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Research Paper

Neuro-Somatic Alignment: A Conceptual and Psychometric Assessment of Mental Health, Appearance Anxiety, and Their Correlational Dynamics across Differential Strata of Sports Participation among Para-Able (Disabled) Individuals

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ABSTRACT

Language around disability does more than describe bodies; it also organises how those bodies are valued, included, or marginalised. In line with the emerging shift from a deficit-oriented notion of "disability" toward a more ability-focused discourse of para-ability, this study offers a conceptual and psychometric examination of mental health and appearance anxiety among para-able (disabled) women, and investigates how these constructs vary with sports participation. Within this para-ability perspective, and guided by a neuro-somatic alignment framework that links bodily engagement with psychological functioning, the research treats sport as a potential site where mind and body can be jointly strengthened rather than separately managed. A quantitative descriptive–comparative–correlational design was employed. Using purposive sampling, data were collected from 30 para-able women aged 18–28 years (15 athletes and 15 non-athletes) with limb-related impairments. Standardised instruments—the Mental Health Inventory and the Appearance Anxiety Inventory—were administered to assess overall mental health and appearance-related anxiety. Group differences were analysed using independent-samples t-tests, and associations between variables were examined through Pearson's product–moment correlation. Para-able athletes obtained markedly higher mental health scores ($M = 175.00$) than para-able non-athletes ($M = 126.60$), and substantially lower appearance-anxiety scores ($M = 10.00$ vs. 18.33); both differences were highly significant ($p < .001$). Across the full sample, mental health and appearance anxiety showed a strong negative correlation ($r = –0.879$, $p < .001$), indicating that more robust mental health tends to co-occur with lower appearance-related worry, whereas elevated appearance anxiety is linked with more vulnerable psychological functioning. The findings indicate that inclusive para-sport environments can gradually shift perceptions from viewing para-able women as passive recipients of sympathy to recognising them as capable, high-performing agents with visible competence and contribution. Embedding adaptive sports opportunities within rehabilitation and mental-health programmes may therefore support stronger mental health, reduced appearance anxiety, and a more

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coherent neuro-somatic alignment in which body and mind work together to sustain para-ability in everyday life.

Keywords: *Para-ability, Mental health, Appearance anxiety, Para-sport, Women with physical disabilities, Neuro-somatic alignment*

Mental Health

Mental health denotes a condition of psychological harmony in which an individual recognizes personal capabilities, effectively copes with daily challenges, and contributes productively within society. It encompasses emotional, cognitive, and social stability that enables effective adaptation to life's circumstances. For persons with physical disabilities, sustaining mental health holds particular importance, as limitations in mobility, reliance on others, and experiences of social stigma can adversely influence emotional steadiness and self-perception, heightening susceptibility to stress and anxiety.

Appearance Anxiety

Appearance anxiety refers to the fear of being negatively judged by others due to one's physical appearance. It involves dissatisfaction with one's body and pressure to meet social standards of beauty. **Harper and Tiggemann (2008)** note that such anxiety stems from societal ideals equating attractiveness with worth. Among persons with physical disabilities, these concerns are often heightened due to increased self-awareness, visibility, and fear of social evaluation in a culture that idealizes physical perfection.

Para-Ability

Para-ability is a term used to reframe disability by emphasising the strengths, capabilities, and potential of persons with disabilities rather than their limitations. It reflects a vision of a self-reliant and inclusive society in which individuals are regarded as "para-able"—standing on the side of ability—so that attention shifts from what they cannot do towards what they are able to achieve, particularly in domains such as sport, education, work, and everyday participation.

International research and policy work supports this kind of linguistic and conceptual shift. Drawing on a narrative review of disability models and positive psychology, **Mousavi et al. (2020)** argue that deficit-oriented labels such as disability can unintentionally reinforce stigma and reduce a sense of self-determination. They therefore advance "para-ability" as a more empowering way of naming people who live with disability, because it draws attention to competence, adaptation, and growth rather than to lack. In a related discussion of ableism, **Ferrier and Muller (2008)** describe how the category of "able" is treated as an unquestioned positive norm, while disability is commonly defined as deficiency or deviation from that norm. Their analysis underscores the importance of using language that foregrounds capability instead of implicitly reinforcing inferiority. In a similar spirit, disability-inclusive language guidelines issued by the United Nations emphasise that "words matter" and recommend avoiding expressions that reduce people to their impairments, encouraging instead terminology that affirms equal dignity, rights, and participation for persons with disabilities **(United Nations, 2019).**

Indian socio-educational and legal writing has also begun to employ the term para-ability. Self-learning material on "Vulnerable Sections of Society" from **DDCE, Utkal University**

(2023) explains that, around the time of the 2016 Paralympic Games, some groups of persons with disabilities advocated replacing disability with para-ability, describing it as "supplementary ability" and insisting that they should be regarded as equal citizens rather than objects of pity. Similarly, a recent article on vulnerability across different stages of life in the *International Journal of Advanced Legal Research* notes that substituting disability with para-ability signals a move away from deficit-based labelling toward the recognition of capability, resilience, and equal rights within the Indian socio-legal context (**Puar & Mehrotra, 2024**).

In the present study, the term para-able is therefore used in place of conventional labels such as disabled to highlight capability, participation, and psychological strength rather than mere limitation. Throughout the paper, the participants are referred to as para-able (disabled) individuals, and the two comparison groups are described as para-able (disabled) athletes and para-able (disabled) non-athletes.

Relevance in the Context of Physical Disability

Within the context of disability, mental health and appearance anxiety are closely interconnected. Physical impairments influence not only bodily functioning but also social visibility, often exposing individuals to pity, curiosity, or subtle exclusion from mainstream activities. Such responses may heighten feelings of inadequacy, self-awareness, and social withdrawal. For women with physical disabilities, these challenges are further intensified by societal expectations surrounding beauty, femininity, and acceptable social conduct. Because women generally face stronger appearance-related expectations, those with physical impairments may encounter multiple layers of social evaluation—related to both gender and disability—which can shape their confidence, autonomy, and body image. As supported by previous research, these intersecting pressures may also heighten vulnerability to mental-health concerns, highlighting the importance of understanding how psychological well-being relates to appearance-related distress. Therefore, examining the relationship between mental health and appearance anxiety becomes essential for promoting emotional resilience, strengthening self-perception, and fostering meaningful social inclusion among women with physical disabilities.

Role of Sports and Physical Activity

Sports as a Psychosocial Medium

Participation in sports and physical activity has long been acknowledged as a powerful contributor to mental health and overall well-being. Beyond physical fitness, sports serve as a psychosocial medium that fosters self-expression, social connectedness, and empowerment. For persons with physical disabilities, athletic involvement can transform perceived limitations into strengths, enhancing self-efficacy and personal worth. Engagement in adaptive or para-sports enables participants to explore their capabilities, challenge societal stereotypes, and construct an identity defined by ability rather than disability.

Impact on Mental Health

Empirical research consistently highlights the positive association between physical activity and mental health among persons with physical disabilities. Studies show that those who engage in regular movement or sport demonstrate stronger emotional balance and healthier coping patterns than their inactive peers. Evidence from disability-specific samples indicates that physically active participants report noticeably better mental-health outcomes compared

with non-athletes (**Bakhshayesh, Bahmani, & Kamali, 2013**). Recent investigations in adaptive and para-sport settings further connect participation with improved self-esteem, emotional stability, and mental-health–related quality of life (**Isidoro, Soto-Rodríguez, Morales-Rodríguez, & Pérez-Mármol, 2023; Štangová, Levická, Ochabová, & Vaceková, 2022**). Broader syntheses also affirm these advantages, noting that structured physical engagement contributes to a more resilient mental profile across diverse populations (**Eather, Wade, Pankowiak, & Eime, 2023; Youngson, Foster, Lambert, & Disabilities Editor, 2023; Hoffmann, Barnes, Tremblay, & Guerrero, 2022**). At a wider health level, large-scale meta-analytical findings demonstrate that consistent physical activity is linked to reduced incidence of anxiety, reinforcing its preventive significance for mental well-being (**Schuch et al., 2019**). Complementary longitudinal research shows that early participation in sport predicts fewer anxiety symptoms later in life, underscoring the enduring psychological benefits of active involvement (**Ashdown-Franks et al., 2017**).

Impact on Appearance Anxiety

Sports play a crucial role in promoting a positive body image and alleviating appearance-related anxiety. Participation in athletic activities helps individuals cultivate a functional appreciation of their bodies, emphasizing physical capability over outward appearance. **Zarei and Ghasemi (2012)** observed that athletes with disabilities tend to exhibit a more positive body image than their inactive peers, while **Alemdag (n.d.)** reported that greater involvement in physical activity is associated with reduced social appearance anxiety. Similarly, **Galli et al. (2016)** emphasized that engagement in sports fosters body-related pride and confidence, particularly among athletes with disabilities who perceive their bodies as sources of empowerment rather than constraint. In the same vein, **Seema (2023)** found a negative correlation between self-acceptance and appearance anxiety, indicating that higher self-acceptance—enhanced through active participation and self-efficacy—contributes to lower levels of appearance-related distress.

Rationale of the Study

Although mental health and body image have been extensively examined, a notable gap persists at the intersection of gender, disability, and sports participation. Much of the existing literature has explored these factors in isolation, with limited attention to women with physical disabilities, who encounter distinct psychosocial challenges shaped by cultural ideals of femininity, restricted visibility, and fewer opportunities for self-expression. While earlier studies **(e.g., Demirel, 2019; Isidoro et al., 2023; Galli et al., 2016)** have underscored the positive influence of sports participation, few have undertaken a comparative analysis of women athletes and women non-athletes with respect to both mental health and appearance anxiety. Moreover, the interrelation between these two constructs remains insufficiently explored. Accordingly, the present study seeks to fill this research gap by comparing mental health and appearance anxiety among women with physical disabilities and examining the correlation between them. The findings are intended to shed light on whether, and to what extent, sports participation is related to psychological well-being, body acceptance, and social inclusion within this population.

Objectives of the Study

1. To evaluate the levels of mental health and appearance anxiety among para-able (disabled) individuals in the study.
2. To compare para-able (disabled) athletes and para-able (disabled) non-athletes in relation to their mental health status.
3. To compare para-able (disabled) athletes and para-able (disabled) non-athletes in relation to their appearance-anxiety levels.
4. To analyze the relationship between mental health and appearance anxiety among para-able (disabled) individuals.

Hypotheses of the Study

- **H_{01}:** There is no significant difference in mental health between para-able athletes and para-able non-athletes.
- **H_{02}:** There is no significant difference in appearance anxiety between para-able athletes and para-able non-athletes.
- **H_{03}:** There is no significant correlation between mental health and appearance anxiety among para-able individuals.

METHODOLOGY

Research Design

The study employed a quantitative research design that integrated descriptive, comparative, and correlational methods to analyze differences and relationships among the selected variables. Descriptive statistics were utilized to assess the levels of mental health and appearance anxiety among participants, whereas independent-samples *t*-tests were conducted to examine group differences between para-able (disabled) athletes and para-able (disabled) non-athletes. Additionally, the Pearson product–moment correlation coefficient was used to explore the association between mental health and appearance anxiety.

Sample of the Study

The study comprised 30 para-able (disabled) women aged 18 to 28 years, all of whom had physical limb-related impairments and did not rely on a wheelchair for daily mobility. The athlete group consisted of 15 para-able women who had competed in para-sports at a minimum of the district level in either running (athletics) or shooting events. The non-athlete group included 15 para-able women with similar limb-related impairments who were not involved in any form of sports training or competition. Individuals with visual, intellectual, or coordination impairments were excluded. Participants were selected through purposive sampling based on predetermined inclusion criteria.

In this study, the term ‘para-able individuals’ refers to disabled individuals, and ‘para-able athletes’ and ‘para-able non-athletes’ are to be understood as disabled athletes and disabled non-athletes within this sample.

Variables of the Study

- Independent Variable: Sports participation (Athlete vs. Non-Athlete).
- Dependent Variables:
    1. Mental Health
    2. Appearance Anxiety

Tools and Instruments

1. **Mental Health Inventory (MHI)**: The standardized Mental Health Inventory, developed by Dr. Jagdish and Dr. A. K. Srivastava, was utilized to assess the overall mental health of the participants. This instrument is a reliable and valid psychological scale widely used in Indian research contexts. Higher scores on the inventory indicate better levels of mental health.
2. **Appearance Anxiety Inventory (AAI)**: The Appearance Anxiety Inventory (AAI), a standardized tool, was employed to evaluate anxiety associated with physical appearance. It is suitable for assessing anxiety related to body image concerns.

Statistical Analysis

Data were analyzed in IBM SPSS Statistics 25 using descriptive statistics, independent-samples *t*-tests and Pearson correlations at the .05 level of significance.

RESULTS AND DISCUSSION

Table 1: Descriptive Statistics of Mental Health for Para-Able Athletes and Para-Able Non-Athletes

Group Statistics for Mental Health Scores				
Group	**N**	**Mean**	**SD**	**Level**
Athletes	15	175.00	8.31	Average
Non-Athletes	15	126.60	6.52	Very poor

Table 1 shows that para-able athletes obtained a much higher mean mental health score (M = 175.00, SD = 8.31) than para-able non-athletes (M = 126.60, SD = 6.52). According to the scale's classification, the athlete group falls in the *average* range of mental health, whereas the non-athlete group falls in the *very poor* range. Taken together, these findings suggest that participation in sport is closely associated with stronger mental health. Regular physical activity appears to support psychological steadiness, a more positive outlook, and better regulation of stress, all of which reflect healthier mental functioning. In contrast, the absence of such activity among non-athletes may contribute to poorer psychological adjustment, heightened vulnerability to stress, and lower overall mental well-being.

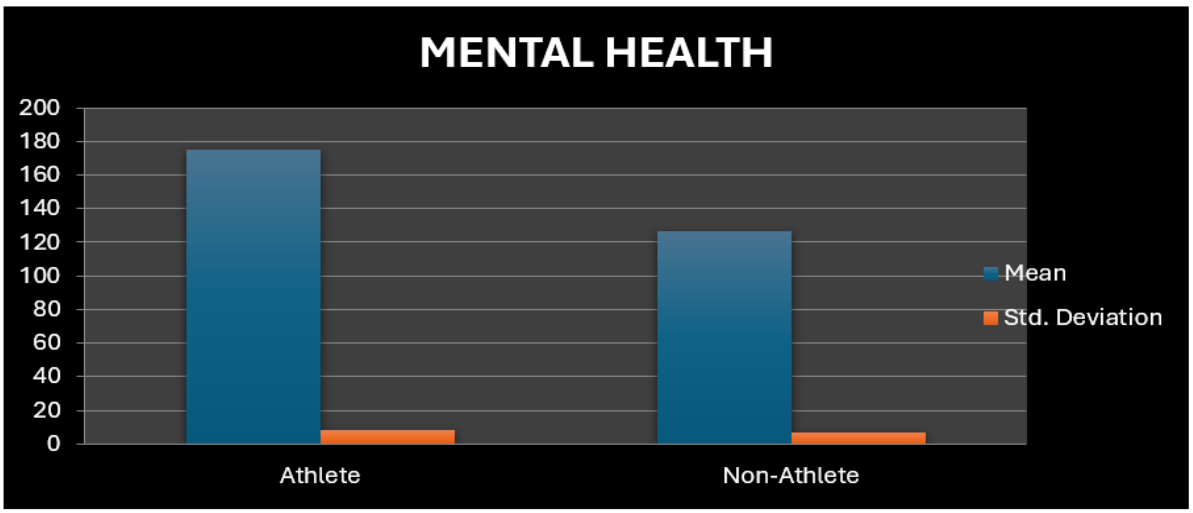

Figure 1. Mean and Standard Deviation of Mental Health Scores for Para-Able Athletes and Para-Able Non-Athletes

Table 2: Descriptive Statistics of Appearance Anxiety for Para-Able Athletes and Para-Able Non-Athletes

Group Statistics for Appearance Anxiety Scores				
Group	**N**	**Mean**	**SD**	**Level**
Athletes	15	10.00	2.54	Normal
Non-Athletes	15	18.33	1.45	Mild level

Table 2 shows that para-able athletes obtained a much lower mean score in appearance anxiety (M = 10.00, SD = 2.54) than para-able non-athletes (M = 18.33, SD = 1.45). On the basis of the scale classification, the athlete group falls within the *normal* range, whereas the non-athlete group falls within the *mild* level of appearance anxiety. This pattern suggests that regular participation in sport is linked with reduced appearance-related worry and a stronger sense of body confidence among the women in this study. By contrast, the higher scores observed in para-able non-athletes may reflect greater self-consciousness and increased fear of negative evaluation regarding physical appearance.

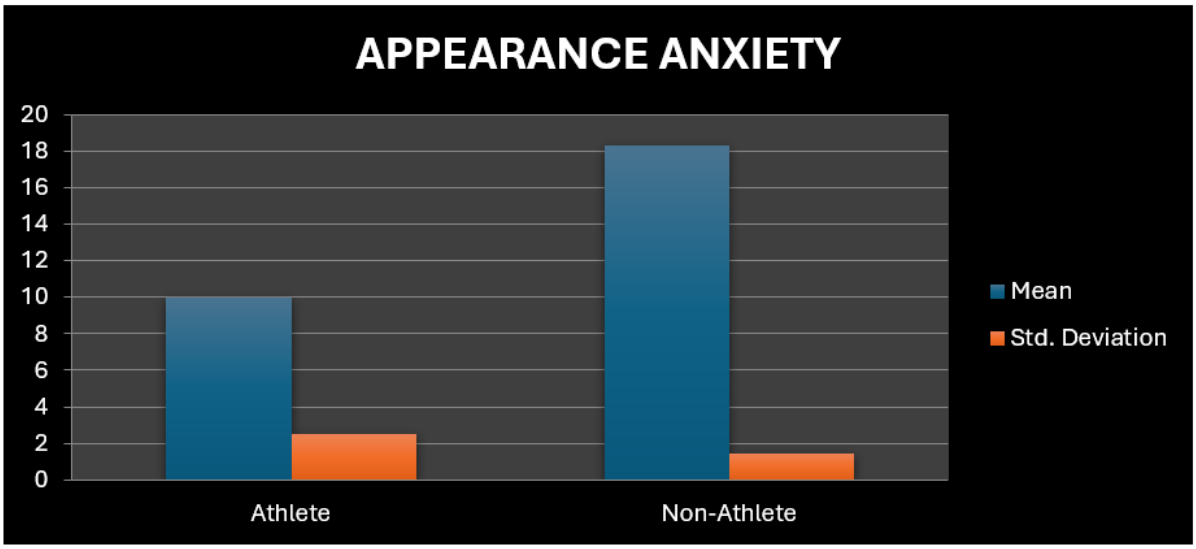

Figure 2. Mean and Standard Deviation of Appearance Anxiety Scores for Para-Able Athletes and Para-Able Non-Athletes

Table 3: Independent Samples t-Test of Mental Health Scores for Para-Able Athletes and Para-Able Non-Athletes

Groups	**F**	**Sig. (Levene's Test)**	**t**	**df**	**Sig. (2 – tailed)**
Mental Health Scores Equal variances assumed	1.913	0.178	17.749	28	0.000
Equal variances not assumed	1.913	0.178	17.749	26.509	0.000

Table 3 indicates that the difference in mental health scores between para-able athletes and para-able non-athletes was statistically significant, $t(28) = 17.749$, $p < .001$. This result shows that para-able athletes scored substantially higher on mental health than their non-

athlete counterparts. Accordingly, the null hypothesis is rejected, confirming that a meaningful difference in mental health exists between the two groups.

Table 4: Independent Samples t-Test of Appearance Anxiety Scores for Para-Able Athletes and Para-Able Non-Athletes

Groups	**F**	**Sig. (Levene's Test)**	**t**	**df**	**Sig. (2 – tailed)**
Appearance Anxiety Scores Equal variances assumed	3.810	0.061	-11.055	28	0.000
Equal variances not assumed	3.810	0.061	-11.055	22.250	0.000

Table 4 shows that the difference in appearance anxiety scores between para-able athletes and para-able non-athletes was statistically significant, $t(28) = –11.055$, $p < .001$. This result indicates that para-able athletes reported substantially lower levels of appearance anxiety than their non-athlete counterparts. On the basis of these findings, the null hypothesis is rejected, confirming that a meaningful difference in appearance anxiety exists between the two groups.

Table 5: Correlation between Mental Health and Appearance Anxiety among Para-Able Individuals

Variable	**Mean**	**S.D**	**N**
Mental Health Score	150.80	25.68	30
Appearance Anxiety Score	14.17	4.70	30

Variables	**r (Correlation)**	**p-value**	**N**	**Interpretation**
Mental Health & Appearance Anxiety	–0.879	<0.001	30	Strong negative correlation

** Correlation is significant at the 0.001 level (2-tailed).*

Table 5 reveals a strong and statistically significant negative correlation between mental health and appearance anxiety ($r = –0.879$, $p < .001$) among para-able individuals in the study. This pattern shows that higher mental health is linked with lower appearance anxiety, and, conversely, that greater appearance-related worry tends to coexist with poorer mental health. Participants who reported stronger mental health also showed greater psychological stability and more adaptive functioning, whereas those with weaker mental health experienced more frequent concerns about their appearance and higher levels of distress. In other words, when mental health declines, appearance anxiety is more likely to rise, and when appearance anxiety becomes intense, it can further undermine overall psychological well-being.

This inverse association suggests that the two constructs are closely intertwined: better mental health can help protect against appearance-related distress, and lower appearance anxiety can, in turn, support a more stable and positive mental state. Within this framework, sports participation may act as a shared protective context for para-able women by working

on both sides of the relationship. Regular involvement in structured physical activity can strengthen emotional balance and coping skills while also promoting a more accepting, functional view of the body, thereby reducing fear of negative evaluation. Previous findings **(e.g., Demirel, 2019; Öcal & Kayhan, 2023)** similarly indicate that physical activity is associated with improvements in both mental health and body-related attitudes. The present results therefore reinforce the view that, for para-able participants, engaging in sport may simultaneously enhance mental health and lessen appearance anxiety, supporting a more positive alignment between mind and body.

DISCUSSION OF FINDINGS

Hypothesis 1 (H_{01}). There is no significant difference in mental health between para-able athletes and para-able non-athletes.

The independent-samples *t*-test (Table 3) showed a very large and statistically reliable difference between the two groups, $t(28) = 17.749$, $p < .001$, so H_{01} was rejected. Para-able athletes (M = 175.00) obtained much higher mental health scores than para-able non-athletes (M = 126.60), indicating that those who are engaged in sport tend to exhibit stronger psychological functioning than their non-participating peers.

This pattern is consistent with disability-focused research reporting better mental health among physically active individuals compared with inactive participants (**Bakhshayesh**, **Bahmani**, & **Kamali**, 2013). Studies conducted in adaptive and para-sport settings likewise associate regular participation with gains in emotional balance, social functioning, and mental-health–related quality of life in adults with physical impairments (**Isidoro**, **Soto-Rodríguez**, **Morales-Rodríguez**, & **Pérez-Mármol**, 2023; **Štangová**, **Levická**, **Ochabová**, & **Vaceková**, 2022). Broader reviews describe similar advantages across diverse populations (**Eather**, **Wade**, **Pankowiak**, & **Eime**, 2023; **Youngson**, **Foster**, **Lambert**, & **Disabilities Editor**, 2023; **Hoffmann**, **Barnes**, **Tremblay**, & **Guerrero**, 2022). At the population level, regular physical activity has been linked to lower rates of anxiety and depression, underscoring its preventive relevance for mental health (**Schuch** et al., 2019), while longitudinal evidence suggests that early engagement in sport predicts fewer anxiety symptoms in later life (**Ashdown-Franks** et al., 2017).

Hypothesis 2 (H_{02}). There is no significant difference in appearance anxiety between para-able athletes and para-able non-athletes.

The *t*-test results (Table 4) showed a statistically significant difference in appearance anxiety scores, $t(28) = -11.055$, $p < .001$, leading to the rejection of H_{02}. Para-able athletes (M = 10.00; normal level) reported much lower appearance anxiety than para-able non-athletes (M = 18.33; mild level). This pattern suggests that regular involvement in sport is associated with reduced fear of negative evaluation and greater confidence in one's physical appearance. These findings are in line with earlier work by **Zarei** and **Ghasemi** (2012) and **Alemdag** (n.d.), who observed that physically active individuals tend to have a more positive body image and lower social appearance anxiety. Likewise, **Galli** et al. (2016) and **Seema** (2023) reported that engagement in sport can foster greater self-acceptance and lessen appearance-related anxiety, while **Ouyang** et al. (2020) and **Martin** (2006, 2010) highlighted the contribution of physical activity to body satisfaction and feelings of confidence. Overall, these results indicate that para-able athletes are more likely to develop a

functional and accepting view of their bodies, whereas para-able non-athletes show a greater tendency toward self-consciousness and appearance-related distress.

Hypothesis 3 (H_{03}). There is no significant correlation between mental health and appearance anxiety among para-able individuals.

The correlation analysis (Table 5) showed a strong and statistically significant negative relationship between the two variables, $r = –0.879$, $p < .001$, so H_{03} was rejected. This result indicates that higher mental health is associated with lower appearance anxiety, and that greater appearance-related worry tends to occur when mental health is weaker.

The finding suggests that mental health and appearance anxiety are closely connected rather than independent. Stronger mental health appears to reduce the likelihood of appearance-related distress, while lower appearance anxiety can help support a more stable and positive psychological state. This pattern is consistent with the work of **Demirel** (2019) and **Öcal** and **Kayhan** (2023), who reported that regular physical activity is linked both to improved mental health and to more positive attitudes toward one's body. In the context of the present study, it is therefore reasonable to interpret sports participation as a setting that can influence both constructs at the same time—supporting better mental health and, alongside it, lowering appearance anxiety among para-able women.

CONCLUSION

The present study explored how mental health and appearance anxiety are patterned among para-able (disabled) women with limb-related impairments, and how these two constructs differ across levels of sports participation. By intentionally adopting the language of para-ability, the research sought not only to measure psychological variables but also to position para-able women as capable actors whose abilities, rather than limitations, stand at the centre of analysis. Within this frame, the findings are consistent and clear: para-able athletes reported better mental health and lower appearance anxiety than para-able non-athletes, and mental health and appearance anxiety were strongly and inversely related.

Seen through the lens of para-ability, these results suggest that sport can function as a practical expression of the shift "from disability to ability" described in contemporary literature. Regular, structured involvement in para-sport offers opportunities for movement, effort, achievement, and social visibility on terms defined by performance rather than pity. Such experiences appear to support a more confident and self-directed psychological stance, in which para-able women are able to view their bodies as functional, competent, and socially present, rather than as objects of deficit or scrutiny. In this sense, the conceptual move to para-ability is mirrored in everyday experience: language, identity, and lived practice begin to align.

The strong negative correlation between mental health and appearance anxiety points to a tightly interconnected system. When mental health is stronger, worries about appearance tend to recede; when appearance anxiety intensifies, overall psychological balance is more vulnerable. This interdependence implies that interventions which expand opportunities for capable action—such as inclusive para-sport pathways, adaptive training environments, and affirming team cultures—can have dual benefits. They may help stabilise emotional life

while also softening the grip of appearance-based self-criticism, moving para-able women toward a more accepting and integrated sense of self.

Overall, the findings provide empirical support for viewing para-sport not as an "extra" activity, but as a meaningful component of psychological support, rehabilitation, and community inclusion for para-able women. For psychologists, counsellors, coaches, and rehabilitation professionals, the study suggests that programs which combine mental-health support with accessible physical activity may be especially valuable. When systems are designed to recognize para-ability—emphasizing capability, resilience, and participation—para-able women are better positioned to develop stronger mental health, reduced appearance anxiety, and a more harmonious form of neuro-somatic alignment in which body and mind reinforce each other rather than standing in conflict.

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