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Development of a Dialectical Behavior Therapy Intervention Package for Patients with Obesity

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A B S T R A C T

The present study aimed to develop a dialectical behavior therapy (DBT) intervention package for patients with obesity. This study was qualitative in nature and employed a meta-synthesis strategy with a synthesis research approach to extract the components of the therapeutic package from valid sources. To determine the sample, two sampling frameworks were considered: (1) studies accessible through computerized databases, including the Noor Specialized Journals Database, the Iranian Journals Database, the Academic Center for Education, Culture and Research (ACECR) Scientific Database, and Google Scholar; and (2) student theses available in the Iranian Research Institute for Information Science and Technology (IRANDOC). Subsequently, findings related to the selected documents within the relevant research domain were analyzed, coded, and categorized with the aim of developing a DBT intervention package for patients with obesity as a novel product, and the main themes of the therapeutic package were extracted. After validation using the Content Validity Index (CVI) and the Content Validity Ratio (CVR) by a panel of 15 experts, the intervention package was finalized. Based on the obtained data and prior studies, DBT was coded and categorized into eight therapeutic themes: conceptualization, distress tolerance and flexibility, states of mind, emotion regulation, nutrition and body-related considerations, chain analysis of events influencing overeating, management of maladaptive behaviors and cognitive patterns, and mindfulness. These findings can be utilized in psychological intervention programs for patients with obesity.

Keywords: *Dialectical Behavior Therapy, Obesity, Synthesis Research.*

1. Introduction

Obesity is a chronic and multifactorial condition that extends far beyond excess body weight and is now widely understood as a complex interaction among biological, behavioral, cognitive, emotional, interpersonal, and environmental processes (Agüera et al., 2021; Mohajan & Mohajan, 2023). Although body mass index remains one of the most common anthropometric indicators for identifying obesity in adults, the clinical meaning of obesity cannot be reduced to a numerical index alone, because obesity is frequently accompanied by impairments in quality of life, psychological distress, maladaptive eating patterns, and diminished self-regulatory capacity (Kahal et al., 2019; Mohajan & Mohajan, 2023; Rahmani & Omidi, 2019). Recent evidence has also shown that obesity in women is associated with broader lifestyle risk configurations and poorer mental health, indicating that interventions limited to calorie restriction or weight-focused advice do not fully address the psychological burden carried by many patients (Ebrahimi et al., 2025). In parallel, physiological interventions such as calorie restriction and physical activity may improve inflammatory indices and weight-related outcomes, yet such changes are often difficult to maintain if the underlying emotional and behavioral drivers of overeating remain untreated (Doroodian, 2025). This broader view has encouraged researchers and clinicians to conceptualize obesity not simply as a nutritional or endocrine problem, but as a condition requiring integrated psychological intervention alongside medical and behavioral care (Agüera et al., 2021; Golabi et al., 2019).

One of the most clinically significant psychological processes associated with obesity is dysregulated eating, particularly emotional eating, binge eating, and recurrent loss-of-control eating (Agüera et al., 2021; Tanofsky-Kraff et al., 2020). Binge-eating phenomena are especially important because they connect weight-related problems with shame, self-criticism, impulsive responding, emotional avoidance, and repeated failures of self-management (Agüera et al., 2021; Tanofsky-Kraff et al., 2020). Early local evidence also documented problematic eating behaviors among obese individuals attending health centers, suggesting that maladaptive eating patterns are not peripheral findings but central components of the obesity experience (Faqih & Anoosheh, 2008). Nutrition literacy and dietary quality likewise show meaningful associations with obesity, yet knowledge alone is often insufficient to produce sustainable behavioral change when eating is used as a strategy for affect regulation or coping with internal distress (Golabi et al., 2019). Developmental models of binge-eating disorder further indicate that recurrent loss of control over eating is shaped by emotional vulnerability, reward sensitivity, stress, and deficits in self-regulation, thereby linking obesity-related eating problems to transdiagnostic psychological mechanisms rather than to willpower alone (Padmala et al., 2019; Tanofsky-Kraff et al., 2020). For this reason, a treatment model for obesity that can directly target emotional eating, impulsivity, distress intolerance, and maladaptive cognitions is clinically warranted.

A substantial body of research has shown that emotional processes play a decisive role in overeating and obesity. Emotional awareness deficits, difficulties in identifying inner states, and problems in regulating aversive affect can increase the likelihood that eating will become a rapid but maladaptive means of tension reduction (Herwig et al., 2018; Rommel et al., 2012). Emotional eating in obese women has been linked to lower emotional awareness, while broader findings from affective science suggest that reward motivation can intensify emotional processing and thereby make highly palatable foods especially compelling under conditions of stress or dysphoria (Padmala et al., 2019; Rommel et al., 2012). In many patients with obesity, the behavioral sequence is not merely hunger followed by eating, but rather distress, self-judgment, craving, impulsive intake, short-term relief, and subsequent guilt or self-blame. This pattern is particularly important because self-blame and rumination can maintain cycles of psychological suffering and disordered eating over time (Vakili et al., 2024). Likewise, dysfunctional thoughts and rigid cognitive appraisals can intensify negative affect and reduce adaptive problem solving, thereby increasing reliance on maladaptive coping behaviors (Rezaei et al., 2011). Research on cognitive flexibility has demonstrated that the ability to shift perspective and generate alternative responses is a critical adaptive resource, and reduced flexibility may leave individuals vulnerable to repetitive, emotionally driven eating patterns (Dennis & Vander Wal, 2010). Consequently, effective interventions for obesity should address not only eating behavior itself but also the emotional and cognitive architecture that sustains it.

Within this context, third-wave behavioral approaches have gained increasing relevance because they emphasize acceptance, mindfulness, emotional processing, and flexible behavioral change rather than narrow symptom suppression. Mindfulness-based approaches have shown value in

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improving emotion regulation, reducing perceived stress, and promoting adaptive self-observation in clinical populations (Mousavi et al., 2020; Mousavinejad et al., 2018). In obesity specifically, mindful eating interventions have been associated with weight loss, better self-efficacy, improved emotion regulation, and healthier eating patterns in women with obesity (Jasemi Zargani et al., 2021). Cognitive strategy training has also been found to reduce eating and improve food choice, supporting the broader proposition that eating behavior can be modified through psychologically informed self-regulation skills (Boswell et al., 2018). At the same time, acceptance-based interventions have produced beneficial effects on self-worth and resilience in obese women, which suggests that approaches focused on experiential acceptance and values-consistent behavior can contribute meaningfully to obesity treatment (Khatibi et al., 2025). These developments collectively indicate that obesity interventions benefit when they move beyond advice-giving and engage deeper mechanisms such as attention regulation, acceptance of internal experiences, cognitive reappraisal, and self-directed behavioral control.

Dialectical behavior therapy has particular promise in this regard. Originally developed by Linehan as a comprehensive treatment emphasizing mindfulness, distress tolerance, emotion regulation, and interpersonal effectiveness, DBT is grounded in a biosocial model that conceptualizes severe behavioral dysregulation as emerging from the interaction between emotional vulnerability and invalidating learning environments (Linehan, 2015; Linehan & Alavi, 2014). Contemporary clinical introductions to DBT further highlight that its structure is especially useful for conditions characterized by impulsive, avoidant, and affect-driven behaviors, making it a strong candidate for adaptation to eating-related pathology (Gottlieb et al., 2022). One of the core strengths of DBT is that it does not treat maladaptive behavior merely as a problem to suppress, but as an attempt to regulate unbearable internal states; therefore, treatment seeks simultaneously to validate emotional pain and build more effective coping responses (Linehan, 2015). Meta-analytic findings indicate that distress tolerance is a relevant transdiagnostic construct across eating disorders and other forms of dysregulation, reinforcing the fit between DBT and patients whose eating behavior escalates when distress becomes difficult to bear (Mattingley et al., 2022; Vujanovic et al., 2017). In practical terms, DBT may help patients with obesity by teaching them how to notice urges without acting impulsively, tolerate craving-related discomfort, regulate intense emotions, and replace self-defeating cognitive patterns with more balanced and flexible responses.

Empirical findings in eating-related and obesity-related populations increasingly support this expectation. Early work showed that DBT could reduce binge eating and depression while increasing self-esteem in women with binge-eating disorder (Soleimani, 2008). Research in bulimia nervosa has likewise demonstrated positive effects of DBT on body image, self-efficacy, binge-eating symptoms, and anxiety sensitivity (Abolghasemi & Jafari, 2012; Masrour & Toozandehjani, 2019; Nasri et al., 2019; Pourmohammad, 2014). Later studies reported that DBT-based techniques improved symptoms of bulimia nervosa and reduced maladaptive eating-related experiences through components such as mindfulness, distress tolerance, and emotion regulation (Nazemi et al., 2022; Pourmohammad, 2022). In individuals with bulimia nervosa, DBT has also been associated with improvement in attachment style, interpersonal adjustment, and communication patterns, indicating that its effects may extend beyond symptom reduction to broader psychosocial functioning (Ghasemi & Atashpour, 2023). These findings are clinically important because obesity frequently co-occurs with interpersonal strain, negative body evaluation, shame, and chronic self-criticism, all of which may reduce adherence to health-promoting behaviors and maintain disordered eating cycles.

Evidence specific to obesity has also become more substantial. DBT has been shown to reduce negative emotions and support weight loss in obese women (Homayounpour et al., 2022). It has also improved self-efficacy, eating-related lifestyle, and body mass index in overweight individuals (Salehi Moghaddam et al., 2020). Among adolescent girls who were obese or overweight, DBT produced beneficial effects on emotion regulation, impulsivity, and body mass index, suggesting its applicability across developmental stages (Jandaghiian et al., 2023). Research has further demonstrated that DBT can enhance emotion regulation and reduce food craving in overweight individuals, which directly addresses two of the most recurrent mechanisms underlying obesity-related overeating (Mohammadi, 2021). Comparative studies are equally notable: DBT has been reported to outperform or meaningfully differ from cognitive-behavioral therapy in emotional eating and self-management among obese individuals, indicating that its emphasis on emotion-focused coping and acceptance-based regulation may provide incremental value in this population (Honardar et al., 2022, 2023). In women with obesity, overweight, and binge-eating

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disorder, DBT has also been associated with improved quality of life, which underscores that therapeutic benefit should be understood not only in terms of symptom counts or kilograms lost, but in terms of broader psychosocial functioning (Rahmani & Omidi, 2019).

Recent international studies further strengthen the relevance of DBT for contemporary obesity-related care. Online DBT has shown promise for binge-eating disorder in open trials, while smartphone-based DBT skills training has demonstrated efficacy for recurrent binge eating in randomized clinical research (Karapatsia et al., 2024; Linardon et al., 2024). A brief online DBT-based intervention has also reduced binge-eating symptoms and eating pathology, supporting the scalability of skills-focused DBT interventions in digital formats (Cerolini et al., 2024). In emerging adult women, DBT has been found effective in reducing emotional eating, which is especially important given the developmental salience of identity instability, self-evaluation, and emotion-driven coping during this life stage (Husodo & Sukamto, 2024). Such findings suggest that DBT is not only conceptually appropriate but also adaptable across delivery formats, age groups, and levels of symptom severity. Nevertheless, adaptation is crucial. A generic DBT manual does not automatically translate into an optimized package for patients with obesity, because obesity-related treatment requires explicit attention to food-related cues, body image, self-management, lifestyle patterns, and the specific chain of events that culminates in overeating. This creates a clear rationale for developing a structured intervention package that integrates core DBT principles with obesity-specific therapeutic targets.

Another reason for designing a dedicated package is that obesity treatment often suffers from fragmentation. Nutritional advice, physical activity guidance, psychoeducation, and psychotherapy are frequently delivered as separate domains, even though patients experience them as interconnected challenges. For many individuals, body image dissatisfaction, self-blame, mood fluctuations, craving, interpersonal stress, and discouragement after repeated dieting failures operate together rather than independently (Ebrahimi et al., 2025; Vakili et al., 2024). Research on mental-state training and theory of mind suggests that improved awareness of internal and interpersonal states can strengthen adaptive social functioning and reflective capacity, both of which may be relevant when helping patients distinguish bodily needs, emotional states, and habitual reactions (Alizadeh Fard & Naqavi, 2013). Similarly, the comparison of DBT with acceptance and commitment group therapy in women on a diet indicates that obesity-related psychological care benefits from structured, skills-based models that address mood, weight-related distress, and behavioral persistence (Matinfar, 2014). Taken together, the literature points to a need for a coherent, culturally appropriate, and clinically usable DBT intervention package that synthesizes evidence from obesity, binge eating, emotional regulation, mindfulness, and behavioral self-management into a single protocol. The multiplicity of existing findings is promising, but without synthesis and organization, it remains difficult for clinicians to translate the literature into a structured intervention sequence appropriate for patients with obesity.

Accordingly, the present study aimed to develop and validate a dialectical behavior therapy intervention package for patients with obesity.

2. Methods and Materials

The present study was qualitative in nature and was conducted with the aim of developing a dialectical behavior therapy (DBT) intervention package for patients with obesity. This study employed a meta-synthesis strategy with a synthesis research approach to identify and thematically organize the components of a DBT intervention package for individuals with obesity from a wide range of sources and studies, followed by validation using the Content Validity Index (CVI) and the Content Validity Ratio (CVR). In the synthesis research method, findings from diverse and scattered studies were collected in accordance with the unique needs of the research, and through systematic examination, these dispersed findings were evaluated, interpreted, and reorganized within a specific conceptual framework to generate new perspectives or relationships.

After reviewing studies related to obesity, overweight, binge eating, and dialectical behavior therapy, the necessary information for constructing the conceptual framework was extracted. Accordingly, two sampling frameworks were considered for determining the study sample: (1) studies accessible through computerized databases, including the Noor Specialized Journals Database, the Iranian Journals Database, the Academic Center for Education, Culture and Research (ACECR) Scientific Database, and Google Scholar; and (2) student theses available in the Iranian Research Institute for Information Science and Technology (IRANDOC). Subsequently, findings from the selected documents within the relevant subject domain were analyzed, coded, and categorized with the aim of developing

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a DBT intervention package for patients with obesity as a novel product, and the primary themes of the therapeutic package were extracted.

Following the design of the therapeutic package, face validity and content validity were used to evaluate its validity. The basis of this method lies in the degree of relevance of the various components of the package, as judged by an expert panel (Lawshe, 1975). To this end, after selecting the members of the expert panel, a preliminary version of the developed therapeutic package was provided to them, and they were asked to assess its face validity and to provide detailed written feedback regarding the content of its various sections. After incorporating the experts' feedback, the revised and finalized version of the therapeutic package was again submitted to the panel members. To quantitatively assess content validity, both the Content Validity Ratio (CVR) and the Content Validity Index (CVI) were employed.

3. Findings and Results

Initially, studies whose intervention protocols were utilized were selected based on publication year, study type, and predefined inclusion criteria, as well as document search strategies across databases. In the next stage, abstracts of the documents were reviewed, and based on the quality of the articles and their level of relevance, a screening process was conducted. Out of more than 70 identified studies, 18 were selected as the final sample for the study, as presented in Table 1.

Table 1

Selected Studies Reviewed in the Field of Dialectical Behavior Therapy Interventions

Code	Type	Year	Author(s)	Title
1	Article	2022	Pourmohammad	The effectiveness of DBT-based techniques in improving symptoms of binge eating disorder
2	Article	2023	Ansari et al.	Comparison of the effectiveness of DBT and cognitive-behavioral therapy on self-management in individuals with obesity
3	Article	2022	Ansari et al.	Comparison of the effectiveness of DBT and cognitive-behavioral therapy on emotional eating in individuals with obesity
4	Article	2020	Salehi Moghaddam et al.	Effectiveness of DBT on self-efficacy, eating-related lifestyle, and body mass index in overweight individuals
5	Article	2023	Jandaghi et al.	The effect of DBT on emotion regulation, impulsivity, and body mass index in obese or overweight adolescent girls
6	Article	2022	Homayounpour	Effectiveness of DBT in reducing negative emotions and weight in obese women
7	Article	2024	Vakili et al.	Effectiveness of DBT on self-blame and rumination in individuals with binge eating
8	Article	2019	Masrour et al.	Effectiveness of DBT on anxiety sensitivity and body image in girls with bulimia nervosa
9	Article	2023	Ghasemi et al.	Effectiveness of DBT on attachment style, interpersonal adjustment, and communication patterns in individuals with bulimia nervosa in Isfahan
10	Article	2012	Abolghasemi et al.	Effectiveness of DBT on body image and self-efficacy in girls with bulimia nervosa
11	Article	2019	Omidi & Rahmani	Effectiveness of DBT on quality of life in women with obesity, overweight, and binge eating disorder: A clinical trial
12	Article	2022	Nazemi et al.	Effectiveness of DBT on binge eating habits and severity in young women with bulimia
13	Article	2019	Nasri et al.	Effectiveness of DBT on binge eating symptoms and body image in girls with bulimia nervosa
14	Thesis	2021	Mohammadi	Effectiveness of DBT on emotion regulation and food craving in overweight individuals
15	Thesis	2014	Pourmohammad	Effectiveness of DBT-based techniques (mindfulness, emotion regulation, distress tolerance) in improving binge eating disorder symptoms
16	Thesis	2014	Matinfar	Comparison of the effectiveness of acceptance and commitment therapy and group DBT on reducing anxiety, depression, and weight in dieting women
17	Thesis	2008	Soleimani	Effectiveness of DBT on reducing binge eating and depression and increasing self-esteem in women with binge eating disorder
18	Article	2023	Honardar et al.	Comparison of the effectiveness of DBT and cognitive-behavioral therapy on self-management in individuals with obesity

In the next stage, the full texts of the selected articles were analyzed, coded, and categorized, and the main themes were extracted. Accordingly, a combinative synthesis was conducted, whereby the findings of previous studies were transformed into data that were integrated with other data and subsequently reconstructed with a new identity. To evaluate the trustworthiness of the proposed model, four criteria (Mohammadpour, 2013) were assessed. To establish the criterion of credibility, peer debriefing was employed. In this regard, the researcher requested one doctoral student who had experience using this method to recode a portion of the texts in order to verify the accuracy of the coding process and to ensure the absence of bias in the analyses. To ensure transferability, purposive and snowball sampling methods

were applied, such that several articles were initially selected based on the main topic—namely, a DBT package for individuals with obesity—and additional articles were subsequently identified through these sources. To establish dependability, consultation with the thesis supervisor and advisor was conducted regarding the research process, and feedback was obtained to improve the study. To ensure confirmability, note-taking during the research process was utilized for subsequent use in the development stages of the therapeutic package and for incorporating useful insights. To identify the DBT intervention package, the data obtained from content analysis were coded and categorized as presented in Table 2.

Table 2

Themes in the Domain of Dialectical Behavior Therapy Interventions for Obesity

Theme	Sample Codes	Sample Sources
Conceptualization	Preparation, initial therapist explanations, group discussions about experiences, concept of dialectical thinking and avoidance	Pourmohammad (2014); Masrour & Toozandehjani (2019); Honardar et al. (2023); Ghasemi & Atashpour (2023)
Distress Tolerance and Flexibility	Distress tolerance (crisis endurance, distraction), coping skills in crises, distraction and self-soothing in crisis situations, reality acceptance principles, focus on coping strategies during crises, adaptation to distressing situations, self-acceptance and commitment to change, engagement in pleasurable activities, emotion change through opposite action, fundamental acceptance skills (mind turning, willingness), and breaking maladaptive connections	Abolghasemi & Jafari (2012); Honardar et al. (2023); Rahmani & Omidi (2019); Pourmohammad (2014); Masrour & Toozandehjani (2019); Homayounpour et al. (2022); Vakili et al. (2024); Ghasemi & Atashpour (2023)
States of Mind	Mind states (rational mind, emotional mind, wise mind), accessing the wise mind	Pourmohammad (2014); Masrour & Toozandehjani (2019); Homayounpour et al. (2022); Vakili et al. (2024)
Emotion Regulation	Managing negative emotions through distraction, enhancing positive affect via pleasurable activities, emotion regulation training, identifying primary and secondary emotions, recording emotions for better understanding, emotional awareness skills, describing, observing, and regulating emotions, especially in response to negative emotions, increasing positive emotions, releasing emotional suffering	Abolghasemi & Jafari (2012); Pourmohammad (2022); Rahmani & Omidi (2019); Vakili et al. (2024)
Nutrition and Body	Approach to food, balanced eating, healthy nutrition, body image, stopping binge eating, eating-related problems	Abolghasemi & Jafari (2012); Vakili et al. (2024)
Chain Analysis of Events Influencing Binge Eating	Behavioral chain analysis to identify patterns, recognition of maladaptive behavioral chains, behaviors associated with binge eating, cognitive preoccupation with food	Pourmohammad (2022); Honardar et al. (2023); Homayounpour et al. (2022); Vakili et al. (2024)
Management of Maladaptive Behaviors and Cognitive Patterns	Cost-benefit analysis of binge eating and purging, breaking maladaptive behavioral chains, coping with frustration using dialectical thinking, distraction from self-destructive behaviors, reducing negative core beliefs about body image and nutrition, balancing thoughts and emotions	Pourmohammad (2022); Honardar et al. (2023); Abolghasemi & Jafari (2012); Ghasemi & Atashpour (2023)
Mindfulness	Emotional control in the present moment, relaxation and improvement of present awareness, emotional awareness, diaphragmatic breathing, observation skills, breathing techniques for managing emotions and stress, wise awareness, self-soothing using the senses, attentional shifting for distress management, mindful eating	Pourmohammad (2022); Rahmani & Omidi (2019); Abolghasemi & Jafari (2012); Masrour & Toozandehjani (2019); Honardar et al. (2023); Homayounpour et al. (2022); Vakili et al. (2024); Ghasemi & Atashpour (2023)

Based on the information obtained from Table 2 and the reviewed studies, dialectical behavior therapy was coded and categorized into eight therapeutic themes.

Subsequently, the Content Validity Ratio (CVR) was calculated using Lawshe's method (Lawshe, 1975), and the Content Validity Index (CVI) was calculated using the Waltz and Bausell (1981) method.

a) **Content Validity Ratio (CVR) Questionnaire:** The CVR questionnaire for the therapeutic package was developed by the researcher in alignment with the components of the DBT package for patients with obesity. This questionnaire assessed the necessity of each therapeutic component included in the package. The components were rated on a three-point scale: "essential," "useful but not essential," and "not necessary." Additionally, the questionnaire included an open-ended question to collect expert opinions regarding the developed components. Given that 15 experts evaluated the items, the minimum acceptable CVR value was 0.49.

The CVR was calculated using the following formula:

Content Validity Ratio = (ne − N/2) / (N/2)

In this formula, *ne* represents the number of panel members who rated the item as "essential," and *N* represents the total number of panel members.

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b) **Content Validity Index (CVI) Questionnaire:** The CVI questionnaire for the therapeutic package was also developed by the researcher in accordance with the components of the DBT package for patients with obesity. This questionnaire evaluated the relevance, clarity, and simplicity of the content for each component of the therapeutic package separately. These criteria were assessed using a four-point Likert scale for each treatment session. The questionnaire also included an open-ended question to gather expert feedback. If the calculated CVI value was below 0.70, the session was rejected; if it ranged between 0.70 and 0.79, revision was required; and if it exceeded 0.79, it was considered acceptable.

The CVI was calculated using the following formula:

CVI = (Number of responses rated 3 or 4 for each item) / (Total number of responses for each item)

Table 3

CVI and CVR Indices for Dialectical Behavior Therapy Sessions

Session	CVI	CVR
First	1.00	1.00
Second	0.93	1.00
Third	1.00	0.87
Fourth	0.87	1.00
Fifth	1.00	0.73
Sixth	1.00	0.87
Seventh	0.93	0.87
Eighth	0.80	1.00

4. Discussion

The present study aimed to develop and validate a dialectical behavior therapy (DBT) intervention package for patients with obesity through a qualitative meta-synthesis approach and expert validation. The findings indicated that the extracted therapeutic content could be meaningfully organized into eight core themes, including conceptualization, distress tolerance and flexibility, states of mind, emotion regulation, nutrition and body-related issues, chain analysis of binge-eating behaviors, management of maladaptive behaviors and cognitive patterns, and mindfulness. The validation results demonstrated that the components of the developed package achieved acceptable to excellent levels of content validity based on CVR and CVI indices, indicating that experts largely agreed on the necessity, relevance, clarity, and applicability of the proposed therapeutic elements. These findings suggest that the developed DBT-based intervention package is theoretically grounded, empirically supported, and structurally coherent for addressing the multidimensional nature of obesity.

The identification of emotion regulation, distress tolerance, and mindfulness as central themes aligns closely with the theoretical foundations of DBT and reflects the central role of emotional dysregulation in obesity and binge-eating behaviors. Prior research has consistently shown that individuals with obesity often struggle with regulating negative affect, which increases vulnerability to emotional eating and maladaptive coping strategies (Agüera et al., 2021; Rommel et al., 2012). The inclusion of emotion regulation skills in the present package is therefore consistent with evidence demonstrating that improving emotional awareness and modulation reduces reliance on food as a regulatory mechanism (Herwig et al., 2018; Vakili et al., 2024). Moreover, studies have shown that DBT-based interventions significantly improve emotion regulation capacities and reduce food cravings in overweight individuals, further supporting the relevance of this component (Mohammadi, 2021). The emphasis on distress tolerance is also supported by meta-analytic findings indicating that low distress tolerance is a transdiagnostic risk factor across eating-related disorders and contributes to impulsive eating behaviors under stress (Mattingley et al., 2022; Vujanovic et al., 2017). Thus, the present findings reinforce the necessity of equipping patients with skills that allow them to tolerate internal discomfort without engaging in maladaptive eating behaviors.

Another important finding of the study was the inclusion of chain analysis and maladaptive behavior management, which reflects a functional analytic perspective on eating behaviors. This component is particularly relevant given that binge eating is often the result of a predictable sequence of cognitive, emotional, and environmental triggers. Previous studies have highlighted that identifying behavioral chains

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can enhance self-awareness and facilitate targeted intervention at critical points in the sequence (Tanofsky-Kraff et al., 2020). The present results are also consistent with findings showing that DBT techniques improve binge-eating symptoms and reduce maladaptive cognitive patterns such as self-blame and rumination (Nazemi et al., 2022; Pourmohammad, 2022; Vakili et al., 2024). Furthermore, cognitive restructuring and behavioral awareness strategies have been shown to improve food-related decision-making and reduce impulsive consumption, supporting the inclusion of these elements in the intervention package (Boswell et al., 2018). By integrating chain analysis with cognitive and behavioral management strategies, the developed package provides a comprehensive framework for interrupting dysfunctional eating cycles.

The incorporation of nutrition and body-related themes within the DBT framework represents a significant contribution of the present study, as it bridges the gap between psychological interventions and lifestyle modification. While traditional obesity interventions often emphasize dietary control, the current findings suggest that addressing individuals' relationship with food and body image is equally critical. Research has shown that body dissatisfaction and maladaptive eating attitudes are strongly associated with obesity and can undermine treatment adherence (Abolghasemi & Jafari, 2012; Masrour & Toozandehjani, 2019). Additionally, improvements in eating-related lifestyle and self-efficacy following DBT interventions have been documented, indicating that psychological skills training can positively influence health behaviors (Salehi Moghaddam et al., 2020). The present findings are also consistent with studies demonstrating that mindful eating interventions enhance awareness of hunger and satiety cues and promote healthier eating patterns (Jasemi Zargani et al., 2021). Therefore, integrating nutrition-related content within a DBT framework may enhance the ecological validity and effectiveness of obesity interventions.

The theme of mindfulness, which emerged as a core component of the intervention package, is strongly supported by both theoretical and empirical literature. Mindfulness skills enable individuals to observe internal experiences without judgment, thereby reducing automatic and emotionally driven eating behaviors. Previous studies have shown that mindfulness-based interventions improve cognitive flexibility, reduce perceived stress, and enhance emotional regulation, all of which are relevant to obesity treatment (Mousavi et al., 2020; Mousavinejad et al., 2018). In addition, recent technological adaptations of DBT, such as smartphone-based applications and online interventions, have demonstrated effectiveness in reducing binge-eating symptoms, suggesting that mindfulness and DBT skills can be successfully delivered in flexible formats (Cerolini et al., 2024; Linardon et al., 2024). The inclusion of mindfulness in the present package is therefore consistent with contemporary trends in psychological intervention and enhances its applicability in diverse clinical contexts.

The findings related to interpersonal and cognitive domains, such as self-management, attachment patterns, and communication styles, further highlight the multidimensional nature of obesity. Previous studies have demonstrated that DBT can improve interpersonal functioning and attachment-related processes in individuals with eating disorders (Ghasemi & Atashpour, 2023). Moreover, comparative research has shown that DBT may be more effective than cognitive-behavioral therapy in improving self-management and emotional eating among obese individuals (Honardar et al., 2022, 2023). These findings suggest that DBT's emphasis on dialectical thinking and acceptance may offer unique advantages in addressing the complex interplay between cognition, emotion, and behavior in obesity. The present study extends this literature by integrating these elements into a structured intervention package, thereby providing a comprehensive and practical framework for clinicians.

Another notable aspect of the findings is the strong alignment between the developed intervention package and recent international research on DBT applications in obesity and binge-eating disorders. Studies have shown that DBT can effectively reduce emotional eating in emerging adult women and improve body mass index and impulsivity in adolescents with obesity (Husodo & Sukamto, 2024; Jandaghiian et al., 2023). Additionally, DBT-based interventions have been associated with improvements in quality of life and reductions in negative emotions among obese women (Homayounpour et al., 2022; Rahmani & Omidi, 2019). These findings support the external validity of the present study and suggest that the developed package is consistent with global trends in evidence-based practice. Furthermore, the integration of DBT with other third-wave approaches, such as acceptance and commitment therapy, has shown promising results in improving psychological resilience and self-worth in obese individuals (Khatibi et al., 2025). This convergence of evidence underscores the potential of DBT as a core framework for psychological interventions in obesity.

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5. Conclusion

Finally, the rigorous validation process employed in this study enhances the credibility and applicability of the findings. The use of CVR and CVI indices ensured that the selected components were not only theoretically sound but also practically relevant and acceptable to experts. This methodological strength is particularly important given the complexity of obesity and the need for interventions that are both evidence-based and contextually appropriate. The present study contributes to the literature by providing a systematically developed and validated DBT intervention package that addresses the psychological, behavioral, and emotional dimensions of obesity in an integrated manner.

The present study has several limitations that should be considered when interpreting the findings. First, the study relied on a qualitative meta-synthesis approach, which, although comprehensive, is inherently dependent on the quality and scope of the included studies. Second, the validation process was conducted using expert judgment, which may introduce subjective bias despite efforts to ensure rigor. Third, the intervention package was not empirically tested in a clinical trial, and therefore its effectiveness in real-world settings remains to be established. Finally, cultural and contextual factors specific to the population studied may limit the generalizability of the findings to other populations.

Future research should focus on empirically evaluating the effectiveness of the developed DBT intervention package through randomized controlled trials and longitudinal studies. Additionally, future studies could examine the comparative effectiveness of this package against other therapeutic approaches, such as cognitive-behavioral therapy or acceptance-based interventions. Exploring the mechanisms of change, such as improvements in emotion regulation, distress tolerance, and cognitive flexibility, would also provide valuable insights into how the intervention produces its effects. Furthermore, adapting the intervention for different populations, including adolescents, men, and diverse cultural groups, could enhance its applicability and impact.

From a practical perspective, the findings of this study suggest that clinicians working with patients with obesity should consider integrating DBT-based strategies into their treatment protocols. The structured nature of the developed package provides a clear framework for addressing emotional, cognitive, and behavioral aspects of obesity in a comprehensive manner. Incorporating skills such as mindfulness, distress tolerance, and emotion regulation into routine care may enhance patient engagement, improve self-management, and promote sustainable behavior change. Additionally, the potential for delivering DBT interventions through digital platforms offers opportunities for increasing accessibility and scalability of psychological care for individuals with obesity.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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