation of life quality [28]. The research results of Pengel et al. (2002) show that there was not a significant effect in the enhancement of life quality of subjects after 6-12 weeks of exercise [29]. According to the studies, this result shows that hydrotherapy exercise is not effective on life quality of elderly women, these results are consistent with the findings of Pengel et al. (2002) that after six weeks of training in water, no significant impact was seen in the promotion of life quality of subjects but the results are not in line with the findings of Maher [30], Parker et al. [31], Aslankhani et al. [32], Kargarfard et al. [33], Bahram et al. [27] and Igor et al [28]. In the study of Kargarfard et al. (2001), at the beginning, subjects had a low quality of life, but by time and practice sessions, their life quality improved gradually [33]. It seems that the reasons of life quality enhancement during training exercises in water are followings: 1. Coming out of home and getting into a happy environment 2. More communications with others that improved their social performance (Doing group activities) 3. Some properties of water that are comforting factors. 4. Learn the exercises in the water and the ability to float in a swimming pool increase the self-confidence and a sense of ability in subjects. T test results showed that there is a significant difference in the depression level of elderly women, before and after the prevention of hydrotherapy (p-value=0.004). The depression level has decreased after the intervention of hydrotherapy. This result shows that hydrotherapy exercise has been effective on the depression of elderly women and reduced it. In the study of Dadashpour et al. (2012) with the title of "effects of water treatment practice on the depression level of elderly men", the results indicated that hydrotherapy practice in water is effective on the depression level of elderly men and reduce their depression [34]. Sayyadi Anari et al. (2002) investigated the effects of exercise on depression in elderly women, they concluded that the intervention will lead to a reduction of depression in elderly women [35]. Trivedi et al. (2006) conducted a study to investigate the effect of exercise on the depression. The results show that the hydrotherapy exercises in water reduce depression [36]. Somehow, Barrett and Smerdely [37] didn't find a significant relationship between the physical activity and depression reduction of elderly people in their research. Although the mentioned researches are in line with the results of the present study, but what distinguishes this study was that the exercises were conducted in water that is a suitable environment for elderly people cause the buoyancy of water reduces weight and as a result, it provides a convenient and easy mobility for people who have trouble moving on land. On the other hand, the present study is not consistent with the studies of Barrett, Smerdely and Salmon who have not found a significant relationship between the physical activity and depression reduction in elderly people, the reason of this inconsistency can be the type of practice cause aquatic exercises create comfort and joy [38]. It is possible to use the findings of conducted studies for the society and especially the community of elderly women and create motivations for them. The findings of this research showed that hydrotherapy practice is effective on depression reduction. No significant difference was found concerning life quality and exercise in water. In overall, the results of the study showed that hydrotherapy is effective on depression reduction and factors of life quality of elderly women. Therefore, it is recommended to this part of the society to do these exercises cause it's effective on their life quality and a more joyful life. According to the above findings, we can state that providing the equipments of these sports for the purposes of sports administrators, success in encouraging this stratum of society to exercise in water and also exercise with music as two sports with the right conditions for elderly women reduce significantly the complications and problems of elderly people and machine life and promote the level of their life quality.

CONCLUSION

According to the results of the present study, it appears that the hydrotherapy practice is effective on depression reduction of elderly women and can be considered as an effective intervention method but it has no effect on the life quality of elderly women.

CONFLICT OF INTEREST

There is no conflict of interest.

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FINANCIAL DISCLOSURE

None

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