

Effectiveness of Body Image–Focused Cognitive Behavioral Therapy on Body Image, Social Physique Anxiety, and Appearance-Related Social Comparison Among Young Women Attending Fitness Clubs and Active on Social Media

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ABSTRACT

The present study aimed to determine the effectiveness of body image–focused cognitive behavioral therapy (CBT) on body image, social physique anxiety, and appearance-related social comparison among young women attending fitness clubs and active on social media. This study employed a quasi-experimental design with a pretest–posttest control group. The statistical population comprised young women aged 18–30 years who attended fitness clubs, were active on social media, and resided in Gilan-e Gharb, Iran. A total of 40 participants were selected through purposive sampling and randomly assigned to experimental and control groups (20 participants per group). Data were collected using the Multidimensional Body–Self Relations Questionnaire (MBSRQ) developed by Cash (1990), the Social Physique Anxiety Scale (SPAS) developed by Hart et al. (1989), and the Physical Appearance Comparison Scale–Revised (PACS-R) developed by Schaefer and Thompson (2014). The experimental group received a body image–focused cognitive behavioral therapy intervention consisting of eight 90-minute group sessions. Data were analyzed using multivariate and univariate analyses of covariance (MANCOVA and ANCOVA). The overall effect of the intervention on the combined dependent variables was statistically significant (Pillai's trace = 0.638, $F = 19.380$, $p < .001$). After controlling for pretest scores, significant between-group differences were observed in body image ($F = 22.002$, $p < .001$, $\eta^2p = 0.386$), social physique anxiety ($F = 15.843$, $p < .001$, $\eta^2p = 0.312$), and appearance-related social comparison ($F = 25.257$, $p < .001$, $\eta^2p = 0.419$). The intervention demonstrated the largest effect size for appearance-related social comparison. These findings suggest that body image–focused cognitive behavioral therapy may improve body image and reduce social physique anxiety and appearance-related social comparison among young women attending fitness clubs and active on social media by modifying dysfunctional appearance-related cognitions and behavioral patterns.

Keywords: Cognitive behavioral therapy, body image, social physique anxiety, appearance-related social comparison, social media, young women.

1. Introduction

Body image is a multidimensional psychological construct encompassing individuals' perceptions, evaluations, attitudes, emotions, and behaviors concerning their physical appearance and bodily characteristics. It extends beyond simple satisfaction or dissatisfaction with weight or shape and includes cognitive appraisals, affective reactions, behavioral tendencies, and the personal meanings attached to the body. A positive body image is not merely the absence of dissatisfaction; rather, it reflects appreciation, acceptance, respect for bodily functionality, adaptive investment in appearance, and the ability to resist unrealistic sociocultural appearance standards (Tylka & Wood-Barcalow, 2015). Conversely, disturbances in body image can involve persistent dissatisfaction with appearance, overvaluation of body shape or weight, heightened self-monitoring, appearance-related shame, and maladaptive comparison with others. Such disturbances are increasingly recognized as important psychological concerns among young women, particularly in social contexts where appearance is highly visible and frequently evaluated. The growing centrality of visual culture, fitness-related ideals, and image-based social media has intensified the salience of appearance in everyday life, making body image a particularly important domain for psychological research and intervention.

Young women represent a population that may be especially vulnerable to appearance-related pressures because physical attractiveness is often given disproportionate social importance during adolescence and emerging adulthood. Social, cultural, and media environments can communicate implicit and explicit messages regarding what constitutes an attractive, fit, feminine, or socially desirable body. These messages may become internalized and incorporated into self-evaluation processes, particularly when individuals repeatedly encounter idealized or selectively presented representations of appearance. Contemporary social media environments have further transformed this process because users are not passive recipients of professionally produced media images; rather, they are continuously exposed to photographs and videos posted by peers, influencers, fitness figures, celebrities, and acquaintances. This combination of interpersonal familiarity, visual immediacy, and apparent attainability may intensify appearance-related evaluation and comparison. Research has increasingly shown that social media use is closely intertwined with how adolescents and

young adults construct, interpret, and reconstruct their perceptions of the body (Iman & Rahmani, 2025). In this context, body image becomes not only a private psychological experience but also a socially negotiated representation continually shaped by digital interaction, feedback, observation, and comparison.

The influence of social media on body image is not uniform, but image-centered platforms have received particular attention because they prioritize visual self-presentation. Users can selectively upload photographs, modify images, apply filters, control angles and lighting, and present highly curated versions of themselves. Repeated exposure to such content may distort perceptions of normative appearance and increase discrepancies between actual and idealized self-representations. Reviews of the literature have shown that exposure to beauty ideals on social networking sites is associated with unfavorable body-related outcomes, particularly when the content emphasizes thinness, muscularity, attractiveness, or highly edited physical appearance (Fioravanti et al., 2022). More recent research has similarly emphasized that the relationship between social media and psychological well-being is strongly mediated by the way individuals interpret visual content and incorporate it into self-evaluative processes (Merino et al., 2024). Cultural expectations and gender-specific norms may further amplify this relationship, as women are often exposed to appearance standards that combine thinness, fitness, attractiveness, youthfulness, and perceived bodily perfection.

Social comparison theory provides one of the most important frameworks for explaining how social media exposure influences body-related evaluations. Individuals frequently evaluate themselves by comparing their attributes with those of others, especially in domains that are socially valued and personally relevant. Physical appearance is one such domain, and social media provides a nearly continuous supply of potential comparison targets. Appearance-related comparisons may be upward, involving comparison with individuals perceived as more attractive, fit, thin, or physically ideal, or downward, involving comparison with those perceived as less desirable in appearance. Upward comparisons are particularly relevant because social networking sites tend to disproportionately display idealized, curated, and positively selected images. Meta-analytic evidence indicates that exposure to upward social comparison targets on social media can negatively affect self-evaluations and emotional responses (McComb et al., 2023). Similarly, a systematic review and meta-analysis has

demonstrated that social comparison on social media is significantly associated with body image concerns and symptoms related to disordered eating, suggesting that comparison processes constitute a major psychological mechanism linking social media use with appearance-related distress (Bonfanti et al., 2024).

The mediating role of social comparison has also been supported in studies examining the relationship between social media engagement and body image dissatisfaction. Rather than social media use exerting a direct and uniform effect on body image, its influence may operate through cognitive processes that prompt individuals to assess their appearance relative to others. Ghaffarinasab and Rahmani found that social comparison plays an important mediating role in the association between social media use and body image (Ghaffarinasab & Rahmani, 2024). This mechanism is especially relevant for young women who follow appearance-focused, lifestyle, beauty, or fitness-related content because such content provides frequent and salient standards for self-evaluation. Social comparison may therefore become habitual and automatic, leading individuals to repeatedly monitor their bodies, detect perceived shortcomings, and focus attention on discrepancies between their own appearance and idealized standards. Over time, such patterns may contribute to dissatisfaction, lowered self-worth, appearance preoccupation, and anxiety about being evaluated by others.

Fitness-oriented social media content introduces an additional layer of complexity. Although exercise and physical activity are generally associated with physical and psychological benefits, appearance-focused exercise environments can also reinforce body surveillance, comparison, and dissatisfaction when fitness is framed primarily as a means of achieving an idealized body. “Fitspiration” content, which typically combines exercise-related messages with images of lean, toned, and conventionally attractive bodies, has become highly prevalent on image-based social media platforms. Experimental evidence has shown that exposure to fitspiration imagery can worsen women’s body image and increase unfavorable appearance-related evaluations, despite being framed around health and fitness ideals (Tiggemann & Zaccardo, 2015). This issue is particularly pertinent to women who are simultaneously active in fitness clubs and on social media because they may encounter appearance-focused comparison standards in both physical and digital environments. In fitness settings, mirrors, athletic clothing, body-focused discourse, and observation of others can

heighten awareness of physical appearance, whereas social media may extend these comparisons beyond the gym into daily life.

However, not all social media content necessarily produces negative body image outcomes. The manner in which visual information is framed can influence the psychological consequences of exposure. For example, content that explicitly reveals the artificiality or selectivity of social media images may weaken the credibility of appearance ideals and reduce comparison-based distress. Tiggemann and Anderberg demonstrated that “Instagram versus reality” images, which contrast idealized social media presentations with more realistic versions of the same individuals, can influence women’s social comparison processes and body image responses (Tiggemann & Anderberg, 2020). Such findings indicate that media literacy and critical awareness of image manipulation may represent potentially protective psychological resources. This perspective is especially relevant to cognitive behavioral interventions because distorted assumptions about the realism, attainability, and importance of idealized appearance standards can be examined, challenged, and restructured within a therapeutic framework.

Another important construct closely related to negative body image is social physique anxiety. Social physique anxiety refers to anxiety experienced when individuals believe that their physical appearance is being observed, evaluated, or judged by others. It is conceptually related to social anxiety but is specifically focused on concerns about bodily appearance and the perceived reactions of others to one’s physique. Individuals with elevated social physique anxiety may become hyperaware of how their bodies look in public situations, attempt to avoid contexts in which their appearance is visible, or engage in compensatory behaviors intended to reduce perceived flaws. Fitness clubs may be particularly salient environments for this form of anxiety because the body is both functionally and visually prominent. Clothing may reveal body shape, mirrors are frequently present, and participants may compare their physiques with those of others. When these experiences are combined with intensive social media use, anxiety about physical evaluation may be reinforced through repeated exposure to idealized appearance standards and perceived social scrutiny.

Social media addiction and excessive engagement may further intensify these processes by increasing the frequency and duration of exposure to appearance-related stimuli. Tamanaeifar and Haddadi reported that the relationship

between social media addiction and body image is mediated by body shame and self-compassion, highlighting the importance of emotional and self-evaluative mechanisms in the development of body-related dissatisfaction (Tamanaeifar & Haddadi, 2024). The role of body shame is particularly important because individuals who perceive their bodies as failing to meet internalized appearance ideals may experience not only dissatisfaction but also shame, self-criticism, and avoidance. Reduced self-compassion may further prevent individuals from responding adaptively to perceived imperfections. These processes suggest that body image disturbance is maintained by interacting cognitive, emotional, behavioral, and social mechanisms rather than by isolated appearance concerns.

The relationship among physical activity, social media use, body attitudes, and broader behavioral outcomes has also been examined in student populations. Zargarzadeh Esfahani et al. proposed a causal model linking physical activity and social media use with attitudes toward body image and ethical behaviors, indicating that body-related attitudes emerge within a broader network of behavioral and sociocultural factors (Zargarzadeh Esfahani et al., 2022). This perspective is particularly relevant to women attending fitness clubs because physical activity does not occur in a psychological vacuum. Exercise can be motivated by health, enjoyment, appearance enhancement, social approval, or a combination of these factors. When appearance-based motives predominate, exercise may become intertwined with self-objectification, comparison, and dissatisfaction rather than functioning solely as a source of well-being. Consequently, interventions for women active in both fitness settings and social media may need to address the meanings attached to exercise and appearance, rather than focusing only on physical behavior.

From a clinical perspective, cognitive behavioral therapy offers a strong theoretical and empirical framework for modifying dysfunctional appearance-related beliefs and behaviors. Cognitive behavioral models propose that emotional distress is maintained by maladaptive interpretations, attentional biases, rigid beliefs, avoidance, reassurance seeking, checking behaviors, and other patterns that reinforce negative self-evaluation. In the context of body image, individuals may hold assumptions such as “my appearance determines my worth,” “others are constantly evaluating my body,” or “I must look like idealized images to be acceptable.” These beliefs can generate anxiety, dissatisfaction, self-monitoring, and repeated comparison. Cognitive behavioral therapy targets these mechanisms

through psychoeducation, identification of automatic thoughts, cognitive restructuring, behavioral experiments, exposure, attentional modification, and relapse prevention. Evidence from clinical research supports the effectiveness of CBT for severe appearance-related psychopathology. Harrison et al., in a systematic review and meta-analysis of randomized controlled trials, found cognitive behavioral therapy to be effective for body dysmorphic disorder, demonstrating that structured cognitive and behavioral techniques can meaningfully reduce maladaptive appearance preoccupation and associated distress (Harrison et al., 2016).

Other psychological interventions have also demonstrated benefits for body image disturbance, reinforcing the broader proposition that body-related cognitions and attitudes are modifiable. For example, Shabani et al. reported that acceptance and commitment therapy improved perceptual and attitudinal dimensions of body image in individuals with body dysmorphic disorder (Shabani et al., 2023). Although ACT differs theoretically from CBT, these findings support the clinical importance of targeting maladaptive relationships with appearance-related thoughts, evaluations, and emotional reactions. Intervention studies in younger populations have similarly shown that structured psychological programs can produce measurable improvements in body image. Ahuja et al. demonstrated the effectiveness of a comic-based body image intervention among adolescents in semi-rural Indian schools using a randomized controlled design (Ahuja et al., 2025). Such findings indicate that body image interventions can be adapted to different populations and sociocultural settings while retaining therapeutic relevance.

The accurate assessment of body image is equally important when evaluating intervention outcomes. Body image is a complex construct, and multidimensional measurement tools are needed to capture its attitudinal and evaluative components. The Multidimensional Body-Self Relations Questionnaire has been widely used for this purpose, and evidence supports its psychometric suitability in different cultural contexts. Hasanpoor-Azghady et al. demonstrated satisfactory confirmatory factor analytic and psychometric properties for the Persian version of the MBSRQ Appearance Scales among Iranian women (Hasanpoor-Azghady et al., 2022). This is particularly relevant for research involving Iranian women because culturally validated instruments strengthen the interpretability and methodological rigor of findings. Reliable assessment is essential for detecting therapeutic changes and distinguishing broad body image improvement

from changes in narrower domains such as appearance evaluation or appearance orientation.

Recent research in Iran also indicates growing concern regarding the influence of social and digital environments on body-related perceptions. Iman and Rahmani emphasized the role of social media in reconstructing body image and shaping adolescent girls' mental concerns about appearance (Iman & Rahmani, 2025), while Tamanaeifar and Haddadi highlighted the importance of body shame and self-compassion in the relationship between problematic social media use and body image (Tamanaeifar & Haddadi, 2024). Taken together, these findings suggest that the psychological effects of social media should be examined within specific cultural and demographic contexts rather than assumed to operate identically across societies. Cultural expectations surrounding femininity, appearance, modesty, social visibility, and physical activity may alter both the nature of body concerns and the mechanisms through which social media influences self-evaluation.

Despite the expanding literature, important gaps remain. Much existing research is correlational and focuses on the relationship between social media use and body dissatisfaction rather than testing targeted therapeutic interventions. Likewise, many studies investigate general female populations or adolescents without focusing specifically on women who regularly attend fitness clubs and are simultaneously active on image-based social media platforms. This subgroup may be uniquely exposed to overlapping pressures from fitness culture and digital appearance culture. Furthermore, few intervention studies have simultaneously examined body image, social physique anxiety, and appearance-related social comparison as distinct but related outcomes. These variables may respond differently to intervention, and evaluating them together can provide a more comprehensive understanding of therapeutic change. The increasing importance of social comparison mechanisms in contemporary social media research (Vandenbosch et al., 2022) further supports the need for interventions that directly address comparison behaviors, media literacy, and unrealistic appearance standards rather than focusing solely on general self-esteem or body dissatisfaction.

Recent scholarship has called for greater attention to the specific processes through which social media affects body image and for the development of more mechanism-focused interventions (Vandenbosch et al., 2022). Cognitive behavioral therapy is well suited to this purpose because it can directly target dysfunctional beliefs, attentional biases,

avoidance, comparison, and maladaptive interpretation of social feedback. It can also be adapted to contemporary digital environments through modules addressing filters, edited images, curated self-presentation, algorithmically amplified beauty ideals, and compulsive comparison. In addition, cognitive restructuring and graded exposure may reduce social physique anxiety by challenging exaggerated assumptions about others' evaluations and reducing avoidance of appearance-related situations. Reducing the frequency and psychological importance of appearance comparisons may similarly improve body-related self-evaluation and weaken the perceived need to conform to idealized standards.

Accordingly, the present study aimed to determine the effectiveness of body image-focused cognitive behavioral therapy on body image, social physique anxiety, and appearance-related social comparison among young women attending fitness clubs and active on social media.

2. Methods and Materials

2.1. Study Design and Participants

The present study was applied in terms of its objectives and employed a quasi-experimental design with a pretest–posttest control group. The independent variable was body image-focused cognitive behavioral therapy (CBT), while the dependent variables included body image, social physique anxiety, and appearance-related social comparison. The research design involved assessing the dependent variables in both the experimental and control groups before and after the intervention to determine the effectiveness of the therapeutic program. Following the administration of the pretest assessments, participants in the experimental group received a structured body image-focused cognitive behavioral intervention, whereas participants in the control group received no psychological intervention during the corresponding period and continued their usual activities. Upon completion of the intervention, both groups underwent posttest assessments using the same measurement instruments administered at baseline. This design facilitated the examination of between-group differences in postintervention outcomes while statistically controlling for initial differences in the dependent variables.

The statistical population consisted of women aged 18–35 years who were members of fitness clubs in Gilan-e Gharb, Kermanshah Province, Iran, regularly participated in physical exercise, and actively used image-based social networking platforms, particularly Instagram. Participants

were recruited from eligible members of the Toronto (Mahoor) Fitness Club in Gilan-e Gharb using purposive sampling. The inclusion criteria were regular participation in physical exercise for at least three sessions per week; engagement with image-based social media platforms for at least one hour per day or seven hours per week during the preceding three months; an age between 18 and 35 years; willingness to participate in the study and provision of written informed consent; and the absence of severe psychological disorders or other conditions that could substantially influence the study outcomes. Additional screening criteria included scoring below the theoretical midpoint on the body image measure and above the theoretical midpoint on the Social Physique Anxiety Scale (SPAS), indicating relatively unfavorable body image evaluations and elevated concerns about social evaluations of physical appearance. The exclusion criteria included voluntary withdrawal from the study and absence from intervention sessions beyond the permitted attendance limit. Following eligibility screening, 40 participants were enrolled and randomly assigned to either the experimental group ($n = 20$) or the control group ($n = 20$). Before participation, all individuals received information concerning the objectives, procedures, potential benefits, and ethical considerations of the study. Following the necessary ethical approvals and administrative coordination with the fitness club, informed consent was obtained from all participants. Participation was entirely voluntary, and participants were informed of their right to withdraw at any stage without adverse consequences. Confidentiality and anonymity in reporting were maintained throughout the research process, and all collected information was used exclusively for scientific purposes. The intervention sessions were conducted at the Toronto (Mahoor) Fitness Club by the researcher under the supervision of the academic advisor, with appropriate attention to participants' psychological well-being and the prevention of potential psychological or physical harm.

2.2. Data Collection Tools

Demographic Information Form. A researcher-developed demographic information form was administered to collect relevant personal, anthropometric, and contextual characteristics of the participants. The form included information regarding age, marital status, educational attainment, height, weight, duration of participation in physical exercise, frequency of weekly fitness club

attendance, and the extent of engagement with image-based social networking platforms. These variables were collected to describe the demographic and behavioral characteristics of the sample and provide contextual information regarding participants' physical activity and social media use. Body mass index (BMI) was calculated by dividing body weight in kilograms by the square of height in meters (kg/m^2). Information concerning the frequency of fitness club attendance and social media engagement was particularly relevant because the study focused on young women exposed simultaneously to fitness-related appearance norms and social media environments emphasizing physical appearance. The demographic information form was administered before the intervention, and the collected data were summarized using descriptive statistical procedures.

Multidimensional Body-Self Relations Questionnaire (MBSRQ). Body image was assessed using the Multidimensional Body-Self Relations Questionnaire (MBSRQ), originally developed by Cash (1990) to evaluate individuals' multidimensional attitudes, perceptions, and evaluations concerning their physical appearance and bodily characteristics. The version employed in the present study comprised 46 items rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument assessed several dimensions of body image, including appearance evaluation, appearance orientation, satisfaction with specific body areas, fitness evaluation, fitness orientation, and overweight preoccupation. These dimensions collectively provide information regarding individuals' subjective evaluations of their bodies, the importance they attach to physical appearance, their satisfaction with various bodily characteristics, and their concerns about weight and physical fitness. Certain items require reverse scoring to ensure consistency in the interpretation of the relevant dimensions. Higher scores on positively oriented body image indices indicate more favorable body evaluations and more positive attitudes toward physical appearance, although the interpretation of individual subscales depends on the specific construct being measured. The MBSRQ has demonstrated satisfactory psychometric properties in previous investigations. Cronbach's alpha coefficients for the subscales of the original instrument have been reported to range from 0.80 to 0.92, indicating acceptable to excellent internal consistency. The Persian version has also demonstrated satisfactory reliability, with an approximately reported Cronbach's alpha coefficient of 0.88. Furthermore, Hassanpour-Azghadi et al. (2022) provided evidence supporting the validity and

reliability of the Persian adaptation. In the present study, the questionnaire was administered at both pretest and posttest to evaluate changes in body image following the cognitive behavioral intervention.

Social Physique Anxiety Scale (SPAS). Social physique anxiety was measured using the Social Physique Anxiety Scale (SPAS), developed by Hart et al. (1989) to assess individuals' anxiety and concerns regarding the potential evaluation of their physical appearance by others. The scale is grounded in the conceptualization of social physique anxiety as a specific form of social evaluative concern arising when individuals perceive that their bodily appearance may be observed, judged, or negatively evaluated in interpersonal or social situations. The version used in the present study consisted of 12 items rated on a five-point Likert scale ranging from strongly disagree to strongly agree. Items assess concerns about physical appearance in the presence of others, discomfort associated with perceived scrutiny of bodily characteristics, and apprehension regarding negative judgments of one's physique. Following the application of the appropriate scoring procedures, higher total scores indicate greater social physique anxiety and more pronounced concerns about how one's physical appearance is evaluated by others. This measure was particularly appropriate for the present population because fitness clubs and image-oriented social media environments may increase exposure to appearance-related evaluations and potentially intensify self-consciousness regarding physical characteristics. Previous psychometric investigations have demonstrated satisfactory internal consistency for the original scale, with Cronbach's alpha coefficients of approximately 0.90. The Persian adaptation has also shown acceptable reliability, with an approximately reported Cronbach's alpha coefficient of 0.86. The SPAS was administered to both experimental and control participants before and immediately after the intervention to assess changes in social physique anxiety associated with body image-focused cognitive behavioral therapy.

Physical Appearance Comparison Scale-Revised (PACS-R). Appearance-related social comparison was assessed using the Physical Appearance Comparison Scale-Revised (PACS-R), developed and validated by Schaefer and Thompson (2014). This instrument measures individuals' tendencies to compare their physical appearance with that of other people across various social and interpersonal contexts. The revised version consists of 11 items scored on a five-point Likert scale ranging from 1

(never) to 5 (always). The items evaluate the frequency with which individuals engage in appearance-related comparisons, including comparisons involving general physical appearance and specific bodily attributes. None of the items require reverse scoring. The overall score can be calculated by summing or averaging item responses, with higher scores indicating a stronger tendency to compare one's physical appearance with that of others. The PACS-R is particularly relevant to populations frequently exposed to appearance-focused social media content because digitally mediated interactions may provide continuous opportunities for comparisons with peers, influencers, and other individuals whose appearances are presented through photographs and videos. The original instrument has demonstrated excellent internal consistency, with a reported Cronbach's alpha coefficient of 0.94. The Persian adaptation was psychometrically evaluated by Hassanpour-Azghadi et al. (2021), and its internal consistency has been reported to be satisfactory, with an approximately reported Cronbach's alpha coefficient of 0.87. In the present study, the PACS-R was administered at both measurement occasions to investigate the effectiveness of the intervention in reducing appearance-related social comparison tendencies among young women regularly attending fitness clubs and using image-based social networking platforms.

2.3. Intervention

The experimental intervention consisted of a structured body image-focused cognitive behavioral therapy program based on established cognitive behavioral principles and therapeutic approaches targeting dysfunctional cognitions, emotional responses, and behavioral patterns associated with body image concerns (Beck, 2011; Cash, 2002; Cash & Grant, 1996; Harrison et al., 2016). The intervention was adapted to the experiences of young women who regularly attended fitness clubs and actively engaged with appearance-oriented social media content. It was delivered in eight weekly group sessions, each lasting approximately 90 minutes, over an eight-week period. The therapeutic program incorporated psychoeducation, identification and modification of appearance-related automatic thoughts, cognitive restructuring, reduction of maladaptive social comparison, attentional retraining, graded exposure to appearance-related anxiety-provoking situations, media literacy development, and relapse prevention strategies. During the first session, participants were introduced to the therapeutic framework, treatment objectives, group rules,

and fundamental concepts of body image, body dissatisfaction, and cognitive behavioral therapy. Particular attention was given to understanding how social media exposure, idealized body representations, and appearance-related beliefs influence emotional reactions and behavioral responses. Participants were asked to monitor situations that triggered negative thoughts and emotions concerning their bodies and physical appearance. The second session focused on identifying negative automatic thoughts associated with physical appearance and understanding the relationships among cognitions, emotions, and behaviors, particularly when encountering appearance-focused images on social networking platforms. Participants practiced recording negative automatic thoughts and identifying the situations in which they occurred. The third session addressed cognitive restructuring by helping participants recognize cognitive distortions, such as catastrophizing, overgeneralization, dichotomous thinking, and selective attention to perceived physical imperfections. Participants were trained to evaluate evidence supporting and contradicting maladaptive appearance-related beliefs and to develop more balanced and realistic alternative interpretations. Homework assignments involved completing cognitive restructuring worksheets based on personally experienced appearance-related concerns. The fourth session concentrated on reducing appearance-related social comparison by explaining upward and downward social comparison processes, identifying comparison triggers in online and offline environments, and examining the emotional and behavioral consequences of repeated comparisons with peers and idealized social media representations. Participants were encouraged to monitor comparison episodes and implement strategies to decrease unnecessary appearance-related comparisons. The fifth session targeted attentional biases toward perceived physical flaws and promoted a more functional and balanced understanding of the body. Therapeutic activities emphasized shifting attention away from perceived imperfections and toward bodily capabilities, functional characteristics, physical health, and personal strengths. Participants were instructed to identify and record three positive bodily characteristics or functions each day. The sixth session involved graded exposure to appearance-related anxiety-provoking situations. Participants developed individualized hierarchies of feared situations, including being photographed, sharing photographs, or participating in social settings where physical appearance might be evaluated. Through gradual exposure and anxiety management techniques, they practiced approaching

previously avoided situations while reducing maladaptive avoidance behaviors. The seventh session emphasized media literacy and the management of appearance-focused digital content. Participants critically examined idealized body representations on social networking platforms, discussed the influence of photographic filters, digital image editing, and unrealistic beauty standards, and learned strategies for selecting online content more consciously. Homework involved reviewing followed social media accounts and reducing exposure to content that intensified body dissatisfaction or appearance-related comparisons. The eighth and final session focused on consolidating therapeutic gains, reviewing acquired cognitive and behavioral skills, strengthening body acceptance, identifying potential relapse triggers, and developing individualized maintenance plans. Participants were encouraged to continue practicing cognitive restructuring, adaptive attentional strategies, reduced appearance comparison, and constructive social media engagement after treatment completion. Homework assignments were provided following each session to facilitate the application and generalization of therapeutic skills in everyday life. The intervention sessions were administered by the researcher under the supervision of the academic advisor, while the control group received no psychological treatment during the study period and continued its usual activities. Immediately following the eight-week intervention, both groups completed the same psychological measures administered at baseline to evaluate intervention-related changes in body image, social physique anxiety, and appearance-related social comparison.

2.4. Data Analysis

Data analysis was conducted using descriptive and inferential statistical procedures in SPSS. Initially, the collected questionnaires were reviewed, coded, and prepared for statistical analysis. Descriptive statistics, including frequencies and percentages, were used to summarize the demographic and contextual characteristics of the participants, such as age, marital status, educational attainment, physical activity patterns, and social media use. Means and standard deviations were calculated to describe participants' scores on body image, social physique anxiety, and appearance-related social comparison at the pretest and posttest stages in both the experimental and control groups. Before conducting inferential analyses, the relevant statistical assumptions were examined to evaluate the suitability of covariance-based analytical procedures. The

Shapiro–Wilk test was used to assess the normality of score distributions, while Levene's test was employed to examine the homogeneity of error variances across the experimental and control groups. The assumptions relevant to covariance analysis, including the linearity of relationships between covariates and dependent variables and the homogeneity of regression slopes, were also considered. Multivariate analysis of covariance (MANCOVA) was employed to investigate the overall effectiveness of body image–focused cognitive behavioral therapy on the combined dependent variables, with group membership serving as the fixed factor and baseline scores of the corresponding dependent variables entered as covariates. This approach enabled the assessment of the multivariate intervention effect while controlling for participants' initial levels of body image, social physique anxiety, and appearance-related social comparison. Pillai's trace was used to evaluate the overall multivariate effect of the intervention. Subsequently, separate univariate analyses of covariance (ANCOVA) were performed to determine the specific effects of the intervention on each dependent variable after controlling for the corresponding pretest scores. Adjusted between-group differences were evaluated using F statistics and their associated probability values. The magnitude of intervention effects was quantified using partial eta squared (η^2p), indicating the proportion of variance in each outcome

attributable to group membership after accounting for the covariates and other terms in the statistical model. Statistical significance was established at an alpha level of .05, and p values below this threshold were interpreted as statistically significant. This analytical framework allowed for the simultaneous examination of the overall intervention effect and the identification of the specific psychological outcomes most responsive to body image–focused cognitive behavioral therapy.

3. Findings and Results

The study included 40 participants. Regarding marital status, 34 participants (85.0%) were single and 6 (15.0%) were married. In terms of educational attainment, 5 participants (12.5%) held a high school diploma, 23 (57.5%) held a bachelor's degree, and 12 (30.0%) held a master's degree. Most participants (87.5%, $n = 35$) reported following fitness-related pages on social media, whereas 12.5% ($n = 5$) did not. The mean age of the participants was 25.68 ± 4.71 years, and their mean body mass index was 23.31 ± 2.35 kg/m². Participants had attended fitness clubs for an average of 3.58 ± 2.11 years and reported attending the club 4.00 ± 1.01 days per week. In addition, their average daily use of social media was 4.28 ± 1.57 hours.

Table 1

Descriptive Statistics for the Study Variables at Pretest and Posttest by Group

Variable	Group	Pretest, M $\pm$ SD	Posttest, M $\pm$ SD
Body image	Control	2.99 ± 0.42	2.95 ± 0.41
	Experimental	3.12 ± 0.43	3.32 ± 0.48
Social physique anxiety	Control	3.01 ± 0.42	3.00 ± 0.42
	Experimental	3.21 ± 0.44	2.69 ± 0.40
Appearance-related social comparison	Control	3.05 ± 0.43	3.02 ± 0.49
	Experimental	3.00 ± 0.46	2.67 ± 0.46

As shown in Table 1, the mean body image score in the experimental group increased from 3.12 ± 0.43 at pretest to 3.32 ± 0.48 at posttest, whereas the corresponding mean score in the control group changed only slightly from 2.99 ± 0.42 to 2.95 ± 0.41 . Social physique anxiety in the experimental group decreased from 3.21 ± 0.44 at pretest to 2.69 ± 0.40 at posttest, while the control group remained almost unchanged, from 3.01 ± 0.42 to 3.00 ± 0.42 . Similarly, appearance-related social comparison decreased in the experimental group from 3.00 ± 0.46 to 2.67 ± 0.46 , whereas only a minimal change was observed in the control

group, from 3.05 ± 0.43 to 3.02 ± 0.49 . Thus, the descriptive findings indicated that the intervention was associated with an improvement in body image and reductions in social physique anxiety and appearance-related social comparison in the experimental group, whereas the control group showed little change across the two measurement occasions.

Before conducting the inferential analyses, the statistical assumptions required for multivariate and univariate analyses of covariance were examined. Multivariate outliers were assessed using Mahalanobis distance, and the maximum observed value was 7.219, which was below the

critical chi-square value of 16.27 at $p = .001$ with three degrees of freedom; therefore, no multivariate outliers were identified. The Shapiro–Wilk statistics for all study variables across both groups and both measurement occasions ranged from 0.906 to 0.985, with p values ranging from .054 to .983, indicating no significant departure from normality. Levene's test was nonsignificant for body image, $F = 0.673$, $p = .417$; social physique anxiety, $F = 0.050$, $p = .825$; and appearance-related social comparison, $F = 0.006$, $p = .940$, supporting the assumption of homogeneity of variances. Box's M test was also nonsignificant, $M = 16.373$, $F = 2.494$, $p = .121$, indicating homogeneity of the covariance matrices.

Table 2

Univariate Analysis of Covariance for the Effects of the Intervention on the Study Variables

Dependent variable	Sum of squares	df	Mean square	F	p	Partial η^2	Observed power
Body image	0.515	1	0.515	22.002	< .001	.386	.995
Social physique anxiety	1.161	1	1.161	15.843	< .001	.312	.972
Appearance-related social comparison	2.093	1	2.093	25.257	< .001	.419	.998

As presented in Table 2, after controlling for the corresponding pretest scores, body image–focused cognitive behavioral therapy had a statistically significant effect on all three dependent variables. A significant between-group effect was observed for body image, $F(1, 35) = 22.002$, $p < .001$, partial $\eta^2 = .386$, indicating that 38.6% of the adjusted variance in posttest body image scores was attributable to group membership. The intervention also had a significant effect on social physique anxiety, $F(1, 35) = 15.843$, $p < .001$, partial $\eta^2 = .312$, accounting for 31.2% of the adjusted variance in posttest scores. Likewise, a significant intervention effect was found for appearance-related social comparison, $F(1, 35) = 25.257$, $p < .001$, partial $\eta^2 = .419$, indicating that 41.9% of the adjusted variance in posttest scores was associated with the intervention. Considering the direction of the descriptive changes, the intervention was associated with increased body image scores and decreased social physique anxiety and appearance-related social comparison in the experimental group relative to the control group. Comparison of the effect sizes indicated that the largest intervention effect was observed for appearance-related social comparison, followed by body image and then social physique anxiety. Therefore, the findings supported all three study hypotheses.

Furthermore, the group $\times$ pretest interaction was nonsignificant for body image, $F = 1.241$, $p = .273$; social physique anxiety, $F = 0.862$, $p = .359$; and appearance-related social comparison, $F = 0.574$, $p = .453$, confirming the assumption of homogeneity of regression slopes. Accordingly, the required assumptions for covariance analyses were satisfied. In addition, the multivariate analysis of covariance indicated a significant overall effect of group on the combined dependent variables after controlling for pretest scores, Pillai's trace = 0.638, $F(3, 33) = 19.380$, $p < .001$, partial $\eta^2 = .638$.

4. Discussion

The present study examined the effectiveness of body image–focused cognitive behavioral therapy on body image, social physique anxiety, and appearance-related social comparison among young women attending fitness clubs and actively using social media. The findings indicated that, after controlling for pretest scores, the intervention produced significant improvements across all three outcomes. Specifically, participants in the experimental group showed a significant increase in body image scores and significant reductions in social physique anxiety and appearance-related social comparison compared with the control group. The multivariate analysis also demonstrated a significant overall intervention effect on the combined dependent variables, with a substantial multivariate effect size. At the univariate level, the largest effect was observed for appearance-related social comparison, followed by body image and social physique anxiety. These findings suggest that a structured cognitive behavioral intervention focused specifically on appearance-related cognitions, comparison processes, attentional biases, exposure to feared appearance situations, and media literacy can produce meaningful psychological changes among young women who are simultaneously exposed to appearance pressures in fitness environments and image-centered social media contexts.

The significant improvement in body image following the intervention is consistent with the theoretical foundations of cognitive behavioral therapy and with previous research demonstrating that appearance-related attitudes can be modified through structured psychological intervention. Body image is not simply a passive reflection of objective physical characteristics; rather, it is shaped by interpretations, evaluative beliefs, attentional processes, emotional responses, and behavioral habits. Positive body image involves acceptance, appreciation, and a more adaptive relationship with the body rather than merely the absence of dissatisfaction (Tylka & Wood-Barcalow, 2015). In the present intervention, cognitive restructuring, identification of dysfunctional automatic thoughts, attention shifting, and greater emphasis on bodily functionality may have helped participants replace rigid and negative appearance beliefs with more balanced evaluations. This interpretation is supported by evidence showing that body-related psychological interventions can improve perceptual and attitudinal aspects of body image (Shabani et al., 2023). It is also compatible with findings from intervention research in younger populations demonstrating that body image can be improved when individuals are taught to challenge unrealistic appearance standards and develop more adaptive ways of evaluating themselves (Ahuja et al., 2025).

The improvement in body image may also be explained by the intervention's emphasis on challenging the realism and attainability of appearance ideals encountered on social media. Young women who regularly use image-based platforms are repeatedly exposed to highly curated and often digitally modified depictions of bodies, lifestyles, fitness routines, and beauty standards. Such exposure may gradually normalize unrealistic appearance expectations and reinforce dissatisfaction with one's own body. Experimental and review evidence indicates that exposure to idealized beauty content on social networking sites can negatively affect body image, particularly when individuals internalize appearance ideals or compare themselves unfavorably with presented images (Fioravanti et al., 2022). Similarly, social media has been identified as an important context in which body image is continuously reconstructed through visual exposure, feedback, and social evaluation (Iman & Rahmani, 2025). By teaching participants to critically evaluate digital images, recognize filters and editing practices, and understand selective self-presentation, the intervention may have weakened the perceived validity of social media appearance standards and thereby reduced the discrepancy

between participants' actual and idealized body representations.

The present finding regarding body image is also in line with research emphasizing the broader relationship between social media, body perception, and psychological well-being. Merino et al. highlighted the close association between body perceptions, self-esteem, psychological health, and social media exposure, while also emphasizing the influence of cultural and gender-related factors on body satisfaction (Merino et al., 2024). In the present study, participants represented a group for whom appearance may have been particularly salient because they were both frequent social media users and regular fitness club attendees. These dual contexts may reinforce self-monitoring and appearance concerns, but they also create identifiable cognitive and behavioral targets for intervention. By redirecting attention from appearance toward body functionality and by challenging distorted standards of attractiveness, the intervention may have reduced the cognitive centrality of appearance and increased more adaptive body-related self-appraisal.

The significant reduction in social physique anxiety is another important finding. Social physique anxiety reflects concern that one's body will be observed, judged, or negatively evaluated by others. This form of anxiety may be especially pronounced among individuals who regularly attend fitness clubs because such environments can heighten visibility of the body through fitted athletic clothing, mirrors, comparison with other exercisers, and emphasis on body shape or muscularity. Social media may intensify this concern by extending the imagined audience beyond the immediate physical environment. Participants may not only compare their bodies with those of others but may also anticipate how they themselves would be evaluated if photographed, viewed, or publicly represented online. The reduction observed in the present study suggests that cognitive restructuring and exposure-based elements were effective in weakening assumptions about negative appearance evaluation and reducing avoidance or hypervigilance in appearance-related situations.

One possible mechanism underlying the reduction in social physique anxiety is the modification of distorted beliefs concerning the importance and frequency of others' judgments. Cognitive behavioral interventions encourage individuals to examine evidence for beliefs such as "others are constantly evaluating my body" or "if my body is not ideal, I will be judged negatively." Repeated examination of these beliefs, combined with graded exposure to feared

situations, can weaken catastrophic expectations and reduce avoidance. This interpretation is consistent with evidence supporting cognitive behavioral therapy for body dysmorphic disorder, where treatment has been shown to reduce maladaptive appearance preoccupation and associated distress (Harrison et al., 2016). Although the participants in the present study were not necessarily diagnosed with body dysmorphic disorder, the cognitive and behavioral mechanisms targeted by CBT are relevant across a continuum of appearance-related concerns, including fear of scrutiny, excessive self-monitoring, and overvaluation of physical appearance.

The reduction in social physique anxiety may also have been facilitated by the intervention's focus on self-acceptance, body functionality, and reduced appearance-based self-worth. Social physique anxiety is likely to intensify when appearance becomes central to personal identity and self-evaluation. Research suggests that social media exposure can influence body image through body shame and reduced self-compassion, indicating that individuals who respond to perceived bodily imperfections with self-criticism may experience greater distress (Tamanaeifar & Haddadi, 2024). Although self-compassion was not directly measured in the present study, encouraging more realistic and less punitive interpretations of appearance may have indirectly reduced self-critical responses and concerns about external judgment. This may have helped participants perceive their bodies as less threatening objects of social evaluation and more as functional aspects of the self.

The strongest intervention effect was observed for appearance-related social comparison. This result is theoretically meaningful because social comparison is one of the most immediate cognitive-behavioral processes activated by social media use. Image-based platforms provide an almost uninterrupted stream of comparison targets, including friends, influencers, celebrities, athletes, and fitness content creators. Individuals may repeatedly assess their own weight, shape, muscularity, attractiveness, or perceived fitness against these targets, often without conscious awareness of how curated or unrepresentative the comparison standard may be. Meta-analytic evidence has demonstrated that exposure to upward social comparison targets on social media negatively affects self-evaluations and emotional outcomes (McComb et al., 2023). The present intervention directly targeted this mechanism by helping participants identify comparison episodes, distinguish between upward and downward comparison, monitor the

emotional consequences of comparison, and intentionally reduce unnecessary comparison behaviors. Because this process was directly and repeatedly addressed, it is plausible that appearance-related social comparison showed the largest effect size.

This finding is also strongly supported by research indicating that social comparison is a major mechanism linking social media use to body dissatisfaction and other appearance-related problems. Bonfanti et al. reported that social comparison on social media is significantly associated with body image concerns and eating disorder symptoms (Bonfanti et al., 2024). Ghaffarinasab and Rahmani similarly showed that social comparison plays a mediating role in the relationship between social media use and body image (Ghaffarinasab & Rahmani, 2024). These findings suggest that reducing comparison may produce downstream benefits for body image because individuals are less frequently evaluating themselves against selectively presented appearance standards. In the present study, the improvement in body image and the reduction in social physique anxiety may therefore have been partly attributable to decreases in appearance-related comparison. Although mediation was not formally tested, the pattern of effects is compatible with a model in which reduced comparison weakens negative self-evaluation and concerns about perceived social judgment.

The findings are also consistent with experimental evidence concerning the psychological consequences of appearance-focused social media content. Tiggemann and Zaccardo demonstrated that exposure to fitspiration imagery can have adverse effects on women's body image despite the ostensible health-oriented framing of such material (Tiggemann & Zaccardo, 2015). This is particularly relevant to the present sample because the participants were members of fitness clubs and were likely to encounter fitness-related social media content. Fitspiration can create an especially powerful comparison context because idealized bodies are presented as both attractive and disciplined, potentially implying that failure to achieve similar appearance standards reflects insufficient effort or self-control. The present intervention challenged these assumptions by emphasizing the selectivity of visual content, the unrealistic nature of many online standards, and the difference between physical functionality and appearance perfection. Such cognitive reframing may have helped participants disengage from habitual comparisons with idealized fitness images.

The intervention's media literacy component may also explain some of the observed reductions in appearance

comparison and improvements in body image. Tiggemann and Anderberg found that “Instagram versus reality” images can alter women’s social comparison and body image responses by revealing the artificiality of idealized online presentations (Tiggemann & Anderberg, 2020). This suggests that making the discrepancy between curated and everyday appearance explicit can reduce the persuasive power of social media ideals. In the present study, participants were taught to critically analyze filters, image editing, posing, selection, and other forms of digital manipulation. Such knowledge may have reduced the perceived authenticity and attainability of appearance standards, thereby weakening the psychological basis for upward comparison. When users understand that the comparison target itself is constructed or selectively presented, the target may become less valid as a standard for self-evaluation.

The present results are also consistent with broader literature emphasizing the dynamic relationship between social media use, physical activity, and body attitudes. Zargarzadeh Esfahani et al. identified relationships among physical activity, social media use, and body image attitudes, underscoring that these variables interact within a broader behavioral and sociocultural system (Zargarzadeh Esfahani et al., 2022). This is important because physical activity can be psychologically beneficial when motivated by health, enjoyment, competence, or well-being, but it may become associated with dissatisfaction when driven predominantly by appearance-based goals or external validation. The current findings suggest that psychological intervention can potentially help young women maintain engagement in fitness while reducing maladaptive cognitive processes associated with appearance surveillance and comparison. In other words, the therapeutic goal is not to discourage physical activity or social media use, but to modify the psychological meaning attached to these activities.

The findings also align with contemporary calls to focus on the specific mechanisms through which social media affects body image. Vandenbosch et al. emphasized that recent research should move beyond simple measures of time spent on social media and instead examine what users do online, what content they view, and which psychological processes are activated during exposure (Vandenbosch et al., 2022). The present intervention was consistent with this process-oriented perspective because it targeted comparison, attentional bias, interpretation of visual content, and appearance-related beliefs rather than treating social media use as inherently harmful. This distinction is clinically

important. Two individuals may spend the same amount of time on social media but experience different outcomes depending on whether they passively compare themselves with idealized users, critically evaluate content, follow diverse representations of bodies, or use platforms for non-appearance-related purposes. The present results therefore support the value of targeting patterns of engagement rather than simply recommending general reductions in screen time.

The psychometric appropriateness of the assessment strategy also strengthens interpretation of the findings. The use of a multidimensional body image measure is important because body image cannot be adequately represented by a single global question or by weight dissatisfaction alone. The Persian version of the Multidimensional Body-Self Relations Questionnaire has demonstrated satisfactory psychometric properties among Iranian women (Hasanpoor-Azghady et al., 2022). This supports the cultural and methodological appropriateness of assessing body-related attitudes using a multidimensional instrument in the present context. The observed improvement in body image therefore likely reflects meaningful changes in participants’ evaluations and attitudes rather than merely transient changes in mood.

5. Conclusion

Taken together, the findings indicate that body image-focused cognitive behavioral therapy can effectively address a cluster of interrelated appearance concerns among young women who are exposed to both fitness culture and image-based social media. The intervention likely operated through several mutually reinforcing mechanisms: challenging dysfunctional appearance beliefs, reducing upward comparison, modifying attentional biases, increasing critical media awareness, encouraging focus on body functionality, and reducing avoidance of appearance-related situations. The fact that all three outcomes changed significantly suggests that these constructs are interconnected but not identical. Appearance-related social comparison appears particularly responsive to direct cognitive behavioral modification, while changes in body image and social physique anxiety may emerge partly through reduced comparison and more adaptive interpretations of appearance-related experiences. This pattern is consistent with the broader literature showing that appearance concerns are shaped by interacting cognitive, emotional, social, and media-related processes (Bonfanti et al., 2024; Fioravanti et

al., 2022; Merino et al., 2024). Overall, the results support the use of targeted cognitive behavioral interventions for young women whose body-related concerns are embedded within contemporary fitness and social media environments.

The present study has several limitations that should be considered when interpreting the findings. First, the sample consisted of only 40 young women recruited from a single fitness club in Gilan-e Gharb, which limits the generalizability of the findings to women in other age groups, geographical regions, cultural settings, or types of sports and fitness environments. Second, purposive sampling may have introduced selection bias because participants who agreed to enter the study may have differed from other eligible women in motivation, psychological awareness, or willingness to engage in treatment. Third, all primary outcomes were assessed using self-report questionnaires, which may be influenced by social desirability, recall bias, or participants' expectations regarding treatment effects. Fourth, the study used an inactive control group, and therefore nonspecific therapeutic factors such as group interaction, attention from the therapist, expectancy effects, and social support cannot be fully separated from the specific effects of the cognitive behavioral techniques. Fifth, the absence of a follow-up assessment prevents conclusions regarding the durability of treatment gains over time. Finally, several potentially important variables, including frequency of exposure to fitspiration content, baseline self-esteem, internalization of beauty ideals, self-compassion, and symptoms of disordered eating, were not directly measured.

Future research should replicate the study with larger and more diverse samples recruited from multiple fitness centers and different geographical regions to improve external validity. Studies could also compare body image-focused cognitive behavioral therapy with other evidence-based interventions, such as acceptance and commitment therapy, self-compassion-based approaches, or media literacy programs, using active control conditions. Longitudinal follow-up assessments at three, six, and twelve months would help determine whether improvements in body image, social physique anxiety, and appearance-related comparison are maintained. Future studies should also investigate potential mediators and moderators of treatment effectiveness, particularly changes in social comparison, internalization of appearance ideals, body shame, self-compassion, media literacy, and appearance-contingent self-worth. More detailed assessment of social media behavior would also be useful, including the types of accounts

followed, passive versus active use, exposure to fitspiration content, frequency of image editing, and engagement with appearance-related feedback. Experimental mediation models could clarify whether reductions in appearance comparison account for subsequent improvements in body image and social physique anxiety.

From a practical perspective, body image-focused cognitive behavioral programs could be incorporated into psychological health promotion services offered in fitness clubs, counseling centers, universities, and community settings serving young women. Fitness trainers and club managers may benefit from brief education regarding the psychological effects of appearance-focused messaging, frequent body comparison, and unrealistic fitness standards so that exercise environments can emphasize health, strength, functionality, and well-being rather than appearance alone. Mental health professionals working with young women who report body dissatisfaction or anxiety about physical evaluation should routinely assess the role of social media and appearance comparison in maintaining distress. Media literacy components should also be included in preventive and therapeutic interventions, particularly strategies for identifying manipulated images, reducing exposure to harmful content, diversifying followed accounts, and limiting compulsive appearance comparison. Group-based delivery may be especially feasible in fitness and university settings because it can provide peer normalization, structured skill practice, and cost-effective access to psychological support.

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

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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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