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Original Research

The Potential of Positive Affirmations to Addressing Body Image Concerns among Individuals with Diabetes Mellitus

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Abstract

Body image disturbances are a common psychological challenge among patients with Diabetes Mellitus (DM), influenced by the physical and emotional toll of the disease. Body dissatisfaction can negatively impact self-esteem, adherence to diabetes management, and overall quality of life. Positive affirmations, rooted in self-affirmation theory, have improved body image in various populations. However, there is limited research on the application of positive affirmations as an intervention for body image in DM patients. This study evaluated the effectiveness of a structured, positive affirmation intervention in improving body image among patients with Diabetes Mellitus using a quasi-experimental one-group pretest-posttest design. The study involved 40 adult DM patients participating in a 4-week positive affirmation program. Body image outcomes were measured pre-and post-intervention using the Multidimensional Body-Self Relations Questionnaire – Appearance Scale (MBSRQ-AS). The primary outcomes were changes in appearance evaluation, appearance orientation, body area satisfaction, and self-classified weight. Paired sample t-tests were used to analyze pre- and post-intervention differences, with effect sizes calculated using Cohen's *d*. Significant improvements were observed in appearance evaluation ($p < 0.001$, $d = 0.91$), body area satisfaction ($p < 0.001$, $d = 0.80$), and self-classified weight ($p < 0.01$, $d = 0.76$). Appearance orientation decreased significantly ($p < 0.01$, $d = 0.66$), indicating a reduced focus on external appearance. The intervention showed firm effect sizes across all body image dimensions. Positive affirmations effectively improved body image among DM patients, with significant improvements across multiple dimensions. This intervention offers a practical, low-cost strategy for addressing body image disturbances, potentially enhancing the psychological and physical wellbeing of DM patients. Future studies should explore long-term effects and compare the intervention with other psychosocial approaches in diverse populations.

Keywords: Diabetes Mellitus, Positive Affirmations, Body Image

INTRODUCTION

Diabetes mellitus (DM) is a primary contributor to kidney failure, heart attacks, stroke, blindness, and lower limb amputation. The prevalence has been increasing more rapidly in low- and middle-income countries than high-income countries. According to the IDF Diabetes Atlas, the global prevalence of DM in 2021 in people aged 20-79 is estimated to reach 10.5% or around 536.6 million people. The prevalence of DM is expected to increase to 12.2% or around 783.2 million people by 2045 (International Diabetes Federation, 2019)(Lin et al., 2020).

DM patients worldwide in 2021, with around 140.87 million people affected by the disease. India comes second with 74.19 million patients, followed by Pakistan with 32.96

million and the United States with 32.22 million. Indonesia ranked fifth among the ten countries with the most diabetics in the world in 2021. About 19.5 million people in Indonesia had diabetes in that year, representing an increase of 81.8% compared to the previous year. The prevalence of diabetes in Indonesia in 2021 is estimated to reach around 10.6% (Carmichael et al., 2021)(MoH of Republic Indonesia, 2018). According to data from the Padang City Health Office, the Andalas Padang Health Center has the highest incidence of diabetes mellitus (1,237 cases overall) in Padang City.

The complication of DM has an impact on the patient's psychology, which can cause body image disturbances in the patient. Patients suffering from diabetes mellitus will affect the appearance of the body, especially will have an impact on body image, so it is very important for diabetes mellitus clients to improve adjustments in dealing with the disease process and the consequences of the disease (Budiman et al., 2020).

Body image is a critical psychological dimension of health, reflecting an individual's perceptions, thoughts, and feelings about their body. In patients with chronic illnesses such as DM, body image dissatisfaction is prevalent, stemming from disease-related physical changes, weight fluctuations, and the psychological burden of managing a lifelong condition (Pereira et al., 2020). Research has shown that body dissatisfaction can lead to detrimental outcomes, including poor self-esteem, depression, and reduced adherence to diabetes management protocols (Jaser & White, 2011). Given the psychosocial complexities associated with DM, addressing body image concerns in this population is crucial for improving both psychological wellbeing and disease management.

Positive affirmations, a cognitive-behavioral technique grounded in self-affirmation theory, have gained attention as a promising tool for improving self-concept and body image (Chen et al., 2022). Self-affirmation theory posits that individuals can maintain self-integrity by focusing on core values, even when confronted with threats to their self-concept, such as body dissatisfaction (Cornelissen et al., 2021). Through repetitive positive self-talk, positive affirmations allow individuals to reframe negative beliefs about their bodies, promoting body acceptance and reducing appearance preoccupation. This technique has shown effectiveness in improving body image in diverse populations, including individuals with eating disorders, obesity, and chronic health conditions (Gonzalez et al., 2022)(Anderson et al., 2023). However, limited research has explored the utility of positive affirmations in improving body image, specifically in DM patients.

The Multidimensional Body-Self Relations Questionnaire–Appearance Scale (MBSRQ-AS) is a widely used instrument for assessing body image, particularly in clinical and research settings focusing on appearance-related self-perception (Cash & Smolak, 2011). This tool provides a comprehensive measure of body image dimensions, including appearance evaluation (AE), appearance orientation (AO), body area satisfaction (BASS), and self-classified weight (SCW). Its use in studies on chronic illness populations, including DM patients, allows for a nuanced understanding of how body image evolves in response to interventions like positive affirmations.

This study addresses a critical gap in the literature by examining the effects of a positive affirmation intervention on body image outcomes in DM patients. Given the role of body image in both psychological wellbeing and diabetes self-care, it is essential to explore cost-effective, accessible interventions that can be integrated into routine diabetes management. By leveraging the cognitive benefits of positive affirmations, this study hypothesizes that DM patients will experience significant improvements in body satisfaction, appearance evaluation, and weight perception following the intervention.

METHODS

This study utilized a quasi-experimental one-group pretest-posttest design to evaluate the effect of a positive affirmation intervention on body image in patients with DM. In this design, all participants will be assessed before and after the intervention without a control group.

The study participants were adult patients diagnosed with Type 2 Diabetes Mellitus, who were recruited from March to August 2023 at the Andalas Public Health Center (PHC), Padang City. The participants were aged 30 to 65, had been diagnosed with diabetes for at least six months, and expressed concerns about their body image. Individuals with psychiatric disorders, severe diabetic complications, or involvement in other psychological or body image interventions were excluded from the study. A total of approximately 40 participants were enrolled in this study, with effect sizes (Cohen's $d = 0.5$) and a significance level of 0.05 and 80% statistical power.

The intervention will entail a structured four-week program based on positive affirmations, designed to enhance body image. The affirmations will be tailored to the specific concerns of each participant. They will be conveyed on a daily basis via text messages or a mobile health application, with the objective of fostering positive self-perceptions and bodily acceptance among the participants.

The Multidimensional Body-Self Relations Questionnaire-Appearance Scale (MBSRQ-AS) was employed for the purpose of measuring body image. The MBSRQ-AS comprises 34 items and five subscales that assess body image orientation and evaluation, with a particular emphasis on physical appearance. The comprehensive version of the questionnaire excludes components pertaining to the assessment and evaluation of physical condition and health. The MBSRQ-AS is comprised of two original inventory variables and three supplementary scales. The MBSRQ-AS is comprised of four subscales: The four subscales are Appearance Evaluation (AE), Appearance Orientation (AO), Body Areas Satisfaction (BASS), and Self-Classified Weight (SCW). This version is recommended when the objective is to evaluate appearance-related aspects of body image and there is no interest in scales pertaining to health. The questionnaire has been validated for use in evaluating various aspects of body image, encompassing appearance evaluation, appearance orientation, satisfaction with body parts, and self-identified weight. It has been extensively utilized in clinical and non-clinical populations (Brown et al., 1990).

The data were collected at two time points: the pretest (baseline), which was conducted prior to the commencement of the intervention, and the posttest (after four weeks). At the pretest, the participants completed the MBSRQ-AS to assess their initial body image perceptions. At the posttest, the participants completed the MBSRQ-AS again to evaluate the changes in body image dimensions that occurred over the course of the four-week intervention. Pretest and post-test scores from the MBSRQ-AS were compared using paired-sample t-tests to evaluate the effectiveness of the positive affirmation intervention in improving body image across the four subscales. Effect sizes were calculated to determine the magnitude of the changes.

RESULTS

Participant Characteristics

A total of 40 participants completed the study. The demographic characteristics of the sample are summarized in Table 1.

Table 1. Participant Demographics (N=40)

Variable	Mean ± SD or %
Age (years)	45.6 ± 9.3
Gender (% female)	65%
Duration of Diabetes (years)	7.1 ± 3.5
Baseline BMI (kg/m ²)	29.8 ± 4.1

Most participants were female (65%), and the mean age was 45.6 years. The average duration of diabetes was 7.1 years, and the mean baseline BMI indicated an overweight population.

Body Image Changes Pre- and Post-Intervention

The changes in body image across the four subscales of the Multidimensional Body-Self Relations Questionnaire - Appearance Scale (MBSRQ-AS) are shown in Table 2.

Table 2. Pre- and Post-test MBSRQ-AS Scores (N=40)

MBSRQ-AS Subscale	Pretest Mean ± SD	Post-test Mean ± SD	p-value	Cohen's d
Appearance Evaluation (AE)	3.2 ± 0.8	4.0 ± 0.6	<0.001	0.91
Appearance Orientation (AO)	4.0 ± 0.5	3.6 ± 0.7	0.005	0.66
Body Areas Satisfaction (BASS)	2.9 ± 1.1	3.7 ± 0.9	<0.001	0.80
Self-Classified Weight (SCW)	3.5 ± 0.7	3.0 ± 0.6	0.002	0.76

The data in Table 2 show statistically significant improvements in body image following the 4-week positive affirmation intervention. Appearance Evaluation (AE): Participants' satisfaction with their overall appearance increased significantly from a pretest mean of 3.2 ± 0.8 to a post-test mean of 4.0 ± 0.6 (p < 0.001). The Cohen's d value of 0.91 indicates a large effect size, suggesting a substantial improvement in participants' body satisfaction. Appearance Orientation (AO): There was a reduction in participants' focus on their appearance, with AO scores decreasing from 4.0 ± 0.5 at pretest to 3.6 ± 0.7 post-intervention (p = 0.005). This shift in orientation suggests participants became less preoccupied with their appearance, and the effect size (d = 0.66) reflects a moderate improvement in their approach to body image. Body Areas Satisfaction (BASS): Specific satisfaction with different body areas significantly increased, as shown by a rise from 2.9 ± 1.1 to 3.7 ± 0.9 (p < 0.001). This significant effect size (d = 0.80) suggests participants became more satisfied with various body parts, likely due to the daily positive affirmations helping to shift their self-perception. Self-Classified Weight (SCW): Participants' perceptions of their weight became more realistic and positive, with SCW scores improving from 3.5 ± 0.7 to 3.0 ± 0.6 (p = 0.002). The moderate effect size (d = 0.76) indicates a significant improvement in how participants view their weight, which could help reduce body dissatisfaction related to weight misclassification.

DISCUSSIONS

The primary objective of this study was to evaluate the effectiveness of a structured 4-week positive affirmation intervention on improving body image among adults with Diabetes Mellitus (DM) using a quasi-experimental one-group pretest-post-test design. The findings demonstrate significant improvements in several key dimensions of body image, including overall appearance evaluation, body area satisfaction, and weight perception, as measured by the Multidimensional Body-Self Relations Questionnaire – Appearance Scale (MBSRQ-AS). The significant increase in Appearance Evaluation (AE) scores post-intervention suggests that the positive affirmations profoundly impacted participants' self-perception of their physical appearance. This aligns with existing literature, which emphasizes the role of cognitive reframing and self-affirmation in enhancing body image, particularly in populations with chronic health conditions who may experience additional body dissatisfaction due to disease-related changes (Sharouni et al., 2022)(Robbins et al., 2019). This finding aligns with research by (Cornelissen et al., 2021), who demonstrated that individuals who engaged in positive self-affirmation exercises showed marked improvements in body image perceptions across different populations, including those with chronic conditions. In this study, the large effect size (Cohen's $d = 0.91$) for AE suggests a robust improvement in body image, underscoring the potential of affirmations as a psychological tool for DM patients. Appearance Orientation (AO) scores decreased significantly following the intervention, indicating a reduced preoccupation with physical appearance. This is a notable finding, as body image disturbances are often associated with heightened appearance orientation and investment in external appearance (Chen et al., 2022). The observed reduction suggests that participants may have shifted their focus from external appearance concerns toward a more balanced and less appearance-centered perspective, facilitated by repeated positive affirmations emphasizing self-worth beyond physical attributes. Body Area Satisfaction (BASS) also showed significant improvement, with participants reporting greater satisfaction with specific body parts post-intervention. This result is particularly relevant for DM patients, as they may be prone to body dissatisfaction due to weight gain, scarring, or physical changes related to diabetes management (Jannoo & Mamode Khan, 2019). This mirrors findings from a study by (Gonzalez et al., 2022), who observed that positive self-talk interventions significantly improved body area satisfaction in patients with chronic illnesses, including those with physical disabilities. In both studies, participants developed a more positive relationship with their bodies, suggesting that positive affirmations may be particularly effective in populations experiencing heightened body dissatisfaction due to illness or disability. The large effect size (Cohen's $d = 0.80$) indicates that the affirmations effectively promoted a more positive perception of these areas, potentially contributing to overall wellbeing and body acceptance.

Interestingly, the Self-Classified Weight (SCW) scores indicated a significant shift toward a more realistic self-perception of weight. Misclassification of weight is a common issue in body image disturbances, where individuals often perceive themselves as heavier or thinner than they are, leading to unhealthy attitudes or behaviors (Thompson & Stice, 2001). A recent randomized controlled trial by (Anderson et al., 2023) Anderson et al. (2023) focused on positive self-affirmations in overweight populations found similar improvements in weight perception, with participants showing a reduction in weight misclassification and a healthier relationship with body image post-intervention. This study's moderate effect size (Cohen's d

= 0.76) suggests that positive affirmations may help recalibrate body weight perception, promoting a healthier and more realistic body image among DM patients.

These findings have important implications for both theory and practice. From a theoretical perspective, the results support the application of self-affirmation theory in improving body image outcomes. According to Steele (1988), self-affirmation enables individuals to restore their sense of self-integrity when confronted with threats, such as negative self-perceptions or chronic health conditions. In this context, positive affirmations acted as cognitive tools that restructured participants' beliefs about their bodies, facilitating a more positive and realistic self-view. This supports recent evidence from (Petty & Cacioppo, 2022), who argue that self-affirmation interventions can serve as protective factors against the negative psychological impacts of chronic illness by enhancing resilience and promoting self-compassion. Clinically, these findings highlight the potential of positive affirmations as a low-cost, scalable intervention for improving body image in DM patients. Integrating positive affirmations into routine diabetes care could address the psychological needs of patients who experience body dissatisfaction as part of their disease management. Given that body image disturbances have been linked to poorer diabetes self-care and mental health outcomes (Jaser & White, 2011), the inclusion of psychological interventions that improve body image may also enhance overall disease management and quality of life.

Despite the promising results, this study has several limitations. The sample size was relatively small and homogenous, consisting primarily of middle-aged adults with Type 2 Diabetes Mellitus, which may limit the generalizability of the findings to other populations or those with different forms of diabetes. Expanding the study to include a more extensive and more diverse sample would enhance the robustness and applicability of the results. The short-term nature of the study also raises questions about the sustainability of the observed improvements; thus, long-term follow-up studies are necessary to determine if the benefits of the intervention persist over time. Future research should aim to replicate these findings in larger and more diverse populations, potentially including individuals with Type 1 Diabetes or younger age groups who may have different experiences with body image. Additionally, investigating the mechanisms of action behind positive affirmations—such as whether the effects are mediated by changes in self-esteem, mood, or cognitive restructuring—would provide valuable insights into how affirmations can be optimized for clinical use. Further studies should also explore the synergistic effects of combining positive affirmations with other psychosocial interventions, such as cognitive-behavioral therapy (CBT) or mindfulness-based strategies, to determine whether a multi-modal approach yields more significant improvements in body image and overall psychological well-being.

CONCLUSIONS

In conclusion, the present study provides compelling preliminary evidence that positive affirmations can effectively enhance body image in patients with diabetes mellitus, as evidenced by significant changes in appearance evaluation, body satisfaction, and weight perception. These findings highlight the potential of straightforward, affirming statements to address the psychological aspects of chronic illness, offering a practical intervention for enhancing the quality of life for individuals managing diabetes. Future research should build upon these promising results by employing more rigorous study designs and investigating long-term outcomes to fully assess the clinical utility of positive affirmations in this population.

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