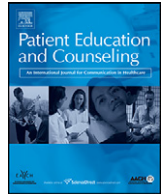




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Dance therapy improves self-body image among obese patients

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ABSTRACT

Objective: Obesity and disturbed eating behaviors are both associated with low self-esteem and distorted body images. The aim of this study was to assess the influence of a dance therapy program on the evolution of mental representations linked to body image among obese patients. Changes in body image were evaluated in terms of four parameters: physical, psychological, cognitive, and social.

Methods: In total, 18 obese patients were enrolled in a longitudinal dance therapy workshop (DTW) program lasting 36 weeks. Patients danced for 2 h per week and were evaluated three times: at baseline, after 18 weeks, and at the end of the study (36 weeks). Evaluation was performed using questionnaires addressing health-related quality of life, sensorial-motor perception, and mental representations linked to body schema and self-body image.

Results: Obese patients enrolled in the DTW displayed a significant improvement in health-related quality of life ($p < 0.03$), body consciousness ($p < 0.001$), and mental representations linked to self body image ($p < 0.001$).

Conclusion: DTW allowed obese patients to reset both their somatic and psychic consciousness of their body image.

Practice implications: Patients are usually reluctant to practice physical activity. Dance therapy improves not only body image, but also psycho-social aspects of their personality.

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1. Introduction

Low self-esteem and distorted body-image frequently accompany obesity and altered eating behaviors, actively contributing to the vicious circle of restrictive diets and binge eating [1,2].

More often than not, obese individuals are cut off from feelings and emotions coming from their bodies due to their sometimes traumatic familial or social background [3]. They cling to their body envelope which according to them, shelters and protects. Whenever these individuals lose weight too quickly, they perceive a threatening gap and lose their bearings. This often leads to a resumption of weight to feel safe [4].

The body language of obese individuals is commonly restricted to a few movements, and obese people feel that they have little ability to move their bodies. Thus, they feel little or no desire to do so. Moreover, their perception of the body at rest or in motion is distorted, translating as a negative image [5,6]. An obese person

often has the sensation of being a rigid mass, moving as a block. Thus, bodily tensions occur in posture and gait, and a poor sensory-motor perception prevents them from accessing their body schema and building a positive body image [7–11].

Enriching the vocabulary of movement in this obese population provides an opening to other ways of being and existing [5,12–14].

Our research hypothesis as illustrated in Fig. 1 is that dance therapy would allow obese patients to develop their body consciousness and improve their mental representations [15–17]. Furthermore, they would become capable of owning and transforming these latter issues to improve their psychic and somatic self-body image [18–20].

The amendment process, starting from a body with vague definitions, would awaken the patient's senses in terms of kinesthetic, exteroceptive, proprioceptive, and interoceptive sense. Thus, being more aware of themselves, obese patients would be able to access phenomenal knowledge, enabling them to be more conscious of their mental representations [20].

Hence, these changes would tend to improve the self-image of obese patients and help them to develop improved self-esteem. Moreover, the motivation to look after their bodies and health, change their eating behavior, and ultimately lose weight would be strengthened. Becoming aware of sensory-motor perceptions would help these individuals define their own body boundaries

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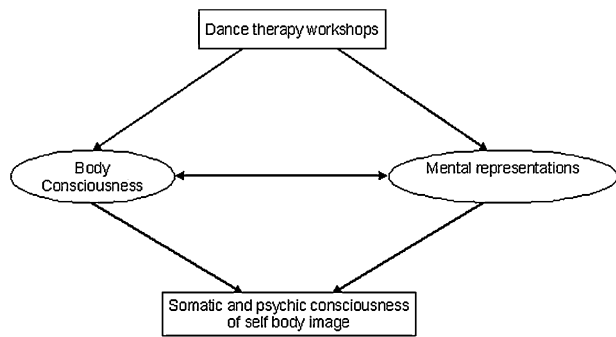


Fig. 1. Process of body image amelioration through dance therapy.

and set limits, as well as differentiate themselves from the environment and so act alone or with others. They would be better able to communicate with others and the surrounding space.

1.1. Aim

The purpose of this study was to determine the influence of a dance therapy workshop (DTW) program on the development of mental representations associated with body consciousness and self-image in obese individuals. Changes in body image were evaluated according to four parameters: physical, emotional, cognitive, and social.

2. Methods

The patient population involved 18 females, with a mean age of 44.6 ± 2.4 years and a mean body mass index (BMI) of $36.7 \pm 1.2 \text{ kg m}^{-2}$. These obese patients were recruited into the study via physicians working in a standard obesity weight loss program.

Dance therapy was proposed to patients instead of conventional physical activity workshops. All patients remained in the study until the end of the program, with the compliance rate exceeding 90%.

Inclusion criteria were BMI > 30 and being able to walk 10 m without assistance. Exclusion criteria were patients with unbalanced mental diseases such as psychosis that would interfere with group therapy, foot ulcers at the moment of data acquisition, and orthopedic surgical or neurological problems (other than diabetic neuropathy) that affected gait.

Our patient population presented several obesity co-morbidities, notably type 2 diabetes mellitus, arterial hypertension, coronary artery disease, hyperlipidemia, depression, and bipolar disorder, while some of the patients had suffered sexual abuse.

Protocol: Patients participated in group workshop sessions for 2 h per week for 36 weeks. During the 36-week program, they worked on posture, mindful walking, tension relaxation, body image, and movement reeducation based on sensory–motor connections and developmental movement therapy. During these workshops, patients learned to evaluate their body image in their daily lives using observation tools.

2.1. Example of a workshop

Initially, a warm-up was offered with fast movements, so that patients did not have the time to think about their body and what they should be doing. The aim of this warm-up was to achieve a state called “mobile” [21], where only bodily sensations are paramount.

In the second stage, patients became aware of their muscle and psychological tensions, and worked on relaxation and breathing exercises. They also worked on movement re-education based on

sensory–motor connections, phylogenic and ontogenetic movement history, and movement analysis [10,11,15]. This technique led to understanding how thoughts and feelings of the mind are expressed through body in the movement.

Finally, there was an exploration phase during which patients used the authentic movement technique [19], where they improvised dances based on a personal theme, learning to inhabit their personal space and interact with the surrounding space [16,18,19]. Patients discovered and welcomed the sensations, memories, emotions, and mental representations that emerged from their body perception during the improvised dance and in turn, nourished their body image. Following a verbal summary, which was often accompanied by drawings to express the content of patient experiences, the meeting was adjourned.

2.2. Evaluation

2.2.1. Data collection methodology

Quality of life related to health, body consciousness, and mental representations were assessed on three occasions: at baseline, after 18 weeks, and at the end of the study (36 weeks). Quality of life was assessed using the Impact of Weight on Quality of Life (IWQOL)-Lite measure [22], a self-administered questionnaire specifically designed for obese patients. This survey specifically highlighted how weight affected the patient’s social and professional life, self-esteem, sexual life, and physical function.

Body consciousness and mental representations were evaluated using Laban movement analysis [23] and developmental movement patterns from Cohen [24]. These coding approaches were previously used by several authors [25–27], assessing the following criteria:

- *Posture*: body alignment, foot support, and foot position;
- *Mindful walking*: foot support, foot position, and body part mobility;
- *Muscular tensions*: location in the body and context in which the tensions appeared;
- *Relaxation*: means and frequency;
- *Developmental movement patterns*: navel radiation as well as spinal, homologous, homolateral, and contralateral patterns;
- *Mental representations through movement analysis*: maximum score of 74 and minimum of 17.

2.3. Statistical analysis

Quantitative variables were expressed as means and standard deviation. Due to the limited sample size, the evolution of each variable over time was evaluated using Friedman’s test, while comparing the results at three different time-points. The level of statistical significance was set at $p < 0.05$. Data was analyzed and figures were constructed using the SPSS 15.0 statistical package (SPSS Inc.).

3. Results

Body consciousness and mental representations improved significantly throughout the study, with the results summarized in Table 1.

- Posture showed a significant improvement from baseline (13.8 ± 2.9) to the end of the study (22.3 ± 3.5 ; $p < 0.001$).
- Mindful walking improved significantly from baseline to the end of the study ($p < 0.001$).
- Despite a significant improvement in tension scores, patients had difficulties in releasing tensions on a daily basis. However,

Table 1
Body consciousness and mental representations.

	Baseline	18 weeks	36 weeks	<i>p</i>
Posture	13.8 ± 2.9	18.7 ± 2.7	22.3 ± 3.5	0.001
Mindful walking	9.0 ± 2.0	11.3 ± 1.6	12.3 ± 1.7	0.001
Tensions	3.0 ± 0.7	3.8 ± 0.1	4.0 ± 0.8	0.001
Relaxation	3.0 ± 1.0	3.8 ± 0.1	4.0 ± 0.8	0.001
Patterns of motor development	5.3 ± 1.0	8.1 ± 1.5	8.3 ± 1.4	0.001
Mental representations	4.9 ± 1.0	7.2 ± 1.1	7.6 ± 0.8	0.001
Total score	37.6 ± 6.1	52.6 ± 5.1	58.2 ± 5.8	0.001

Table 2
Quality of life assessment using the IWQOL-Lite.

	Baseline	18 weeks	36 weeks	<i>p</i>
Self-esteem	34.9 ± 30.0	38.5 ± 36.3	44.1 ± 30.4	0.08
Physical function	50.5 ± 25.9	55.8 ± 27.5	55.8 ± 28.8	<0.05
Work	69.2 ± 27.5	72.8 ± 24.8	75.1 ± 23.1	0.17
Public distress	80.4 ± 15.7	75.4 ± 19.9	80.4 ± 15.1	0.65
Sexual life	60.7 ± 37.9	60.7 ± 39.8	61.2 ± 33.7	0.87
Total score	52.3 ± 22.6	55.0 ± 26.1	59.9 ± 22.2	<0.03

patients were able to relax with the help of someone while negative thoughts disappeared, and in turn, they observed the sensations of relaxation and had positive mental representations. Some of them started to relax only 3 times per week on average. Tension scores peaked at 36 weeks.

- Patterns of motor development displayed a significant improvement throughout the study ($p < 0.001$).

The results of the health-related quality of life analysis are provided in Table 2. As shown, both global scores ($p < 0.03$) and mobility subscale scores ($p < 0.05$) significantly improved after 36 weeks.

Body weight remained globally unchanged throughout the duration of the study. Nevertheless, among the 18 patients, five lost 5.0 ± 1.0 kg on average, five maintained their body weight, while the remaining eight gained 4.2 ± 1.5 kg on average.

4. Discussion and conclusion

4.1. Discussion

The vast majority of obese patients suffer from low self-esteem and distorted body images [1–3]. The main purpose of this study was to assess the influence of a particular DTW on the evolution of mental representations linked to self-body image among obese patients.

Our data showed that obese patients enrolled in the 36-week DTW program exhibited a significant improvement in health-related quality of life ($p < 0.03$), body consciousness ($p < 0.001$), and mental representations linked to body image ($p < 0.001$). These achievements were independent of body weight, which remained unaltered.

Posture and mindful walking evolved significantly throughout the study (Table 1). As patients learned to correct their posture when sitting or standing, it became easier for them to adapt their posture when practicing mindful walking. Although the pelvis did not shift easily from one hip to another, the sensations in the feet became more attuned to the ground and therefore, their weight was better distributed on both feet. The mobility in the arms and spine remained restricted and limited.

The significant improvement in motor development patterns throughout the study (Table 1) was likely the consequence of work performed on the sensory–motor connections, which helped movement reeducation. Patients had a clearer body perception

and were more likely to perform a sequence of motion. Self-body image was hence strengthened. Patients found pleasure in performing the exercises and expressed positive feelings that in turn enhanced them.

Patients had to go through the lengthy process of unwinding past associations around body perceptions in order to construct new relations, which would motivate them to change their self-representation. Dance therapy in a peer group reassured patients. They did not fear the gaze of others, but instead developed a sense of belonging, which changed their attitude toward themselves. Hence, they developed social skills and self-care competencies.

Body consciousness and mental representations improved significantly throughout the study (Table 1). Patients became gradually aware of their body parts. They went through a process of analyzing their body movements and language, perceiving their bodies as articulated and fluid rather than as a rigid mass. Gradually, patients were able to free themselves from the psychic and motor block preventing them from developing a positive self-perception.

The IWQOL-Lite (Table 2) only revealed a significant improvement in two out of the six items assessed throughout the study, namely physical function and total score. Surprisingly, self-esteem as well as professional, social, and sexual life failed to show any significant improvement during the study period. We believe that this lack of significance should be considered in the context of our preliminary study, which was not sufficiently empowered due to the small sample size. The primary endpoint of this study was nevertheless reached. Further studies with a larger patient population, longer duration, and presence of a control group are warranted, particularly when combining dance therapy with a multifaceted approach integrating diet and psychological supervision.

Upon these findings the doctor–patient communication will be facilitated as it gives information on the patient's abilities to observe his functioning and it gives the opportunity to the therapist–doctor communication to develop a global approach of their patient. Dance therapists are able to share information with professionals on health care self competences and psychosocial competences.

They are able to throw light on the patients' capacities to be more in tune with their body sensory perceptions, on their ability to express one's needs and feelings about their health and their ability to use their own natural body and mind resources.

4.2. Conclusion

DTW allowed obese patients to improve their body consciousness, self-body schema, and mental representations. In addition, they improved both somatic and psychic consciousness associated with their body image.

4.3. Practice implications

In obesity treatment, DTW would appear to benefit patients rather than physical activity training. As patients are usually reluctant to practice physical activity, dance therapy improves not only body image, but also psycho-social aspects of their personality. Following DTW, some patients even have the confidence to participate in dance classes in the community.

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Conflict of interest

The authors declare no conflict of interest.

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