Exploring the Relationship Between Self-esteem and Body Image in Individuals Undergoing Disability Rehabilitation: Gender Differences and Program Implications

Maryam1, Abdur Rahman2, Salah Uddin Khan3,4,5* and Mansour Shrahili6

1Department of Psychology, Peshawar University, Peshawar, Pakistan
2Department of Management Sciences, FATA University, F.R. Kohat, Pakistan
3Sustainable Energy Technologies Center, College of Engineering, King Saud University, Riyadh 11421, Saudi Arabia
4King Salman Center for Disability Research, Riyadh 11614, Saudi Arabia
5Department of Statistics and Operations Research, College of Science, King Saud University, Riyadh 11451, Saudi Arabia

Correspondence to:
Salah Uddin Khan*, e-mail: drskhan@ksu.edu.sa. Tel.: +966-11-4676832

Received: April 2 2024; Revised: May 13 2024; Accepted: May 13 2024; Published Online: June 26 2024

ABSTRACT
This study explores the relationship between self-esteem and body image in individuals undergoing disability rehabilitation, focusing on gender differences and program implications. The research aims to understand the impact of participation in rehabilitation programs on self-esteem and body image perceptions. A purposive sample of 104 participants, including 52 men and 52 women, was divided into two groups based on their participation in rehabilitation programs. The study utilized the Rosenberg Self-Esteem Scale, the Body Image States Scale, and the Body Shape Questionnaire as assessment tools. Statistical analyses, including correlation tests and independent samples t-tests, were conducted to analyze the data. The results revealed a significant correlation between self-esteem and body image, with no differences between participants engaged in rehabilitation programs and those who were not. Gender-specific variations were also observed in self-esteem and body image perceptions. This study discusses the implications of these findings for disability rehabilitation programs and suggests future research directions while acknowledging study limitations.

KEYWORDS
self-esteem, body image, psychological well-being, rehabilitation program

INTRODUCTION
Numerous studies have explored the intricate interplay between self-esteem and body image in the context of disability or rehabilitation. Therefore, before embarking on a study in this area, it is imperative to grasp the definitions of these terms and their interconnectedness within this specific context.

Body image
Body image refers to the subjective perception and evaluation of one’s own body in connection with a disability or rehabilitation. Spreckelsen et al. (2018) state that body image is a multifaceted construct that encompasses thoughts, feelings, evaluations, and behaviors concerning one’s body. According to the American Psychological Association (2015), body image is how we mentally organize how we look and it includes what we think and feel inside about our appearance. King (2018) suggests that body image is like a mix of who we are based on our outside appearance and our inner feelings about our bodies. On the other hand, body image in the context of disability or rehabilitation is influenced by factors such as changes in physical functioning, changes in appearance, and societal attitudes toward disability. It encompasses both internal perceptions and external feedback and shapes the way individuals perceive themselves and interact with their environment. This concept is closely related to feelings
of satisfaction or dissatisfaction with one’s own body and overall self-concept (Gupta et al., 2012). In the context of disability or rehabilitation, body image can also include perceptions of physical ability, acceptance of functional limitations, and adaptation to assistive devices or mobility aids. Understanding and addressing body image is an essential part of promoting the holistic well-being and psychological adjustment of people going through a disability or rehabilitation process.

• **Body image satisfaction:** Body image satisfaction refers to an individual’s subjective evaluation of their body and appearance that encompasses feelings of satisfaction or dissatisfaction with one’s physical attributes (Cash and Pruzinsky, 2002).

• **Body image investment:** Body image investment represents the degree to which an individual incorporates physical appearance into their self-concept and overall self-worth (Fredrickson and Roberts, 1997).

• **Body image behavior:** Body image behavior includes a range of actions and responses related to one’s appearance, such as grooming habits, body checking behaviors, efforts to conceal perceived flaws, and avoidance of situations or individuals that trigger body image concerns (Thompson et al., 1999).

• **Body image perception:** Body image perception refers to an individual’s accuracy in assessing their own body size, shape, and appearance, including distortions or realistic estimations of these physical characteristics (Thompson and Gray, 1995).

**Self-esteem**

Self-esteem is how we see and feel about ourselves. It is like a personal judgment of how good or valuable we think we are. It shows whether we believe in our abilities, feel important, successful, and deserving. In short, self-esteem is about our attitude toward ourselves (Coopersmith, 1967).

Branden (2021) defines self-esteem as feeling right for life and its challenges. It is about being confident in thinking and handling life’s difficulties. Self-esteem also means feeling entitled to happiness, believing we deserve good things, and having the confidence to express our needs and enjoy our achievements (Malik et al., 2024). The word self-esteem is a part of everyday language; at an intuitive level one seems to know what self-esteem is. But broadly this term is defined and explained in three different ways.

**Three meanings of self-esteem**

The word self-esteem is further elaborated in three perspectives.

**Global self-esteem**

Most often, the term “self-esteem” is used to refer to a personality variable that captures the way people generally feel about themselves. Researchers call this form of self-esteem global self-esteem or trait self-esteem, as it is relatively enduring, both across time and situations.

**Self-evaluations**

The term self-esteem is also used to refer to the way people evaluate their various abilities and attributes.

**Feelings of self-worth**

Finally, the term self-esteem is used to refer to rather momentary emotional states, particularly those that arise from a positive or negative outcome. This is what people mean when they speak of experiences that bolster or threaten their self-esteem. Many studies show that body image and self-esteem are related to physical exercise (Cash and Pruzinsky, 2002).

**Physical exercise**

Rehabilitation participation encompasses a variety of interventions aimed at promoting physical function, general well-being, and quality of life for people with disabilities. These activities serve a variety of purposes, including facilitating recovery and adaptation, preventing secondary complications, improving mobility and independence, and promoting social integration and community engagement. Participation in structured rehabilitation programs offers numerous benefits, such as improving physical function, reducing pain and discomfort, improving psychological well-being, and optimizing participation in daily activities and social tasks. Rehabilitation interventions also play a crucial role in removing barriers to participation, promoting accessibility and inclusion, and empowering people with disabilities to reach their full potential. In addition, rehabilitation services contribute to broader societal goals, including reducing healthcare costs, promoting participation in working life, and advancing human rights and social justice for people with disabilities. By providing evidence-based rehabilitation interventions and promoting equitable access to services, healthcare professionals and policymakers can improve the health, well-being, and participation of people with disabilities and ultimately promote a more inclusive and cohesive society for all.

**Sports**

Sports is a form of physical activity that is often competitive and organized. Sports use, maintain, or improve physical ability and skills. They also provide enjoyment to participants and, in some cases, entertainment to spectators. Many sports exist, with different participant numbers; some are done by a single person with others being done by hundreds. Most sports take place either in teams or competing as individuals. Some sports allow a “tie” or “draw,” in which there is no single winner; others provide tie-breaking methods to ensure one winner. A number of
Adolescence

Adolescence is defined as the stage of development occurring between puberty and adulthood (Cardwell, 2003). According to Santrock (2009), adolescence starts at approximately 10-12 years of age and ends at 18-21 years of age. There are various views about this period of development by different psychologists. For example, Sigmund Freud stated that, following puberty, one’s instinct increases, causing an emotional imbalance. He also stated that this is a period where adolescents disengage from their family before entering adulthood (Cardwell, 2003). On the other hand, Erik Erikson explained the period of adolescence through the identity versus identity confusion stage in his psychosocial stages. He explained that during this stage, adolescents try to find out who they are and their place in the society, which may lead to the formation of personal identity or identity confusion.

Adulthood

Adulthood is often broken into three stages: early adulthood, middle adulthood, and late adulthood. In the current study, adults refer to those in the period of early adulthood. This stage of development begins in the early 20s and lasts through the 30s. In Erikson’s psychosocial stages, this is the sixth stage of development which is intimacy versus isolation. Here, individuals start forming an intimate relationship, which includes friendship and romantic relationship, which leads to either intimacy or isolation.

LITERATURE REVIEW

In a study conducted by Christopher, it was observed that individuals, particularly females, including young adolescents, derive significant benefits from engaging in physical activity and sports within the context of disability or rehabilitation. Participation in physical activity not only fosters a heightened sense of self-esteem among women but also contributes to a more positive body image and overall well-being throughout the lifespan. Research indicates that women who engage in physical activity during their youth are more likely to maintain an active lifestyle into adulthood, resulting in sustained levels of self-esteem and overall psychological well-being. Furthermore, findings from a study conducted by Jaffee (1992) revealed that girls aged 9-12 years develop self-esteem through various aspects of sports involvement, such as challenging experiences, achieving milestones, taking risks, and honing their skills. Older girls, on the other hand, tend to derive self-esteem from external sources, such as the approval of others and the belief in the capabilities of girls in sports.

However, research done by the US Department of Health (1992) and Wilson Report (1987) show that during the adolescent years, participation of females in sports and physical activity drops dramatically. Girls’ motivation at this time however has traditionally been more directed toward the idea of “fitting in.” With this being said, it is a negative that all girls are not involved in sports and physical exercise. Girls benefit from sports participation on many levels. Some of these benefits are highlighted by a study conducted by McEwin (1981). The study stated 11 positives of participation in sports for adolescents. The following are a few highlighted selections from the list. Some girls enjoy the exercise, while others enjoy the bonds made from interaction with peers and with their respective coaches. It was also observed that competing in sports may lead to the awarding of a college scholarship or the ability to play sports in college. Sports allow leaders to emerge and talents to be discovered. Finally, through competitive sports adolescents gain a better understanding of competition and how it is related to everyday life. Lindgren et al. (2000) studied the impact of sports on later physical activity in adult life. The research concluded that most women felt that they would continue to be physically active later in life after being physically active as younger girls. One woman was quoted as saying, “I really enjoy taking part in sport and feel better for it. I can’t imagine life without sport.” In a similar study titled “Attitudes towards competition: do differences exist between boys and girls,” Mary Healy Jonas (2002) showed that the number one reason for both boys and girls to play sports is fun. The focus of this research, however, was to show the differences between boys and girls in relation to their views on sports.

Bowker et al. (2003) and Lieberman et al. (2003) showed that peer pressure was a defining predictor of body esteem and eating behavior. Girls defined as “popular” in this study were more likely to have lower body esteem and engage in eating that would be considered “disordered.” Many girls at this age begin to talk about how fat they are and in turn watch what they eat, or do not eat, very carefully. A vicious cycle takes over for these young girls plagued by a misrepresentation of women in the media. This cycle can be broken if girls are exposed to physical activity and sports at an early age. The goal is to educate girls that the female body is not just for looks but for physical action and activity.

Research done by the Melpomene Institute provides evidence that “among older teens, those who engage in sports and other physical activities are least likely to drop out of school, get pregnant, develop eating disorders, put up with abusive relationships, smoke, drink, do drugs or develop breast cancer as adults.” Similarly, the study conducted by Ferron et al. (1999) reveals that sports and exercise can become preventive medicine against ailments such as stress, depression, and negative experimental behavior. The perception of the involvement in physical activity and sports as a protective factor against stress and depression or unsettling behaviors (notably risk-taking, experimental behavior and
drug use) is currently spreading among health professionals and policymakers.

In a related study, Strelan et al. (2003) explained that women are more likely than men to exercise for reasons such as body tone, weight control, and attractiveness. The desire to lose weight is highly correlated with a poor body image, with more women than men wanting to lose weight. Kashubeck et al. (2005) reported that when considering only men and women who desire to lose weight, sex differences in body image become inconsequential. Also, a study by Garner and Garfinkel (1980) demonstrated that those in professions where there is a particular social pressure to be thin (such as models and dancers) were much more likely to develop anorexia during their career, and further research suggests that those with anorexia have much higher contact with cultural sources that promote weight loss.

Another study conducted by Yau (2011) investigated age group differences, gender differences, and geographical location differences in body esteem among adolescents and adults. It was found that adolescents were more satisfied than adults, especially adolescent females; there was a difference in body esteem between males and females, and participants from urban and suburban populations were more satisfied than the others. Regarding the age group differences in body esteem, an earlier study by Paxton et al. (1991) found that there were a significant number of adolescents who were dissatisfied with their body. In another study, Benedikt et al. (1998) found that a large percentage of adolescents in their sample were dissatisfied with their body shape and weight and were constantly involved in weight-loss behaviors.

Past research mostly studied esteem in women, creating a stereotypical perception that body esteem affects women at most. Women were found to be least satisfied with their hips, thighs, legs, stomach appearance, agility, buttocks, feet, figure, physique, waist, nose, sex organs, body hair, weight, and face when compared to men. On the other hand, men did not report any significant dissatisfaction with any of their body parts when compared to women. Paxton et al. (1991) further found that girls reported higher body dissatisfaction on all measures compared to boys. McKinley (1998) also found that women reported higher surveillance, body shame, and ideal body discrepancy compared to men.

This gender difference is not only found in Western populations, but also in non-Western populations. In a study, Chinese women were found to have higher body dissatisfaction compared to men. A longitudinal study conducted by Rosenblum and Lewis (1999) found that adolescent girls’ body image worsened while adolescent boys’ body image improved over the period of study. Longitudinal studies are important as they reveal the development framework of body esteem, not only age differences.

The ideal body appearance perceived by most women is a slender figure while for men it is having a built-up body. In the study conducted by Davis and Katzman (1997), it was found that more women wanted to be thinner and more men wanted to be heavier, conforming to these ideals. Gittelsohn et al. (1996) found in their study of an isolated population that the participants wanted a body closer to the current ideal one but their perception of an ideal body is not that thin or muscular. There were not many studies on the difference in body esteem among populations of different geographical locations. Many studies were conducted in urban and rural areas and comparisons were rarely made. Furthermore, body self-esteem has rarely been a topic of study in the populations in the suburban area.

Tiggemann (2004) stated that it is rational to expect to have lower body esteem as one ages, as each year will take people further away from the thin or muscular body which is perceived as ideal. Bearman et al. (2006) proved that, for adolescent girls, an increase in age leads to an increase in body dissatisfaction. Extensive studies on body esteem were conducted among adolescents and adults, but studies on the differences between these two age groups are insufficient. The review by Tiggemann (2004) found that aging causes both genders to move away from the youthful thin or muscular ideal. However, Grippo and Hill (2008) found in their study that women experience body dissatisfaction throughout their lifespan. However, Hoyt and Kogan (2001) found in their study on college students with a mean age of 20 years that the participants were satisfied with their body appearance.

Li et al. (2005) found in their study that adolescents and children as young as 5 years old of both genders were greatly dissatisfied with their bodies. In addition, Standley et al. (2009) found in their study that a significant percentage of adolescents who had a normal weight felt that they were too fat. A study on adolescent girls in Jordan also found that 21.2% of the sample reported body dissatisfaction supporting their hypothesis that body dissatisfaction is prevalent in non-Western countries.

A longitudinal study conducted in the United States also reported high body image dissatisfaction and engagement in weight-loss behavior among normal-weight and underweight adolescents. Another longitudinal study by Isomaa et al. (2011) which was conducted in Finland found that most adolescents had an incorrect perception about their weight. O’Dea and Caputi (2001) found some puzzling results in their study which include overweight adolescents perceiving their weight as about right and some overweight adolescents trying to gain weight. They explained that adolescents may be unaware of their weight and are not worried with the general body image stereotype. Dinç and Alisinanoğlu (2010) also found in their study that adolescents scored relatively well on body satisfaction and the majority felt good about their bodies.

McCabe and Ricciardelli (2004) mentioned that past studies have focused on body dissatisfaction in females and that findings of body dissatisfaction in males are still vague. McLaren and Kuh (2004) described the concern with and anguish about body appearance, especially weight as an extremely gendered phenomenon. Smolak (2004), however, regarded this statement, which is usually interpreted as boys and men not having body image problems, as not true. Multiple studies found that women had lower body satisfaction than men. Bardone-Cone et al. (2008) found in their research that more factors affect women to conform to
ideal appearances compared to men. The study conducted by Lokken et al. (2003) found that women tend to strive for an unreasonably low weight. Even when both genders are matched on a measure of body focus, parts of body often associated with dieting, or ideal body appearance, women continue to show greater body dissatisfaction compared to men.

Luo et al. (2005) also found that Chinese men are more satisfied with their body appearance and weight compared to Chinese women. Jones et al. (2007) found that Caucasian females scored higher on body dissatisfaction compared to Caucasian males. Rodgers et al. (2009) found that a majority of young women in their sample wanted a thinner body and over 80% wanted to lose weight. A cross-sectional study conducted by Storvoll et al. (2005) found in their adolescent sample that girls had higher body dissatisfaction compared to boys at both times. Several studies on adolescents also found that girls reported higher body dissatisfaction on all measures compared to boys. A study conducted on Turkish adolescents also found that males had higher body satisfaction than females.

In a study on male body dissatisfaction, it was found that men also find their bodies to be different from their idealized bodies (Adams et al., 2005). Lorenzen et al. (2004) also found in their study on college men that brief exposures to the muscular body cause men to report body dissatisfaction. The study by Hoyt and Kogan (2001) further found that men are dissatisfied with their chest, abdomen, and upper arms, body parts that are significantly featured in the media. In a study on Malaysians, Mellor et al. (2009) found that adolescent boys had a comparatively high body image across all ethnic groups. Mellor et al. (2009) explained that this may be due to young Asian men’s body shape which does not conform to the Western muscular body ideal. Bardone-Cole et al. (2008) found that men scored high on pressure to have an ideal body which increases anxiety about their body image and thus leads to body dissatisfaction as they realize that their body does not conform to the ideal body appearance.

Furnham et al. (2002), on the other hand, found that some males wanted to be heavier, while some wanted to be thinner; however, most females wanted to be thinner. Several other studies found that females were more concerned about their weight or body shape, whereas males were more concerned about their body muscularity. Smolak (2004) explained that findings indicating that females have higher body dissatisfaction than males are misleading. The author stated that most of the findings have a fairly small sample, the samples are mostly Whites, and the studies use several different measures of body image.

Regarding the difference in body esteem between urban and suburban populations, Luo et al. (2005) found that, among urban Chinese women, only 38% regard themselves as attractive. On the other hand, Welch et al. (2004) found in their study that children from urban areas scored higher on body satisfaction compared to students from other geographical locations explaining that there may be different cultural standards in different areas. The lack of findings on this difference gives this study more significance in studying the difference in body image and self-esteem between urban and suburban populations.

In a study conducted by Can Tho University in Vietnam, it was found that low self-image can result in severe psychologically disabling disorders such as depression and anxiety leading to suicide. It proposed that poor self-image in adolescents can result in poor school performance. It was also found that girls were more affected from esteem issues when compared to boys. It further elaborated that adolescents who had low self-esteem had unsatisfactory relationships with their peers and siblings. Also, their relationship with their parents was not good which affected their overall social domain of life causing a negative effect on their psychological health by causing psychological distress such as anxiety and depression. In severe cases, it leads these individuals to have suicidal ideation or even suicidal attempts.

In another study conducted in Touro University by Sokol et al. (2023), it was concluded that esteem issues result in severe psychological distress disabling individuals to think in a positive manner about themselves. It results in depression causing them to become more pessimistic and hopeless about future. They are more critical of their selves and mostly highlight the negative aspects of their life. Similarly, a study conducted by Duchesne (2017) also found that critical self-evaluation results in psychologically disabling disorders such as depression. It also leads to anxiety about one’s self and social situations resulting in isolation and withdrawal from places where an individual has to meet other people and is vulnerable to possible criticism.

Thus, it can be concluded from many studies that self-esteem is positively correlated with a positive body image, and also that individuals who exercise daily will have a more positive body image and better self-esteem. Adolescents will have better self-esteem in comparison to adults. In conclusion, we can also add that such negative and critical thinking about one’s self can result in psychological distress disabling the daily functioning of the individual as it results in social isolation, withdrawal, depression, anxiety, and even suicidal thoughts and attempts. Such individuals need to look at themselves in a positive way highlighting their potential and evoking positive feelings about themselves. For such people, rehabilitation and counseling facilities can be very helpful, which would emphasize inducing positive feelings about themselves, complementing their selves by highlighting their strengths and accomplishments, and most importantly helping them to be more active and productive by engaging in exercises such as jogging, brisk walking, and sports activities.

Rationale

Based on a comprehensive review of literature and prior research concerning the association of self-esteem and body image with participation in physical activity or exercise within the domain of disability or rehabilitation, evidence suggests a positive correlation between self-esteem and body image. Furthermore, it is plausible that adults undergoing
rehabilitation who engage in exercise may exhibit higher levels of self-esteem and more positive body image perceptions compared to adolescents undergoing similar programs. Additionally, males participating in exercise within the context of disability or rehabilitation have the potential to demonstrate a positive body image and heightened self-esteem in comparison to their female counterparts. It is also plausible that people who do not go for any healthy activities and are less concerned over their body shapes and weight are less worried and concerned over such matters and are happier and psychologically healthy. They view themselves as better individuals as compared to those who go to gym for fitness or play different sports activities to stay healthy and fit (Salman et al., 2023).

Problem statement

Despite the growing emphasis on physical activity and its positive impact on mental well-being, there remains a gap in understanding the nuanced relationship between exercise, self-esteem, and body image among adolescents and young adults. This study aims to address this gap by exploring how exercise habits influence self-esteem and body image perception in different age groups and genders.

Research gap

Despite existing research on the interplay among exercise, self-esteem, and body image, there remains a dearth of comprehensive studies that directly compare individuals undergoing disability rehabilitation who participate in exercise programs with those who do not, particularly across various age groups and genders. Moreover, limited research has delved into the psychological mechanisms that underpin these relationships, including the influence of social comparison, media portrayals, and internalized societal beauty standards. This study seeks to address these gaps by offering an in-depth examination of the intricate dynamics between exercise, self-esteem, and body image perception among adolescents and young adults undergoing disability rehabilitation.

METHODOLOGY

Objectives of the study

This study aims to:

- Explore the correlation between self-esteem and body image within the context of disability or rehabilitation.
- Investigate the impact of exercise on the self-esteem of adolescents and adults undergoing disability rehabilitation, considering its influence on body image perceptions.
- Examine gender disparities among individuals participating in exercise programs and those who do not, particularly within the adolescent and adult populations undergoing disability rehabilitation.
- Examine the difference between people who go to gym or play sports activities and those who do not live an active or healthy lifestyle in the context of their self-image.

Hypothesis

- A notable correlation is anticipated between body image and self-esteem within the context of disability or rehabilitation.
- It is hypothesized that adolescents undergoing disability rehabilitation who engage in exercise will exhibit lower levels of self-esteem and more negative body image perceptions compared to adults undergoing similar rehabilitation programs.
- Additionally, it is expected that male individuals participating in exercise within the context of disability or rehabilitation will demonstrate higher levels of self-esteem and more positive body image perceptions compared to their female counterparts.

Sampling

A purposeful sample of 104 individuals was taken to assess the hypothesis. The sample was divided into two groups comprising 52 males and 52 females. Then, these two groups were further divided into four groups, i.e. 26 exercising males and 26 non-exercising males, and 26 exercising females and 26 non-exercising females. These groups were further divided into eight subgroups: 13 exercising adolescent males, 13 exercising adult males, 13 non-exercising adolescent males, 13 non-exercising adult males, 13 exercising adolescent females, 13 exercising adult females, 13 non-exercising adolescent females, and 13 non-exercising adult females. A purposeful sample of exercising males and females was selected from different gyms in Peshawar, including Laila gym for women and Super Gold gym, FC plaza, Dr. Younus Chowk Saddar Peshawar; another half of the sample, i.e. non-exercising individuals, was selected randomly from school, college, and university students.

Research instruments

The Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale (RSES), developed by the sociologist Dr. Morris Rosenberg, is a self-esteem measure widely used in social science research. It uses a scale of 0-30 where a score <15 may indicate a problematic low self-esteem. The RSES is designed similar to social-survey questionnaires. It is a 10-item Likert-type scale with items answered on a 4-point scale—from strongly agree to strongly disagree. Five of the items have positively worded statements and five have negatively worded ones. The scale measures state self-esteem by asking the respondents to reflect on their current feelings. The original sample for which the scale was developed consisted of 5024 high-school juniors and seniors as mentioned in Tables 1 and 2 from 10 randomly selected...
The result is significant for BISS and BSQ but nonsignificant for the RSES.

**Body Image States Scale**

The Body Image States Scale (BISS) is a six-item measure of individuals’ evaluation and affect about their physical appearance at a particular moment in time. The BISS is acceptably internally consistent. Evincing its convergent validity, the BISS is appropriately correlated with various trait measures of body image. The psychometric properties of the scale are as follows: the test–retest reliability ranges from 0.82 to 0.85, the internal consistency ranges from 0.77 to 0.88, and the criterion validity is 0.55.

**Body Shape Questionnaire**

It is a useful measure of weight and shape given that the purpose of this study is to contribute new psychometric information on the Body Shape Questionnaire (BSQ) in order to assist clinicians and researchers who intend to use this measure. The BSQ demonstrated good test–retest reliability, concurrent validity with other measures of body image, and criterion validity. The psychometric properties of the scale are as follows: the internal consistency for men ranges from 0.62 to 0.84 and for women from 0.77 to 0.90, and the test–retest reliability for men and women is 0.68 and 0.69, respectively.

**Procedure**

The research was conducted on a sample of 104 individuals ranging from 15 to 42 years of age comprising a population of exercising and non-exercising males and females from different gyms and school, college, and university students to assess their self-esteem in relation to their body image as presented in Tables 3 and 4. Permission was obtained from the subjects to fill the scale. All the subjects were approached individually. All the subjects were assured about the confidentiality of their responses. All the subjects were given verbal instructions. After administering the test, it was made sure that the subjects were satisfied with their answers. The subjects were then thanked and acknowledged for their time and effort. In the end, the researcher applied correlation statistics and independent samples t-test on the collected data, and results were interpreted accordingly.

**Table 1:** Demographic characteristics of the sample.

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>M</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Females</td>
<td>52</td>
<td>50</td>
</tr>
<tr>
<td>Adults exercising</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Adolescents exercising</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Adults non-exercising</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Adolescents non-exercising</td>
<td>26</td>
<td>25</td>
</tr>
</tbody>
</table>

**Table 2:** Correlational differences between self-esteem and body image.

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSES</td>
<td>1</td>
<td>0.094</td>
<td>0.249</td>
</tr>
<tr>
<td>BISS</td>
<td>0.094</td>
<td>1</td>
<td>0.365</td>
</tr>
<tr>
<td>BSQ</td>
<td>0.249</td>
<td>0.365</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table 3:** Comparison between the scores of males and females to assess their self-esteem and body image in relation to exercise.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Males (N = 52)</th>
<th>Females (N = 52)</th>
<th>t</th>
<th>P</th>
<th>95% CL (LL to UL)</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSES</td>
<td>22.00</td>
<td>3.13</td>
<td>22.13</td>
<td>3.87</td>
<td>−0.95</td>
<td>0.846</td>
</tr>
<tr>
<td>BISS</td>
<td>35.59</td>
<td>13.24</td>
<td>30.69</td>
<td>11.21</td>
<td>2.038</td>
<td>0.846</td>
</tr>
<tr>
<td>BSQ</td>
<td>21.23</td>
<td>6.12</td>
<td>22.98</td>
<td>7.01</td>
<td>−1.35</td>
<td>0.178</td>
</tr>
</tbody>
</table>

**Table 4:** The t-test comparison between the scores of adults and adolescents to assess their self-esteem and body image in relation to exercise.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Males (N = 52)</th>
<th>Female (N = 52)</th>
<th>t</th>
<th>P</th>
<th>95% CL (LL to UL)</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSES</td>
<td>22.11</td>
<td>3.47</td>
<td>22.01</td>
<td>3.56</td>
<td>0.139</td>
<td>0.890</td>
</tr>
<tr>
<td>BISS</td>
<td>31.42</td>
<td>11.33</td>
<td>34.86</td>
<td>13.37</td>
<td>−1.416</td>
<td>0.160</td>
</tr>
<tr>
<td>BSQ</td>
<td>21.80</td>
<td>6.3</td>
<td>22.40</td>
<td>6.9</td>
<td>−0.45</td>
<td>0.648</td>
</tr>
</tbody>
</table>

The result is significant for the BISS and BSQ but nonsignificant for the RSES.

**Table 3:** Comparison between the scores of males and females to assess their self-esteem and body image in relation to exercise.
RESULTS

Discussion

The study conducted showed a significant correlation between self-esteem and body image.

The results computed show that the scales used are reliable, and there is a significant correlation between self-esteem and body image but some scales showed nonsignificant results disapproving of the hypothesis. The significant correlation between self-esteem and body image was previously assessed by Basich (2006), gender difference was indicated by Azikiwe (2014), and age difference was assessed by Klem (2010) and Yau (2011).

The study’s findings underscore a significant correlation between self-esteem and body image, with strong associations observed particularly between body image perception and dissatisfaction, as evidenced by the BISS and BSQ results. While no significant gender-based differences were found in self-esteem levels, females exhibited lower scores on the BISS, indicating potential disparities in body image perception influenced by exercise habits. Similarly, although no significant age-related variations were detected in self-esteem, adolescents demonstrated higher BISS scores than adults, suggesting a more pronounced impact of exercise on body image perception among younger individuals. The fact that the results of the t-test are significant for the body image scale and BSQ and insignificant for the self-esteem scale suggests that there is a correlation between exercise and body image; however, there is no correlation between exercise and self-esteem (Ali et al., 2024). These results align with prior research, as the significant correlation between self-esteem and body image was previously assessed by Basich (2006), gender difference was indicated by Azikiwe (2014), and age difference was assessed by Klem (2010) and Yau (2011).

Future studies could consider expanding their scope by examining samples of individuals who engage in physical activities outside of gyms, such as outdoor sports and recreational activities, to gain a more comprehensive understanding of the relationship between exercise, self-esteem, and body image in individuals undergoing rehabilitation with disabilities.

Suggestions

Suggestions for further studies are as follows:

- To address the challenges of language comprehension, future research efforts should prioritize the translation of rating scales into local languages and use simplified wording for better understanding in the context of disability or rehabilitation.
- Despite the lessons learned and the limitations identified in this study, there is still a wealth of opportunities for further research in this area. Subsequent research efforts could explore the links between participation in sporting activities, self-esteem, and perceptions of body image in relation to issues such as vanity and aging, and extend the scope to regional and national contexts.
- Future studies could consider expanding their scope by examining samples of individuals who engage in physical activities outside of gyms, such as outdoor sports and recreational activities, to gain a more comprehensive understanding of the relationship between exercise, self-esteem, and body image in individuals undergoing rehabilitation with disabilities.

CONCLUSION

The study expands our understanding of self-esteem and body image in the context of the rehabilitation of disabled people. The results confirm the hypothesis of a significant correlation between self-esteem and body image and emphasize the importance of rehabilitation interventions in promoting positive self-esteem and body image. The differences between genders were notable, highlighting the need for tailored interventions and educational initiatives. Despite certain limitations, such as communication difficulties and cultural nuances, the study provides valuable insights for future research efforts and interventions aimed at improving self-esteem and body image perceptions in people with disabilities undergoing rehabilitation.

ACKNOWLEDGEMENTS

The authors extend their appreciation to the King Salman Center for Disability Research (funder ID: http://dx.doi.org/10.13039/501100019345) for funding this work through Research Group no. KSRG-2023-263.
REFERENCES