The effectiveness of cognitive behavioral therapy based on Cash's eight-step model in body image of women with psoriasis

Ladan Esmalian Khamseh, MS [1]
Mehdi Asadi Mofarah, MD [2]
Somayeh Toorani, BSc [3]

1. Faculty of Psychology, Islamic Azad University, North Tehran Branch, Tehran, Iran
2. Dermatology Department, Tehran University of Medical Sciences, Tehran, Iran
3. Faculty of Psychology, Islamic Azad University, Central Tehran Branch, Tehran, Iran

Corresponding author:
Ladan Esmalian Khamseh, MS
Faculty of Psychology, Islamic Azad University, North Tehran Branch, Tehran, Iran
Email: ladanesmailian1995kh@yahoo.com
Phone: +989034327387
Postal code: 19988-33115

Background: Psoriasis is a chronic autoimmune, complex and progressive disease having various physical, psychological and social consequences. This study aimed to investigate the effect of cognitive behavioral therapy on body image in women with psoriasis.

Methods: The research was semi-experimental with pre-test and post-test design in both experimental and control groups, and follow-up after 3 months of intervention. The statistical population included women with psoriasis. A total of 60 patients were selected as available samples and randomly were divided into control and treatment (experiment) groups. The research tool was the cash's Body Image Questionnaire (1987) . Data were analyzed by the SPSS 24 software using the repeated measures analysis of variance.

Results: Cognitive behavioral therapy guidance reduced the image body anxiety and its two sub-scales in women with psoriasis, and this effect was permanent after three months.

Conclusion: Using this therapeutic approach, we can help to reduce the concern of the body image in patients with psoriasis.

Keywords: cognitive behavioral therapy, body image, psoriasis

INTRODUCTION

Skin diseases are considered among the most common human diseases in society, which may result in serious functional defects [1]. Psoriasis (also known as psoriasis in French, which means oysters) is a chronic and systematic inflammation disease [2]. The most common form of psoriasis is psoriasis vulgaris, which occurs as a circular plaque in the extensor parts of the body such as elbows, the lower back, and around the navel [3]. The disease is mostly seen in two age groups having the most likeliness of occurrence, i.e. the age range of 16-22 years, as well as 57-60 years [4]. The newest statistical analyses have revealed that the increasing prevalence rate of the disease among adults living in the United States (91.9%), Norway (8.5%) and the United Kingdom (2.2%), but the lowest prevalence rates have been found in Latin America, India, Africa (Egypt and Tanzania) and Asia (less than 5%) [5]. Inheritance and environment play important roles in the emergence of the disease [6]. The devastating effects of this disease on the patients life quality, and their psychological and social backgrounds are as considerable as the problems and restrictions seen in diseases such as cancer, heart disease and diabetes [7]. Psoriasis also causes many psychological issues such as lack of self-esteem [8], depression [9], sexual dysfunction [10], anxiety and suicide [11]. In addition, one of the main disappointments in patients with psoriasis is their body dysmorphic disorder having a serious relationship with skin

defects caused by psoriasis [12]. Therefore, physical image is a psychological component that is affected by the disease. Physical image includes the emotion that a person has of his or her body's features and structures [13]. In other words, the body image is related to beliefs, perceptions, thoughts or feelings and individual behaviors about his/her physical appearance [14]. Factors such as physical development, individual interactions with the social environment, accidents, diseases, and injuries can influence individuals' physical image. It can also be a source of concern for individuals [15]. Researchers maintain that diseases altering the structure of the body can change the mental image of the body [14]. Negative body image is a factor found in disorders such as depression [16] and sexual dysfunction [17], as well as in chronic diseases [18], including psoriasis. Hence, there is a high correlation between the physical and psychological functions in chronic diseases, reducing self-esteem [19] and leading to poor self-concept [20]. The progressive development of psoriasis and its treatment process are the factors negatively affecting the patients' view of their physical image compared to their healthy counterparts [12]. This is likely to be a result of mood, sexual and familial disorders [21] and facial deformities (especially in patients whose their appearance is important in their careers) [22]. For most patients, facial changes are very painful and even more difficult to deal with than internal organ involvement [23], since the deformity of the face always reminds individuals of their ilness. Therefore, they use emotion-focused adaptive mechanisms (such as avoiding aggression, self-criticism, etc.) impairing adaptation [24]. Furthermore, the vaster the damages to the face and hands, the more concerned patients become about their body image [25]. Various methods such as exercising [26], cosmetic surgery [27] and relaxation therapy [28] have been suggested to encounter body image dissatisfaction. However, cognitive-behavioral therapy seems to be one of the most effective treatments of body image dissatisfaction [29]. Cognitive-behavioral therapy is based on evidence, strategies, and techniques with relevant scientific findings and is carried out through altering the person's incompatible cognitions as one of the major causes of negative thoughts. The use of this method improves the patient's emotional distress and suspicious behaviors [30]. In general, the cognitive behavioral therapy for body image

disorder includes psychology training, self-monitoring, cognitive reconstruction, prevention of negative stimuli exposure, and rigorous training [31]. Research in the field of cognitive-behavioral psychotherapy has demonstrated its success in improving the psychological status of individuals, as Rayegan *et al.* [32] have reported the positive impact of cognitive-behavioral therapy (based on the Cash model) on the negative body image among female students. Various studies have confirmed the impact of cognitive and behavioral therapy, including increase in the quality of life in patients with irritable bowel syndrome (IBS) [33], elevation in the acceptance, commitment, and marital satisfaction of young couples [34], reduction in depression, and increase in the satisfaction with marriage in women with postpartum depression disorder [35]. In addition, it helps patients in the treatment process of insomnia disorder [36], reduces the recurrence of depression [37], and increases the acceptance and commitment of social phobia [38]. Regarding the vast spectrum of the effectiveness of cognitive-behavioral therapy, the main question of the present study is whether the group cognitive-behavioral therapy based on Cash's eight-step model is effective in improving negative body image in women with psoriasis.

MATERIALS AND METHODS

The present study used a quasi-experimental design with a pre-test and post-test followed by a 6-week follow-up. The statistical population included all women with psoriasis referred to Razi Dermatology Hospital during the second semester of 2018. The inclusion criteria were 1. Passing at least one year since the diagnosis, 2. Having an age of 20-35 years old, 3. Being female, 4. Having a minimum education level of reading and writing. In addition, the exclusion criterion was absence in the intervention sessions for 3 times. Using the recorded patient information collected from offices of hospitals and after initial interviews with each patient (initiation and clinical diagnosis), 60 patients willing to be included in the study were selected by availability and purposeful sampling methods. The patients were randomly assigned to two experimental and control groups. Prior to the intervention and in a dedicated session, the ethical considerations were described for the patients. The

patients were familiarized with the nature and objectives of collaboration in the research, gave written informed consent forms, and they were informed that the researcher was committed to keeping all the information confidential. Six sessions of intervention were held for the experimental group (each session lasted 60 to 90 minutes, in a course of 3 weeks). The tools applied in this study included the following:

To collect data, a multidimensional body-self relations questionnaire (MBSRQ) was used, which consisted of two parts of demographic and personal information in 46 items. MBSRQ is a self-assessment scale made by Cash [39] to evaluate body image. There are six subscales in this instrument, including appearance evaluation (AE), appearance orientation (AO), fitness evaluation (FE), fitness orientation (FO), subjective weight (SW), and body areas satisfaction (BAS). The subscale of appearance evaluation involves seven questions with a score range of 7-35. The appearance orientation subscale has twelve questions with minimum and maximum scores of 12 and 60, respectively. The subscale of fitness evaluation has three questions with a score range of 3-15. The subscale of fitness orientation includes thirteen questions with a score range of 13-65. The subscale of subjective weight has two questions with a score range of 2-10. The subscale of body areas satisfaction consists of nine questions with a score range of 9-45. A number of items are reverse-scored questions. The total score obtained by summing subscale scores is considered the total score of body image, which will be in a range of 46 to 230. The individuals are requested to mark their degree of agreement with each question on a five-point scale (completely disagree to completely agree). The responses are scored from 1 to 5 based on the Likert scale. A higher score on MBSRQ indicates greater body satisfaction [32].

Psychometric characteristics of this tool have been approved in many international studies like the one conducted by Annis *et al.* [10]. Rahati conducted research in Iran [41,42] and found a correlation (0.55) between body image and self- esteem ($P < 0.001$). Cronbach's alpha values of 0.85, 0.60, 0.76, 0.46, 0.79, 0.80, and 0.81 were obtained for the total body image and subscales of AE, AO, FE, FO, SW, and BAS among 217 female subjects, respectively. During a study on 67 samples, the correlation coefficient between the scores of two tests during a two-week

interval was calculated to be 0.78 for appearance evaluation, 0.75 for appearance orientation, 0.71 for fitness evaluation, 0.69 for fitness orientation, 0.84 for subjective weight, and 0.89 for body areas satisfaction, which all indicate appropriate test-retest reliability of the scale. In addition, Cronbach's alpha values of the total scale and its subscales in the resrach ocnducted by Raghibi and Minakhani [43] were 0.74, 0.74, 0.80, 0.76, 0.66, 0.78, and 0.71, respectively. In this research, the reliability was confirmed via Cronbach's alpha with the values of 0.88, 0.80, 0.91, 0.84, 0.79, 0.90, and 0.82, respectively.

The intervention group, received cognitive-behavioral body image therapy based on the Cash's eight-step model in six sessions of 60 to 90 minutes during three weeks (twice a week), while the control group did not receive any training related to body image but regular care. After 6 weeks, the post-test was conducted on both groups by completing MBSRQ, measuring their weight, and calculating body mass index. The framework and content of cognitive-behavioral therapy sessions (Table 1) were designed and implemented based on Cash's eight-step model (2008). In the first session, a teamwork package was distributed to the subjects, and its summary on pamphlets was presented to the subjects to be reviewed.

The data obtained from 60 participants (30 in the intervention group and 30 in the control group) were analyzed using the IBM SPSS (Statistical Package for the Social Sciences) software version 24. First, we used the Shapiro-Wilk test to assure that the obtained data on the variables had a normal distribution; therefore, the condition of parametric tests is available. The entire comparisons were made between two domains, and the significance level was considered $P < 0.05$. To describe the sample, descriptive statistics including mean and standard deviation were used, and to compare dependent variables in both intervention and control groups, independent T-test was used. We applied Levene's Test to assess the homogeneity of variances of dependent variables calculated in both intervention and control groups as presuppositions in order to use the analysis of covariance (ANCOVA) test. This test was used to evaluate the effectiveness of cognitive-behavioral therapy in a total score of body image and its constructs. Furthermore, the effects of some intervening variables such

Table 1. Framework and contents of cognitive-behavioral therapy sessions

Session	Description
1st Session	Introduction, the definition of body image and the problems arising from body dissatisfaction, group discussion about appearance changes related to psoriasis; body image self-assessment tests
2nd Session	Recognizing negative body image roots in the past and present; training mindful self-monitoring technique; training body image ABCs; training to write a daily diary of body image; implementing mirror reflection technique
3rd Session	Reviewing assignments; training mindfulness and acceptance techniques; training systematic desensitization technique; recognizing and correcting current hypothesis related to the appearance; recognizing and correcting cognitive distortions of appearance
4th Session	Reviewing assignments; training, understanding, and confronting with body image evasive actions such as escaping and hiding; understanding, confronting, delaying, and restricting obsession techniques of appearance; the technique of exposure and response prevention
5th Session	Reviewing assignments; relaxation training; diaphragmatic breathing and mental imagery; training to meet body's rights; exercising positive and suitable physical activities; training to enjoy time following improvement of fitness and appearance, as well as amplifying sentience
6th Session	Reviewing assignments; training protective methods of positive body image; confronting with people who disturb the patients' body image; examining the participants' progress; continuing to use the skills acquired in training

as age, weight in the post-test stage, body mass index in the post-test stage, and education level were considered.

RESULTS

Participants with a minimum age of 20 and a maximum age of 33 were selected in the intervention group. The mean and standard deviation values were calculated to be 25.64 ± 3.18. Furthermore, patients with a minimum age of 20 and a maximum age of 34 were selected in the control group. The mean and standard deviation values were calculated to be 25.23 ± 3.97. The results of the independent T-test showed no statistically significant difference between the two groups in terms of age ($P = 0.681$).

Moreover, the minimum, maximum, and mean values of weight in the intervention group were 37.50, 87.00, and 59.00 ± 10.72 kg, respectively. In addition, the mentioned values were 42.30, 85.20, and 60.22 ± 10.12 kg in the control group, respectively. According to the results obtained from the independent T-test, there was no statistically significant difference between the two groups in terms of weight ($P = 0.649$). In the intervention group, the mean height was 158.19 ± 8.23 cm, which was in the range of 142.00 to 177.00 cm, while in the control group, it was 159.15 ± 6.63 cm, which was in the range from 146.00 to 173.00 cm. The results obtained from the independent T-test showed no statistically significant difference between the two groups in terms of height ($P = 0.620$). Moreover, the minimum and maximum values of the body mass index in the intervention group were 16.89 and 29.87, respectively, with the mean of 23.74 ± 3.39.

According to the results of the independent T-test ($P = 0.878$), these values were not significantly different from those of the control group.

In addition, the Chi-square test showed no significant difference between the two groups of intervention and control in terms of education level ($P = 0.7$).

The independent T-test showed that the scores of body image ($P = 0.7$), appearance evaluation ($P = 0.7$), appearance orientation ($P = 0.5$), fitness evaluation ($P = 0.8$), fitness orientation ($P = 0.8$), subjective weight ($P = 0.4$), and body areas satisfaction ($P = 0.5$) were not significantly different between the two groups in the pre-test stage. In the post-test stage, however, there was a statistically significant difference in the subscale of appearance evaluation ($P = 0.016$). Table 2 presents the mean and standard deviation of scores in the whole-body image and its constructs (in MBSRQ) in both intervention and control groups in pre-test and post-test stages.

Considering age, post-test weight, post-test body mass index, education level, and ethnicity variables as covariate and controlling the pre-test scores, the results of analysis of covariance (ANCOVA) for each variable demonstrated that the mean score of appearance evaluation ($P = 0.0001$), mean score of body areas satisfaction ($P = 0.0001$), and mean score of body image ($P = 0.0001$) in the post-test stage in the intervention group were significantly higher than the corresponding scores in the control group. In other words, the cognitive-behavioral body image therapy changed the variables among the participants of the intervention group. Table 3 present a summary of the results of the analysis

Table 2. Mean and standard deviation of scores of whole-body image in both intervention and control groups in pre- and post-intervention stages

Variable Group	Intervention Group		Control Group	
	Pre-Intervention	Post- Intervention	Pre-Intervention	Post- Intervention
Appearance evaluation	22.61 ± 5.33	24.83 ± 4.43	23.10 ± 5.31	21.08 ± 5.15
Appearance orientation	47.54 ± 6.07	49.93 ± 5.77	46.60 ± 6.40	49.90 ± 6.28
Fitness evaluation	10.51 ± 2.77	10.06 ± 2.59	10.66 ± 2.60	10.53 ± 2.83
Fitness orientation	42.64 ± 8.96	41.74 ± 8.40	43.06 ± 9.20	41.46 ± 8.48
Subjective weight	5.87 ± 2.39	6.12 ± 2.20	6.33 ± 2.27	6.16 ± 2.24
Body areas satisfaction	30.29 ± 6.07	33.45 ± 5.39	31.26 ± 5.83	31.33 ± 5.12
Body image	159.48 ± 23.14	166.16 ± 20.81	161.03 ± 22.56	159.20 ± 22.39

Table 3. Results of analysis of covariance of the effectiveness of cognitive behavioral therapy in primiparous women's body image upon control of pre-test scores and some demographic variables

Origin of Changes	Total squares	Degree of freedom	Mean squares	The variance ratio test (F test)	P-Value	Degree of effectiveness	Test power
Age	89.55	1	89.55	1.29	0.26	0.025	0.20
Education level	196.75	1	196.75	2.44	0.10	0.054	0.38
Ethnicity	3.33	1	3.33	0.05	0.83	0.001	0.06
Post-test body mass index	91.51	1	91.51	1.32	0.26	0.026	0.20
Post-test weight	174.57	1	174.57	2.52	0.12	0.048	0.34
Group	984.29	1	984.29	14.18	0.00	0.221	0.59
Error	3471.03	50	69.42				
Total	1643777.00	61					

of covariance related to the effectiveness of the intervention in body image scores.

However, there was no significant difference between the intervention and control groups in the mean of appearance orientation ($P = 0.4$), fitness evaluation ($P = 0.5$), fitness orientation ($P = 0.2$), and subjective weight ($P = 0.3$) in the post-test stage via analysis of covariance test.

DISCUSSION

This research was conducted to evaluate the effects of cognitive-behavioral therapy on the body image of women suffering from psoriasis who were referred to Razi Hospital in Tehran in 2018. The results demonstrated that group cognitive behavioral therapy based on Cash's eight-step model was a suitable method to improve total body image and some of its aspects among women with psoriasis. The findings of this study are in line with the results of previous studies focusing on the effect of cognitive-behavioral therapy on other groups, including the effectiveness of cognitive-behavioral therapy in negative body image [44-46], body image of women under mastectomy [47], and body image of Iranian girl students [32].

To explain the findings, it can be mentioned that psoriasis has many physical consequences altering the appearance and mental self-image. Accordingly, the perception of body image influences different aspects of one's life like inner experiences (feelings, behavioral desires, thoughts, etc.) in different situations [48]. Therefore, it is an essential factor in determining the way to interact with others [15]. An inappropriate perception of body image and dissatisfaction with it can lead to physical and psychological complications [49]. In this study, we attempted to inform our patients of the cognitive-behavioral psychotherapy group about their physical and psychological conditions by establishing an appropriate therapeutic relationship and empathizing with patients, along with raising their awareness [50].

Raising awareness makes patients to be aware of their here-and-now experiences with interest and acceptance, changes their view on the usefulness of dealing and coping with his thoughts and emotions, and lead them to correct their unpleasant emotions. Therefore, patients will feel that they have more control over his/her emotions [51]. Raising awareness is based on the acceptance of unpleasant thoughts and different emotional states, and will dramatically enhance patients' ability to control the influence of their thoughts, in

addition to heightening their emotions. This will allow the patient to experience various thoughts and emotions without experiencing emotional disturbance [52]. When patients gain acceptance over their inner experiences, even painful and unpleasant emotions, thoughts, memories, and feelings, they do not find them to be intimidating or intolerable. Becoming aware of this strategy will help patients to change their relationship with their painful thoughts and feelings, and lessen their impact on their lives. In other words, psychological flexibility allows patients to respond to new experiences with openness and accept events as they are [53]. Raising awareness will assist the patients to cope with their negative thoughts (dissatisfaction and body image concern) impeding their emotional well-being and maintaining their emotional stability. Emotional stability enables patients not to focus on disturbing thoughts, and let them pass through their minds, thereby enabling them to overcome their negative spontaneous thoughts and emotions. Raising awareness and paying more attention to emotions and thoughts also make the patient to act more responsibly and effectively.Moreover, being in a group and listening to other patients' personal experiences determine where patients stand, thereby enabling them to cope with the catastrophe, because they achieve the notion that they are not the only ones suffering in this group. This interventional process gives them hope and, ultimately, the ability to regulate their behavior, thoughts, feelings, and performance, and lessen the psychological effects of the illness [54] such as body image and mental and behavioral components. For example, instead of avoiding oneself and others, patients engage in courageous behaviors, and instead of focusing on eliminating the traumatic factors of the disease and its consequences, patients accept emotions and thoughts and quit conflicting with them. Therefore, each of the components of cognitive-behavioral therapy can play a crucial role in reduction of anxiety about body image.

CONCLUSIONS

The results confirmed the effectiveness of cognitive-behavioral therapy based on Cash's eight-step model in body image and several considerable body image constructs such as appearance evaluation and body areas satisfaction among women suffering from psoriasis. We can use this appropriate treatment simply, for example, in the form of a self-study booklet to improve the problems associated with body image among different groups of patients. A positive mental image of the body will result in promoting patients' mental health, improving self-confidence, enhancing the degree of satisfaction and quality of their relationships, and finally experiencing a more pleasant life.

Conflict of Interest: None declared.

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