IOSR Journal Of Humanities and Social Science (IOSR-JHSS)
Volume 30, Issue 8, Series 1 (August, 2025) 52-59
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Social Physique Anxiety, Gender, Age, And Body Mass Index In The Field Of Greek Traditional Dance: A Psychometric Study

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Abstract:
Background*: For dancers, the body is a tool that requires constant attention and strengthening; it is the medium that must meet the demands of each period, in accordance with the aesthetic standards of the time. Achieving and maintaining a lean physique is regarded as the ideal of beauty and success in all forms of dance and naturally creates fertile ground for the development of body image disturbances, as dance performance demands indicators of perfection. A literature review revealed that no prior research had investigated social physique anxiety in the context of Greek traditional dance. Therefore, this study aimed to examine levels of Social Physique Anxiety among adult Greek traditional dancers and to investigate whether gender, age, and body mass index could be influencing factors. Additionally, the structural validity of the Social Physique Anxiety Scale (SPAS-7), as proposed by Motl and Conroy, was examined.*
Materials and Methods*: A total of 126 dancers participated in the survey, of whom 34 were male and 92 female, aged 19–73 years, with a mean age of 49.56 ± 13.34 years. All participants attended organized courses in Greek traditional dance. They were asked to report their height and weight as both indices are necessary for the calculation of Body Mass Index [Weight (kg)/Height² (cm²)]. To assess social physique anxiety levels, the Greek version of the Social Physique Anxiety Scale – SPAS, as modified by Motl and Conroy, was used. The scale, developed to measure the extent to which individuals believe that others evaluate their physical appearance, consists of 7 items (SPAS-7), with only one item requiring reverse scoring. Responses were given on a 5-point Likert-type scale ranging from not at all (1) to very much (5). Statistical analysis included: 1. Descriptive and inferential statistics (Mean, Standard Deviation); 2. Assessment of structural validity through Confirmatory Factor Analysis; 3. Calculation of Composite Reliability and Average Variance Extracted to assess internal consistency and construct validity; and 4. One-way ANOVA to examine potential differences related to gender, age, and BMI.*
Results*: From the statistical analysis of the data, the following results emerge: (a) the univariate structure of the SPAS-7 was confirmed, as all the adjustment indices taken into account showed acceptable values; (b) the scale demonstrated high internal consistency and satisfactory convergent validity; (c) gender is a factor in SPA differentiation, with women experiencing greater SPA than men; (d) age is a differentiating factor in SPA, with younger participants experiencing SPA to a greater extent; (e) BMI is a differentiating factor in SPA, with participants classified as normal weight experiencing SPA to a greater extent compared to those classified as overweight.*
Conclusion: *From the statistical analysis of the data and the ensuing discussion, the following conclusions can be drawn: a) The validity and reliability of the Greek version of SPAS-7 were confirmed, making it a reliable tool for conducting research in the context of Greek traditional dance. b) The results show that SPA levels differ significantly based on gender, age, and BMI, with women, younger dancers, and dancers of normal weight experiencing greater pressure concerning their body image within the social environments in which they participate.*
Key Word*: Body image; Perfection; Stage dance; Overweight.*

Date of Submission: 26-07-2025 Date of Acceptance: 06-08-2025

I. Introduction

Hart, Leary and Rejeski[1] defined Social Physique Anxiety (SPA) as the fear that one's body will be negatively evaluated by others. It is a psychological condition directly related to body image and one's attitude towards their physical appearance. SPA is an application of the self-presentation theory[2], according to which

individuals try to project those images of themselves to others, believing that this will not only help them avoid rejection but also gain social acceptance.

Self-presentation is a process in which individuals attempt impression management by choosing to project characteristics they believe are positive or socially acceptable. At the same time, they try to suppress or disguise those they consider undesirable. The body is one of the main, if not the main, means of self-presentation, especially in social contexts where it is subject to evaluation. Such contexts include social media, exercise venues, public performances, and social interactions[2].

According to Baumeister[3], there are two types of self-presentation motives: the first includes motives aimed at forming impressions on the "public" (external acceptance), while the second includes motives aimed at enhancing the ideal self-image (internal acceptance). When an individual's expectations of their body image do not align with prevailing social norms or are not accepted by their social environment, this results in the development of anxiety. When this anxiety centers on the evaluation of physical appearance by others, it takes the form of SPA[4].

Many factors influence both the development and levels of SPA. Gender, age, physique, prevailing beauty standards, and exposure of the body to evaluative situations are some of these factors. Females appear to be more vulnerable, as social norms of femininity and beauty are more rigid and internalized, leading to increased levels of SPA, according to Sabiston and Chandler[5]. Furthermore, the use of social media and the excessive display of ideal bodies reinforce body image comparison and dissatisfaction, especially among adolescent girls.

According to Sabiston, Pila, Pinsonnault-Bilodeau, and Cox[6], SPA has a dual function. The first is deterrent, as it inhibits participation in physical activities due to fear of body exposure and judgment. The second, in contrast, may motivate participation in exercise as a means of improving body image. However, researchers emphasize that if the motivation for exercise stems from anxiety about external appearance rather than internal motivation, it may have the opposite effect, leading to contradictory outcomes and often negatively affecting the individual's mental well-being.

Relationship between social physical anxiety and physical activity

The relationship between SPA and participation in physical activities has been extensively studied. Lantz, Hardy, and Ainsworth[7] found that individuals with high levels of SPA avoid engaging in exercise, especially in environments where the body is exposed to many observers, such as gyms and swimming pools. This phenomenon is even more pronounced in older women, highlighting the significance of the social environment in shaping anxiety.

Hausenblas and Fallon[8] also studied the relationship between SPA and exercise participation. They found that for women, BMI is a significant predictor of SPA, with higher BMI associated with greater body dissatisfaction and more intense anxiety. In contrast, for men, this association was weaker. Exercise participation appeared to improve self-perception and reduce SPA in men, indicating the existence of different coping mechanisms by gender.

Focht and Hausenblas[9] focused on the exercise environment and its influence on SPA. Their results showed that women with high levels of SPA experienced increased anxiety when exercising in gyms with mirrors or in the presence of others. The perception of being evaluated by others led to non-participation, undermining the psychological benefits of exercise. In contrast, exercising in private reduced anxiety and increased enjoyment.

Sabiston and Chandler[5] examined the effect of advertisements featuring attractive models on mood and motivation to exercise. Their study found that exposure to such images increased SPA levels but did not affect cognitive appraisal of body image or intrinsic motivation for exercise. On the contrary, the negative emotional response reduced exercise intention.

Rothberger[10], through her research, showed that SPA is negatively correlated with perceived self-efficacy: the higher the body anxiety, the lower the individual's confidence in their ability to perform exercises successfully. Women exhibited significantly higher levels of SPA, supporting the view that social norms indirectly influence body image.

Robinson and Lewis[11] demonstrated that individuals with high SPA levels reported lower sports confidence and less frequent participation in exercise activities, especially among women. Avoidance was not only linked to physical insecurity but also to a general reluctance to expose oneself in social settings.

The study by Auster- Gussman, Crim, and Mann[12] explored the role of BMI and social context on SPA levels. It was found that higher BMI was associated with increased SPA and reduced exercise frequency, particularly in settings with mirrors, tight clothing, or large groups. Women were more affected by these external factors, highlighting the need for 'neutral' exercise environments.

Villodres et al.[13] used a Structural Equation Model (SEM) and found that SPA was positively associated with body shame, appearance monitoring, and eating disorder symptoms, while it was negatively associated with self-esteem and physical activity participation. SPA acted as a mediator between internalized pressure to lose weight and exercise avoidance.

Tsartsapakis and Zafeiroudi[14] studied the relationship between SPA and demographic and psychological factors. The results showed no statistically significant differences between SPA and field of study. In contrast, gender, self-esteem, and body perception significantly affected body anxiety levels. Physical self-esteem emerged as the strongest negative predictor of SPA.

Social Physique Anxiety and Dance

Dance, due to the exposure of dancers' bodies and the intense evaluation by audiences, teachers, and peers, is an area where social physique anxiety is prevalent. Adiloğulları[15] found that the implementation of a Latin dance program for students significantly reduced SPA levels. This effect was attributed to dance promoting physical acceptance, non-verbal expression, and a positive attitude toward movement.

Stewart[16] studied a sample of female dance students and observed increased SPA levels, particularly in public exposure settings such as performances and competitions. High SPA levels were associated with increased neuroticism, reduced focus, and performance anxiety. These findings suggest that even individuals accustomed to public body exposure are subject to social pressures and perfectionist expectations.

Research by Kosmidou, Giannitsopoulou, and Moysidou[17] compared SPA levels in rhythmic gymnasts, swimmers, and classical dancers. All three groups showed high SPA levels, with no statistically significant differences. The researchers noted that although dance is not a competitive sport, body surveillance and aesthetic expectations elevate anxiety. BMI and low self-esteem were major SPA predictors.

Dennis[18] explored the relationship between SPA, perfectionism, and burnout in female university dance students. The findings indicated that: a) participants exhibited high SPA levels, revealing body anxieties caused by pressure and criticism from family, professionals, or spectators; b) SPA and perfectionism were positively correlated with psychosomatic exhaustion, indicating that higher SPA and perfectionism lead to greater exhaustion.

Kalyva et al.[19] confirmed that pressure to maintain a slim body is present across all dance types (classical, modern, Latin, traditional). BMI influenced both dietary behaviors and SPA levels. Dancers reported that the social environment (teachers, audiences, norms) strongly affected their self-image.

Doria and Numer[20] aimed to understand how dominant perceptions from coaches, teachers, choreographers, colleagues, parents, and audiences shape beliefs, values, and practices related to the body in girls involved in aesthetic sports and dance. Dancers were strongly influenced by the comments and advice from their environment, which pushed them to reproduce body standards promoted by media and social networks, often resulting in negative body image.

The meta-analysis by Liu et al.[21] documented the effectiveness of dance-based interventions in reducing SPA. Findings showed that dance participation improved body self-esteem and body image. Women experienced greater reductions in SPA, particularly in programs focusing on rhythm and creative expression.

Liu et al.[22] studied the effect of a Latin dance program on SPA in high school girls. Results showed a significant decrease in all three SPA dimensions: fear of negative evaluation, social comparison, and self-perceived competence. The greatest improvements were observed in fear of evaluation and self-image, suggesting that consistent dance practice promotes a more positive body image and enhances self-esteem.

Finally, the study by Enloe et al.[23] examined cognitive and psychological indicators in girls aged 11–14 participating in organized hip-hop dance classes, based on self-determination theory. Although SPA did not significantly decrease, it was linked to unmet psychological needs, such as autonomy and competence. The results highlighted the importance of supporting cognitive and emotional needs in adolescent dancers.

From the above, it is evident that no research has investigated social physique anxiety in the context of Greek traditional dance. Thus, the aim of this study was to examine the levels of SPA among adult dancers of Greek traditional dance and to investigate gender, age, and Body Mass Index as possible influencing factors. In addition, the structural validity of the Social Physique Anxiety Scale (SPAS-7), as proposed by Motl and Conroy[24, 25], was examined.

II. Material And Methods

Sample

A total of 126 individuals, including 34 men and 92 women, who participated in organized Greek traditional dance activities across Greece, took part in the study. The demographic characteristics of the sample are presented in Table 1.

Table 1. Demographic characteristics of the sample

Gender					Age		
Total	**Male**		**Female**		**Aging group**		
		%		%			%
126	34	27.00	92	73.00	<20	3	2.40
					21-29	6	4.70

	30-39	22	17.50
	40 - 49	27	21.40
	>50	68	54.00
	Total	126	100.00

Measurement Tools

a) Anthropometric characteristics: Participants were asked to report their height in centimeters and weight in kilograms, as both indices are necessary for the calculation of Body Mass Index [Weight (kg)/Height² (cm²)] (Table 2). Unlike a few years ago, BMI categories are now the same for both sexes[26].

Table 2. Categorization of the sample according to BMI

Classification BMI		Numeric	%
Underweight	<18.49	3	2.4
Normal weight	18.5 – 24.99	61	48.4
Overweight	25 – 29.9	50	39.7
1st degree of obesity	30 – 34.99	12	9.5
2nd degree of obesity	35 – 39.99	0	0.0
3rd degree of obesity	>40	0	0.0
Total		126	100.0

b) To assess social physique anxiety levels, the Greek version of the Social Physique Anxiety Scale – SPAS[1], as modified by Motl and Conroy[24, 25], was used. The scale was developed to measure the extent to which individuals believe that others evaluate their physical appearance. It originally consisted of 12 items, rated on a 5-point Likert-type scale ranging from *not at all* (1) to *very much* (5). Of these 12 items, four (items 1, 5, 8, and 11) were negatively worded and required reverse scoring to ensure all responses were coded in the same direction. A higher total score indicates greater anxiety. In Greece, the scale was used in a study by Psychoudaki, Stavrou, and Zervas (2004).

However, Martin et al.[28] proposed removing three items (1, 2, and 5) to simplify and clarify the scale's language without compromising its validity. This proposal was initially not accepted by the research community, as the supporting sample consisted exclusively of women. The validity of the proposed model was later confirmed by Motl and Conroy[24] in a study that included both men and women. Based on statistical analysis, a 7-item version of the scale was recommended, as two items failed to perform as expected—one was deemed relevant only to women, and the other was considered redundant. The revised scale, therefore, consists of 7 items (SPAS-7): items 3, 4, 6, 7, 8, 9, and 10 of the original scale, with only item 8 requiring reverse scoring[25].

The structural validity and reliability of the scale have been supported by studies such as Hagger et al.[29], Isogai et al.[30], Lindwall[31], Scott et al.[32], and Smith[33], making it suitable for use in surveys with a variety of populations.

Procedure

To translate and adapt the questionnaire into Greek, the back-to back translation method proposed by Banville, Desrosiers, and Genet-Volet[34] was followed. This method outlines the necessary steps when using questionnaires developed for a different cultural context.

The first stage involved translation from English to Greek by two professional translators specialized in scientific psychology texts. The translated versions were compared, and discrepancies were discussed until a single version acceptable to both translators was agreed upon. In the second stage, two other professional translators independently retranslated the Greek version back into English to ensure conceptual equivalence. In the final stage, the Greek version was pilot-tested by 50 dancers of different educational backgrounds to confirm the clarity and comprehensibility of the items.

Statistical Analysis

Statistical analysis was conducted using IBM SPSS Statistics (Version 26.0; IBM, Armonk, NY, USA) and LISREL (Version 8.80; Scientific Software International, Chapell Hill, NC, USA) software packages. The statistical analysis of the data included:

1. Both descriptive and inferential statistics (Mean/M, Standard Deviation/SD).
2. The structural validity of the questionnaire was assessed through Confirmatory Factor Analysis (CFA).
3. Composite Reliability (CR) and Average Variance Extracted (AVE) values were used to assess internal consistency and construct validity. According to Alarcón and Sánchez[35], acceptable values are ≥.70 for CR and ≥.50 for AVE.
4. One-way ANOVA was conducted to examine potential differences related to gender, age, and BMI.

III. Result

Confirmatory Factor Analysis of the "Social Physical Anxiety" Scale

The confirmatory factor analysis of the univariate scale "Social Physical Anxiety" was performed using the statistical package LISREL 8.80. The model proposed by Koupani[36] was used to form the theoretical framework. The Maximum Likelihood method was employed to estimate the parameters[37]. The theoretical model consists of one latent factor.

To evaluate the fit of the proposed model to the data, fit indices suggested by the international literature were used on a sample of 126 participants. The indices considered, along with the acceptable values and those observed in the present study, are as follows: the Comparative Fit Index (CFI = 0.96) and the Normed Fit Index (NFI = 0.95) exceeded the acceptable threshold of 0.90, indicating satisfactory model fit, according to Hu and Bentler[38]. The Root Mean Square Error of Approximation (RMSEA = 0.054) also falls within the acceptable range (0.05–0.08), indicating moderate to acceptable fit[39]. Finally, the Standardized Root Mean Square Residual (SRMR = 0.039) indicates very good fit, as it is below the maximum acceptable value of 0.08. Additionally, the Goodness of Fit Index (GFI = 0.94) and the Adjusted Goodness of Fit Index (AGFI = 0.92) both meet the acceptable threshold of 0.90. Given that all indices exhibit acceptable or near-acceptable values, the overall model fit is considered satisfactory, even when taking into account the sample size.

The values of the Composite Reliability (CR) and Average Variance Extracted (AVE) indicators were considered to assess the reliability and convergent validity of the scale. The obtained values for these two indices (0.965 and 0.798, respectively), which are above the minimum acceptable values (0.70 for CR and 0.50 for AVE, according to Hair, Black, Babin, and Anderson[40], indicate high internal consistency and satisfactory convergent validity for the scale (Table 3).

Table 3. Composite Reliability & Average Variance Extracted of the Social Physical Anxiety Scale

Item	Factor loading	CR	AVE
1	.81	.965	.798
2	.94		
3	.93		
4	.94		
5	.83		
6	.95		
7	.84		

Gender as a Differentiating Factor of Social Physical Anxiety

A one-way ANOVA was conducted to examine whether gender is a differentiating factor in social physical anxiety. The results indicate that gender significantly differentiates levels of social physical anxiety ($F_{(1, 124)} = 11.17$, $p < .001$). More specifically, females experience greater social physical anxiety (M = 2.88, SD = 1.24) than males (M = 2.07, SD = 1.11).

Age as a Differentiating Factor of Social Physical Anxiety

A one-way ANOVA was conducted to examine whether age is a differentiating factor in social physical anxiety. The results show that age significantly differentiates levels of social physical anxiety ($F_{(4, 121)} = 6.34$, $p<.001$). Bonferroni multiple comparisons revealed that: a. Participants aged 21–29 years (M = 4.26, SD = 0.31) experience significantly greater social physical anxiety compared to participants aged 40–49 (M = 2.54, SD = 1.06) and those over 50 (M = 2.33, SD = 1.19). b. Participants aged 31–39 years (M = 3.34, SD = 1.23) also experience significantly greater social physical anxiety than those over 50 (M = 2.33, SD = 1.19).

Body Mass Index as a Differentiating Factor of Social Physical Anxiety

A one-way ANOVA was conducted to examine whether body mass index (BMI) is a differentiating factor in social physical anxiety. The results show that BMI significantly differentiates levels of social physical anxiety ($F_{(3, 122)} = 6.43$, $p < .001$). Bonferroni multiple comparisons revealed that participants classified as having normal weight (M = 3.02, SD = 1.27) experience significantly greater social physical anxiety than those classified as overweight (M = 2.10, SD = 1.02).

IV. Discussion

The aim of this study was to investigate the levels of Social Physique Anxiety (SPA) among adult dancers of Greek traditional dance and to assess the influence of demographic parameters such as gender, age, and body mass index (BMI) on these levels. In addition, the validity and reliability of the Greek version of the SPAS-7 scale were examined.

Regarding the investigation of the structural validity of the scale, the results confirm the unidimensional structure of the SPAS-7, as all fit indices considered indicate a good fit of the theoretical model to the survey data.

Furthermore, the high values obtained for the CR and AVE indices reinforce both the internal consistency and the convergent validity of the scale. The results of the present study are consistent with those of other studies that have examined the psychometric adequacy of the SPAS-7, such as those by Hagger et al.[29], Isogai et al.[30], Lindwall[31], Scott et al.[32], and Smith[33], thus supporting its suitability for use in studies with various sample types.

All demographic factors emerged as differentiating variables of SPA. According to the findings of the present study, gender was a significant differentiator of SPA levels, with women reporting higher levels of anxiety compared to men. This result aligns with previous international findings, according to which women exhibit higher levels of SPA. According to Tiggemann and Williamson[41], this is a result of both cultural stereotypes regarding the body and increased social expectations about physical appearance. Bordo[42], a proponent of this view, argued that girls, even from childhood, are taught how their bodies should look and feel, and how to display them through dress and behavior if they wish to attract attention and appreciation. According to Crawford and Eklund[43], dancers experience high levels of SPA and feel more vulnerable when informed about the clothes they are required to wear in a performance. They would prefer to choose their own attire in order to present their body as they would like it to be perceived. Similarly, Quested and Duda[44] state that dancers exhibit higher levels of SPA compared to non-dancers due to the demands imposed by the idealized physical image in dance.

One-way ANOVA analysis indicated that age is also a factor influencing SPA, with younger dancers exhibiting higher levels of SPA compared to older age groups. This finding is consistent with previous studies[45],[46] which suggest that age and social expectations play a significant role in shaping body image. The elevated SPA levels in younger individuals may stem from their strong need for acceptance within their social environment and their desire for self-projection. Additionally, they are often pressured by peers, their social surroundings, and media representations to conform to prevailing body ideals[45]. According to Ohashi et al.[46], dissatisfaction with one's body and identification with dominant cultural norms are closely linked to the development of personal identity during this life stage. This connection increases the likelihood of experiencing SPA and associated psychological issues.

Finally, the results also showed that BMI, the third parameter investigated as a factor affecting SPA, significantly influences SPA levels. Contrary to prior research, which has often reported higher SPA levels among overweight individuals, the present study found that dancers with a normal weight exhibited higher SPA levels. Although overweight individuals are theoretically expected to experience greater SPA, previous research[47],[48],[49] has found that normal-weight individuals are also frequently affected by body dissatisfaction and psychological distress. According to the systematic review and meta-analysis conducted by Weinberger et al.[47], "normal" body dissatisfaction is a common phenomenon even among people with a normal BMI. The findings of Riahi et al.[48] support this view, suggesting that misperception of body weight often contributes to heightened SPA and psychological distress, regardless of actual weight. Similar conclusions are drawn by Elia et al.[49], who found that adolescents and young adults of normal weight who held a distorted body image experienced high levels of anxiety and depression. In contrast, their peers who had a more accurate body perception exhibited no psychological symptoms. These findings underscore the importance of perceived body image over actual or objective weight in the development of psychological distress.

V. Conclusion

From the statistical analysis of the data and the ensuing discussion, the following conclusions can be drawn:

a) The validity and reliability of the Greek version of SPAS-7 were confirmed, making it a reliable tool for conducting research in the context of Greek traditional dance.

b) The results show that SPA levels differ significantly based on gender, age, and BMI, with women, younger dancers, and dancers of normal weight experiencing greater pressure concerning their body image within the social environments in which they participate.

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