



Physical Body, Imaginary Body, Symbolic Body: Investigating the Latent Dimensions of Change

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Authors' contributions

This work was carried out in collaboration between both authors. Author LS designed the study, performed the statistical analyses, wrote the protocol and wrote the first draft of the manuscript. Author ABM contributed to the theoretical section and to the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

Background and Objectives: We present a pilot study of arts psychotherapy proposed in combination with cognitive restructuring techniques to N=13 adult women affected by a disturbed body image, low self-esteem and depressive tendencies in relationship with obesity.

Methods: The methodology of evaluation is based on a psychometric scale (SVF 78), projective tests (Rotter's Sentences Blank and TAT), a semi-structured self-evaluation form for the patients and an evaluation questionnaire (FBB) for the therapist. Original rating scales were constructed for the projective tests.

Results: The results of the study show a positive evolution on coping strategies with stress and anxiety, self-esteem, emotional stability and autonomy in social relations. With the help of the Non Linear Principal Components Analysis (PRINCALS) applied on the Delta values of different tests, the latent dimensions of change could be explored.

Limitations: This exploratory study does not aim at statistical generalization but at demonstrating

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new treatment and evaluation options, opening tracks for future research.

Conclusions: In the context of a sequential design, the application of Optimal Scaling procedures on Delta values seems very promising for the evaluation of psychotherapies in general.

Keywords: Cognitive restructuring; identity; obesity; optimal scaling; pathology of body image; primitive expression.

1. INTRODUCTION

The links between obesity and pathology of the body image are currently the topic of many studies. It is particularly the concept of body dissatisfaction [1,2] that intervenes as modulating variable. This feeling seems to be characteristic of Western culture. In other cultures, like in traditional African cultures, canons of beauty are not at all turned towards slimness and obesity has not the same adverse effect on self-esteem. In fact, body image is a polysemous construct having all the connotations of the representations of the physical body, the imaginary body and the symbolic body. With obese patients, unlike persons suffering from anorexia or bulimia nervosa, the representation of the body proportions is mostly realistic, but it often has a very negative emotional connotation.

In a prior transversal study we compared patients suffering from obesity and binge eating tendencies with patients suffering from anorexia and bulimia nervosa and with a control group of healthy women without obesity [3]. According to the findings of the study, an adapted psychotherapeutic treatment was proposed to the former, combining techniques of cognitive restructuring with the use of appropriate artistic mediations, especially primitive expression [4,5], rhythmical improvisation and role playing. A longitudinal study aimed at evaluating the efficiency of this integrated therapeutic approach.

1.1 Theoretical Background: Obesity and Self-image

The chronology of body image pathology and anxious or depressive tendencies was discussed in the literature [6-8].

Obesity can be experienced as a permanent psychic stressor triggering a depressive state that tends to be compensated by food. Many obese people successively experience the effects of fasting and restriction during the times when they try to lose weight and the effects of binge eating when they give this attempt up. From the point of view of health psychology,

eating habits can be considered as a kind of coping strategy: Confronted with problematic situations, the person is incapable of confronting her overwhelming emotions and she takes refuge in the pleasure of eating.

Overeating can reduce the feelings of anxiety and depression. If it is a habitual coping strategy, it can indicate a deficiency of the emotional regulation [9]. The incapacity to manage and elaborate anger and shame on an imaginary and symbolic level contributes to the establishment of a vicious circle between body dissatisfaction and compulsory eating [10-12]. The perception of pain can also be replaced by binge eating.

However, the traditionally recognised links between obesity and low self-esteem should be revised. A study by Friedman and collaborators [13] shows that body dissatisfaction modulates the relation between obesity and psychological distress, but there is no linear relation. There seems to be a difference related to age groups: sociocultural pressures imposing slimness are rather felt during adolescence, while adult women are more often able to develop a feeling of personal value based on competence and are thus less vulnerable to cultural norms [14].

Prior personal studies [15,3] showed the proximity of the two sub-groups of patients suffering from anorexia and bulimia nervosa regarding repression of the affective needs. On the contrary, in the group of patients suffering from obesity, the expression of these needs was more direct. These patients are characterised by an inhibition of the expression of negative feelings but not by an incapability to verbalise their feelings in general. On the contrary, they express a big need for acceptance by others, corresponding to a trend towards separation anxiety. Regarding the use of dysfunctional coping strategies, persons suffering from obesity are halfway between those suffering from anorexia or bulimia nervosa and those being part of the control group.

Educational measures aiming at the development of a healthier way of life, of a balanced diet and of adjusted physical activity

[16,17] are currently completed by techniques of emotional regulation [18] and cognitive restructuring [19]. The psychotherapeutic options belonging to the cognitive-behavioural tradition were used since the seventies [20].

For people suffering from deeper psychological distress or from more important identity problems, an appropriate kind of psychotherapy can consist in combining cognitive restructuring and emotional regulation techniques with arts therapies, allowing developing the capacity of imaginary and symbolic elaboration. Promising results were obtained with the artistic mediations of painting or modelling, bringing the imaginary body to life [21-23] or with dancing, enhancing the feeling of embodiment and physical competence [24,25].

We will present an evaluation study of arts psychotherapeutic group sessions, combining cognitive restructuring with primitive expression [26,4,27] and role playing. From the methodological point of view, it will be interesting to consider the results of an application of Optimal Scaling procedures on the Delta values of different tests, exploring thus the latent dimensions of change [28].

The aim of the prospective longitudinal study consists in exploring the effects of cognitive restructuring in combination with arts psychotherapy, at the light of the following research questions:

- Are there significant changes between pre-test and post-test at the level of self-esteem, coping strategies with stress and anxiety, self-image, emotional stability, initiative and autonomy in social relations?
- Is it possible to extract meaningful latent dimensions underlying the observed changes?
- Is the subjective impression of the therapist and the patients concordant with the results of the statistical analyses?

2. METHODS

2.1 Participants

The sample is composed of 13 women of European ethnicity.

Mean age: 47, 43 (SD±8,44) years; current weight: 75, 69 (SD± 6,67) kg.

The participants suffered from obesity according to the medical definition and were confronted

with low self-esteem and depressive tendencies. From a medical point of view, a person is considered to be obese if the adipose mass exceeds 25% of the body weight with a man and 30% of the body weight with a woman [29]. Patients with a heavy physical comorbidity (such as diabetes or severe cardiac pathologies) did not participate to the study.

As we conducted an action research in a naturalistic setting, there were no other selection criteria besides the above mentioned inclusion and exclusion criteria.

2.2 Research Tools

In pretest-posttest situation, we proposed the following tests:

- Stressverarbeitungsfragebogen [30]
- Rotter's Incomplete Sentences Blank [31]
- Thematic Apperception Test [32].

After the end of treatment, the patients participated to a semi-structured interview and the therapist responded to an evaluation questionnaire, the FBB [33].

The SVF 78 (Stressverarbeitungsfragebogen) is an instrument for studying coping strategies in stress and anxiety situations. It is composed of the following basic dimensions:

Positive strategies 1: belittlement, minimisation (focus on the emotions)

Positive strategies 2: amusement, compensatory satisfaction (focus on the situation)

Positive strategies 3: control of the situation, self-control, positive autosuggestion (focus on the cognitive restructuring)

Negative strategies: escape, rumination, resignation, self-accusation (focus on the emotions)

Rotter's Incomplete Sentences Blank was used originally for evaluating the adjustment to different areas (familial, social, professional, sexual, health). However, prior personal research showed that a certain number of clinical indicators could appear by means of this instrument. The rating scale we developed helps us identifying the following dimensions: the representation of the Self, the Ideal Self that can either be adequate, hypertrophic or underdeveloped, the expression of professional and relational goals, the quality of the current interpersonal relations [34].

In a similar manner, a rating scale for the Thematic Apperception Test (TAT) was constructed. The basic dimensions are the following: general content, reactions of the hero, identification, conduct style, defence mechanisms, emotional tonality, relationship with parents, relationship with pairs, formal qualities, conclusion [35].

The FBB (Fragebogen zur Beurteilung der Behandlung) considers the subjective appreciation of the therapist regarding the quality and efficiency of the treatment.

2.3 Statistical Procedures

As we work with small groups and data belonging to a mixed level of measurement, we use non parametric statistical procedures, i.e. Wilcoxon's Sign- rank test for the pre-test/ post-test comparisons, Spearman's Rho for the correlational studies, Optimal Scaling (PRINCALS) for the multidimensional studies.

Our pilot study was done in a person-centred perspective, managing a great number of variables per participant instead of a great number of participants per variable. It illustrates an innovative and promising approach to the exploration of the psychotherapeutic process.

2.4 Methodology of Treatment

The patients were treated in an outpatient psychiatric setting. They assisted to weekly two-hour group sessions during three months. The therapists had a Master degree in Multimodal Arts therapies. Verbal techniques derived from the cognitive-behavioural tradition (CBT) were completed by a special type of dance therapy, called "primitive expression" [4,27], by rhythmical improvisation and by role playing. The verbal elaboration took an important part of the sessions. Primitive expression (Rhythm Dance Therapy) is based on popular dance and music styles belonging to tribal as well as contemporary cultures. Its effects are linked to rapid rhythms and strong movements [36,37].

While primitive expression and rhythmical improvisations were focused on the release of tensions and on the experience of the vitality and physical competence of the body, role playing aimed at the development of assertiveness in front of others. Cognitive restructuring techniques were used in order to address underlying identity problems and self-image disturbances. The

intervention aimed at integrating the physical body (the body that appears in the mirror), the imaginary body (the emotionally invested representation of oneself, the loved or hated body) and the symbolic body (the body as metaphor and value, tool of action and communication with the outside world).

The combination of artistic mediations with CBT was also tested in other parts of a multi-annual research project [38].

3. RESULTS

3.1 Comparative Study

3.1.1 At the SVF 78 (Table 1)

The evolution goes towards an increase of positive coping strategies. In a paired control group of N=30 healthy women without obesity (tables not shown here), the changes taking place in the coping strategies during the same amount of time were only minimal, remaining within to the reliability coefficient of the test.

Table 1. SVF 78; Wilcoxon's sign-rank test

Variable	Z	Signif. (bilateral)	Direction of the difference
Social retreat	-2.384	.017	PostT<PreT
Self-control	-2.232	.026	PostT<PreT
Aggressiveness	-2.201	.028	PostT<PreT
Negative strategies	-2.197	.028	PostT<PreT
Rumination	-2.032	.042	PostT<PreT
Taking of medicine	-1.633	.102	PostT<PreT

3.1.2 At the Rotter test (Tables 2 and 3)

In the third person items, the professional goals tended to increase between pre-test and post-test.

Table 2. Rotter He; Wilcoxon's sign-rank test

Variables	Z	Signif. (bilateral)	Direction of the difference
Professional goals	-1.732(c)	.083	PostT>PreT

In the first person items, the expression of guilt decreased while the expression of the separation anxiety increased. On the other hand, the expression of hatred, the mention of familial and professional conflicts and the manifestation of a hypertrophic Self-Ideal tended to decrease.

Table 3. Rotter I; Wilcoxon's sign-rank test

Variables	Z	Signif. (bilateral)	Direction of the difference
Guilt	-2.449	.014	PostT<PreT
Separation anxiety	-2.000	.046	PostT>PreT
Hatred	-1.732	.083	PostT<PreT
Hypertr. Self-Ideal	-1.732	.083	PostT<PreT
Conflicts Family	-1.732	.083	PostT<PreT
Conflicts Work	-1.732	.083	PostT<PreT

3.1.3 At the TAT (Table 4)

At the TAT, there is an increase of the emergence of long-term time perspectives, a variable linked to the capacity of symbolisation, and a decrease of moralising tendencies. The description of a positive emotional atmosphere and the idealisation also has a tendency to increase.

In general, the projective tests show a decrease of depressive tendencies and an evolution towards better capacities of mentalization.

Table 4. TAT; Wilcoxon's sign-rank test

Variables	Z	Signif. (bilateral)	Direction of the difference
Long-term time perspectives	-2.041	.041	PostT>PreT
Absence of a moralising mindset	-1.890	.059	PostT>PreT
Euphoria	-1.857	.063	PostT>PreT
Idealisation	-1.807	.071	PostT>PreT

3.2 Multidimensional Study (Princals)

We present the results of the Non Linear Principal Components Analysis (PRINCALS) in 2 dimensions, applied on the Delta values of the Tat and the Rotter test (with separate measures for Rotter He and Rotter I). The two-dimensional solution meets the Eigenvalue criterion of Bühl & Zoefel [39]. Tables 5 and 6 show the correlations of the variables with the principal components.

As the saturation of the principal components is very similar for the items of Rotter He and Rotter I, the same denomination can be proposed for the interpretation of the dimensions.

3.2.1 Proposal of denomination of the first dimension

Negative emotional tonality / positive emotional tonality

3.2.2 Proposal of denomination of the second dimension

Orientation towards the future / fixation on the worries of the past

The latent dimensions underlying the measured changes are meaningful at the light of the reported state-of-the-arts on obesity and psychological co-morbidities.

3.3 Correlational Study between Final Judgment of Therapist and Self-evaluation of Participants

We will present a study of the correlations between the "impressions of the therapist" and the Pre-test / post-test variations obtained in the TAT and the SVF78.

3.3.1 Correlations between the Delta variables of the TAT and the therapist's appreciation (FBB) (Table 7)

There are significant correlations between variables linked to emotional maturation in the TAT and a positive appreciation of the therapeutic outcome.

3.3.2 Correlations between the Delta variables of the SVF78 and the therapist's appreciation (FBB) (Table 8)

The significant correlations between the therapist's final appreciation (FBB) and the Delta values of the TAT, respectively the SVF 78, document his awareness of the increase of the patients' capacity of symbolic elaboration, of the improvement of the formal qualities of their texts, of the more positive emotional tonality, of the decrease of dysfunctional adjustment strategies and of the increase of autonomy. The participants express concordant appreciations in their self-evaluation.

4. DISCUSSION

In general, the links between obesity and associated psychopathology are not uniform, as obesity can appear with any type of structural organization of the personality [40], i.e. with a neurotic, borderline or psychotic personality organization. Research literature showed that people suffering from obesity and body dissatisfaction can present deeper problems of identity [6]. Identity allows keeping a coherent image of oneself and realising one's aspirations in the context of a given society, confronted with

a given culture and in relationship with others [41].

We have seen that our results go towards a better capacity of the imaginary and symbolic elaboration of the tensions of daily life, an increase of the capacity of initiative and a more serene emotional mind-set, which is an essential condition if one has to escape the vicious circle of emotional instability and binge-eating [1,11]. The stories of the TAT are characterized by a better formal quality in post-test, indicating a development of the mentalizing capacity. Out of

this, a better capacity to confront stress and anxiety arises. In fact, the results on the psychometric scale are convergent with those of the projective tests: according to the SVF 78, the use of functional coping strategies increased. As the manifestations of a hypertrophic Self-Ideal tend to decrease in post-test, we can assume that some narcissistic wounds begin to heal. The latent dimensions extracted with the help of Optimal Scaling correspond to major aims of the treatment: improvement of the basic emotional tonality and emergence of new energy directed towards the future.

Table 5. Princals: Delta values TAT and Rotter He

Variable		Dim 1	Variable		Dim 2
TAT Resignation	-	.990	TAT Positive paternal image	+	.822
TAT Depression	-	.962	Rotter He Goals friendship	+	.811
Rotter He Nostalgia	-	.961	Rotter He Distress	-	.810
TAT Pessimism	-	.961	TAT Blockade	-	.714
TAT Submission	-	.961	TAT Differentiated vocabulary	+	-.714
TAT Splitting tendencies	-	.882	Rotter He Conflicts work	-	-.736
TAT Anger	-	.793	TAT Moral preoccupations	-	-.745
TAT Hetero-aggression	-	.731	TAT Identification with victim	-	-.791
Rotter He Hatred	-	.731	Rotter He Jealousy	-	-.811
Rotter He Goals family	-	.731	Rotter He Hypertrophied self-ideal	-	-.811
TAT Fast rhythm	+	-.722	TAT Negative paternal image	-	-.811
Rotter He Regret	+	-.731	TAT Negative maternal image	-	-.811
TAT Isolation	+	-.814	TAT Anxiety	-	-.871
TAT Self-assertion	+	-.870	TAT Long term perspectives	+	-.908
TAT Sociability	+	-.880			
TAT Serenity	+	-.925			
TAT Rivalry	+	-.961			
TAT Euphoria	+	-.961			
TAT Optimism	+	-.978			

Table 6. Princals: Delta values TAT and Rotter I

Variable		Dim 1	Variable		Dim 2
TAT Resignation	-	.973	TAT Positive paternal image	+	.991
TAT Depression	-	.922	Rotter I Guilt	-	.716
TAT Submission	-	.922	Rotter I Goals family	-	.716
TAT Pessimism	-	.915	TAT Positive maternal image	+	.706
TAT Splitting tendencies	-	.903	Rotter I Hatred	-	-.706
TAT Isolation	+	.839	Rotter I Pessimism	-	-.716
TAT Anger	-	.810	TAT Negative paternal image	-	-.716
Rotter I Nostalgia	-	.718	TAT Negative maternal image	+	-.716
TAT Hetero-aggression	-	.718	TAT Moral preoccupations	-	-.722
TAT Identification with victim	-	.715	Rotter I Hypertroph. Self-Ideal	-	-.727
TAT Flexible style	+	-.716	Rotter I Conflicts with family	-	-.737
Fast rhythm	+	-.748	TAT Anxiety	-	-.986
Rotter I Jealousy	-	-.823	TAT Long term perspectives	+	-.987
TAT Sociability	+	-.870			
TAT Serenity	+	-.898			
TAT Self-assertion	+	-.899			
TAT Euphoria	+	-.911			
TAT Rivalry	+	-.926			
Rotter I Professional goals	+	-.926			
TAT Optimism	+	-.940			

Table 7. Spearman's Rho on Delta TAT and FBB

Variable TAT		Variable FBB	Spearman's Rho	Signif. (bilateral)
Hostile feelings	-	Positive emotional evolution	.900	.006
Negative maternal image	+	Positive emotional evolution	.896	.006
Long-term time perspectives	+	Beneficial treatment	.890	.007
Hostile feelings	-	Taking advice	.843	.017
Detailed vocabulary	+	Beneficial treatment	.816	.025
Idealisation	+	Beneficial treatment	.808	.028
Serenity	+	Enjoying work	.808	.028
Flexible style	+	Beneficial treatment	.808	.028
Neutrality	-	Refusing advice	.791	.034
Neutrality	-	Beneficial treatment	-.766	.045
Resignation	-	Enjoying work	-.756	.049

Table 8. Spearman's Rho on Delta SVF78 and FBB

Variable SVF78		Variable FBB	Spearman's Rho	Signif.. (bilateral)
Minimisation	-	Refusing advice	-.913	.004
Diminution of guilt	+	Taking advice	-.762	.047

Let us stress, that the combination of cognitive restructuring, primitive expression and role playing contributed to the positive results and that no single determinants were isolated in an experimental manner. We can assume that cognitive restructuring allowed addressing the problems of cognitive restriction [42], respectively of shame linked to social stigmatisation [10,12], whereas primitive expression and role playing address more directly the disturbances of the body image [24], as the physical body becomes a source of vitality and as it interacts directly with other persons [5,43,44]. The neuropsychological effects of rapid rhythms and strong movements have recently been documented [25,37].

As to the elaboration of negative feelings, we saw that, in the post-test situation, the separation anxiety could be better expressed in the projective tests, but that feelings related to interiorized aggression, like hatred and guilt, appeared less frequently. These feelings can point to more fundamental problems of self-image [9,10]. For some patients, especially for those with a borderline functioning, the treatment needs to continue beyond the short period of three months.

From the methodological point of view, the results of the study tend to show the interest of a combination of psychometric scales, the answers to which can be influenced by factors of social desirability, and of projective tests, that are more liable to show the hidden facets of personality. Applying Optimal Scaling on Delta values, in

order to investigate the latent dimensions of change, can open tracks for future research on psychotherapy [28].

The limits of the study regard the limited size of the sample. However, in the evaluation of psychotherapies, we are very often confronted to small groups as, according to Wampold's considerations [45], it is not justified to add the data coming from different therapists, even if all of them apply the same therapeutic techniques. The conclusions of outcome studies with small samples, using non-parametric statistical procedures, have to be considered as exploratory and are not generalizable from a statistical point of view. They could however contribute to a theoretical generalisation within a sequential design, leading to a meta-analysis of a great number of single studies. In the context of a person-centred strategy (assembling many data per patient considering different methodological approaches), a sequential strategy [46] is perhaps the most pertinent solution to the problems discussed by Wampold.

5. CONCLUSION

Our results suggest that the combination of cognitive restructuring with artistic mediations involving the whole body could profitably contribute to the elaboration of obese patients' psychological problems and that it could hence have its place among a multi-disciplinary approach of this major concern of national health. The eclectic approach we present allows

reconciling the representations of the physical body, of the imaginary body and of the symbolic body and could, in the long term, improve the identity problems underlying the pathology of the body image.

CONSENT

Informed consent was obtained from all the individual participants included in the study.

COMPLIANCE WITH ETHICAL STANDARDS

All procedures were in accordance with the ethical standards of the institution and/or National Research committee and with the 1964 Helsinki declaration and its later amendments.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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