Association of Social Physique Anxiety and the Risk of Developing Eating Disorders among Collegiate Female Athletes

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ABSTRACT

Social Physique Anxiety (SPA) is described as an individual's anxiety towards others evaluating their body. Studies have shown SPA being prevalent among collegiate female athletes, as well as being highly correlated to the onset of eating disorders. Due to the inconsistent findings in various research and with the existing gap of knowledge, this paper aims to examine the association of SPA and developing eating disorders among Filipino collegiate female athletes by particularly focusing on the type of uniforms worn by athletes. Four different questionnaires were distributed to collegiate female athletes from 15 women's variety teams from the University of the Philippines Diliman (n = 277). A total of 167 collegiate female athletes were divided by their sports uniforms, with 74 respondents being athletes with revealing uniforms and 93 being athletes with non-revealing uniforms. Most athletes with reveling uniforms focused on dance, whereas those with non-revealing uniforms focused on ball games. Data collected were analyzed using simple linear regression and Chi-Square Test of Association. Results showed that SPA was prevalent among Filipino collegiate female athletes, with 162 athletes having high SPA (n = 167). Self-Esteem and Body Image Dissatisfaction as predictors of SPA were recorded as significant. However, the involvement of sport uniforms showed no variance in SPA levels. On the other hand, the risk of developing eating disorders was recorded to be low, with only 31.74% of the participants being at-risk for developing eating disorders. Thus, high SPA does not indicate being at-risk for developing eating disorders.

KEYWORDS

anorexia nervosa | body image | bulimia nervosa | eating disorder | disordered eating | subclinical eating disorders

DEFINITION OF TERMS

- ◊ *Anorexia nervosa* - type of eating disorder that involves consuming extremely low calories due to the fear of gaining weight
- ◊ **Body Image** – an individual's perception of their body's attractiveness
- ◊ *Bulimia Nervosa* – type of eating disorder commonly described as a cycle of bingeing and purging (i.e., self-induced vomiting) due to the fear of gaining weight
- ◊ *Eating Disorder* – dysfunctional eating patterns and disturbances about body size and shape (e.g., Specified Eating Disorders: Anorexia Nervosa, Bulimia Nervosa, and Eating Disorder Not Otherwise Specified)
- ◊ *Disordered Eating* – observed to have the same patterns as eating disorders, but at a lower severity or lesser frequency
- ◊ *Subclinical Eating Disorders* – disordered eating behaviors that fall short between Anorexia Nervosa and Bulimia Nervosa (e.g., fasting, compulsive exercising, and extreme body dissatisfaction)

REVIEW OF RELATED LITERATURE

Relevant concepts in this study are explored in this section to understand the relationship between SPA and the risk of developing eating disorders. Predicators of SPA—namely, self-esteem, perfectionism, body image, type of athletic uniforms, and cultural preferences—are first examined before the internal and external predicators of eating disorders.

PREDICTORS OF SPA

Self-Esteem. Self-esteem is the psychological well-being of an individual. The study on the predictors of SPA by Martin, Engels, Wirth and Smith (1997) defines self-esteem as an individual's feelings of self-worth and is a major SPA predictor. Those who are recorded as having positive self-esteem are believed to be less likely affected by unrealistic societal ideals regarding attractiveness and will less likely experience negative emotions (e.g., anxiety and depression) (Petrie et al. 2009; Hagborg 1993). In a study by Krane, Waldron, Michalenok and Stiles-Shipley (2001), some athletes state their body as a source of pride, whereas other athletes are discouraged by their bodies. This discouragement stems from the conflicting perceptions of the athletic body and the socially prescribed ideal. Even the athletes who perceive their bodies positively still state having "problem areas" in their bodies. In the same studies, participants claim feeling better with having and maintaining a smaller body frame. Physical activity is viewed as a tool to having a more socially acceptable body. Some see exercise as something that grants the permission to eat, with the belief that exercise is a punishment for eating poorly. In a study by Koyuncu et al. (2010), self-esteem is found to be a significant predictor of SPA among elite female athletes. Moreover, athletes who recorded higher levels of SPA show low levels of self-esteem (Brunet et al. 2010).

Perfectionism. Perfectionism is an individual's unrealistic set of standards, and this leads to being overly self-critical and comparing oneself with the so-called ideal beauty standards that are set by the society. This can lead an individual to resort to adopt excessive and pathogenic weight control behaviors (e.g., vomiting and fasting) to achieve the ideal body (Petrie et al. 2009). It has been recorded that athletes have higher levels of perfectionism compared to non-athletes. Athletes screened with perfectionism is observed to demand themselves a higher level of performance. This desire for improvement is said to be fueled by the fear of failure (Lim et al. 2011; Shafran et al. 2002). Moreover, athletes with high perfectionism are linked to an increased drive for thinness. The combination of striving for flawlessness and having excessively high standards increases an athlete's susceptibility to high levels of body dissatisfaction and developing disordered eating (Lim et al. 2011). With the

pressure of unrealistic standards interacting with other environmental factors (e.g., athletic participation) their results conclude both negative and positive perfectionism are detrimental to an athlete's psychological well-being. According to Forsberg and Lock (2016), individuals with high perfectionism have increased risk of developing disordered eating, with high perfectionism appearing to be a casual factor (i.e., unintentional, or unplanned contributor). Among athletes experiencing SPA, those with high levels of negative perfectionism and social comparison have a higher tendency to develop disordered eating (Haase et al. 2002; Fitzsimmons-Craft).

Body Image. Males and females frequently attempt to change their body shape (Furnham and Baguma, 1994). Body image dissatisfaction is the largest independent predictor of dieting (Prnjak 2019). The preference for slimness is high among women (Hsu 1989). Moreover, women with high body-image dissatisfaction have greater risk for developing disordered eating than women with low body-image dissatisfaction (Bergstorm and Neighbors 2006). Additionally, women who are highly engaged in appearance-related behaviors are more likely to be dissatisfied with their bodies and have higher levels of disordered eating (Petrie, Greenleaf, Reel and Carter 2009). Body image dissatisfaction may increase as SPA increases. Furthermore, females who prefer smaller body frames are shown to be more anxious about their bodies, and both SPA and body dissatisfaction are seen as predictors of body weight and shape concerns (Thompson and Chad, 2002). The influence of the ultra-thin ideal contributes to body image dissatisfaction, because physical attractiveness has shifted towards being extremely fit and being extremely thin. The pressure to sustain a certain body image is observable in both aesthetic athletes (e.g., gymnastics and ballet) and endurance athletes (e.g., track and field and swimming). Track and field athletes frequently have lower BMI values than other athletes in other sports; however, they have higher body image dissatisfaction as their sport environment promotes leanness. On the other hand, combat athletes are less likely to have body dissatisfaction (Swami, Steadman, and Tovée 2009). Despite the combat sports having weight classes, combat athletes are more focused on their strength than their physique. Moreover, body image dissatisfaction is frequently observed among athletes who are required to wear revealing uniforms (e.g., cheerleading, swimming, volleyball, and track and field). These athletes may be susceptible to perceive their body as less than ideal, and this can increase their body shame even with the absence of an audience. Records of the prevalence of body image dissatisfaction among female athletes are inconsistent due to the heterogeneity of studies.other environmental factors (e.g., athletic participation) their results conclude both negative and positive perfectionism are detrimental to an athlete's psychological well-being. According to Forsberg and Lock (2016), individuals with high perfectionism have increased risk of developing disordered eating, with high perfectionism appearing to be a casual factor (i.e., unintentional, or unplanned contributor). Among athletes experiencing SPA, those with high levels of negative perfectionism and social comparison have a higher tendency to develop disordered eating (Haase et al. 2002; Fitzsimmons-Craft).

Type of Athletic Uniforms. An athlete's level of SPA depends on their sport (Van Raalte, Schmelzer, Smith, and Brewer, 1998). Athletes in "masculine" sports have lower levels of SPA than those in "feminine" sports. Furthermore, female athletes who participate in sports where their bodies are revealed have more negative views of themselves compared to those athletes that do not require revealing attires. In a study, athletes who focus on being lean have higher Eating Attitudes Test (EAT-26) total scores, and almost half have increased risks for developing clinical eating disorders (Kong and Harris, 2015). According to Haase (2009), form-fitting or physique-salient sport athletes may experience higher levels of SPA and higher risk of developing eating disorders than other athletes. In another study, clothing fit and body image are highly associated, and both negatively and positively influence an individual's body acceptance (Nemeth, Park, and Mendle 2020). Collegiate female basketball players were observed to be more confident in their loose-fitted uniforms, while cross country athletes felt intimidated the smaller and tighter their opponent's wear their tight-fitted uniforms.

Uniform styles are non-negotiable as they facilitate movement and activities required by the sport (Gillespie, 2017). Sports uniforms can be categorized into revealing (i.e., volleyball, track and field, swimming, cheerleading, etc.) and non-revealing (i.e., tennis, Bzadminton, Combat, Basketball, Football, etc.). Athletes with revealing uniforms often indicates the need for a leaner body as their ideal body image. Form-fitting and revealing athletic uniforms may be beneficial in some types of sports and cases, but it may also influence an athlete's weight pressure (Layde 2018), leading to the increase of their body image dissatisfaction and to their participation in negative body change behaviors. In a study involving the NCAA Division 1 Women's Volleyball Team, athletes claim skintight uniforms as beneficial these do not get in the way of their plays (Steinfeldt, 2013). However, a study shows swimmers developing eating disorders due to negative body image perception secondary to their tight swimwear (Melin, 2014). Another study shows athletes with tight and revealing uniforms are less comfortable than athletes who wear less revealing sportswear due to self-consciousness of their body shape (Cox et al. 2020).

Cultural Preferences. Another predictor of SPA are different cultural preferences. Dixon et al. (2007) examined the attractiveness of body figures among China's collegiate population in Northwest University and found a low waist-to-hip ratio to be attractive in women. In a similar study, Furnham and Baguma (1993) found cross-cultural differences in body shape preference among British and Ugandan students. Both participants claimed body shape perception as an example of cultural relativity. The British participants found smaller frames attractive, whereas the Ugandan participants preferred fuller figures. In comparison to the context of this study, Filipinos tend to favor small body frames, which may contribute to SPA. Macam (2020) recorded high rates of high SPA among collegiate Filipino females. In addition, Lynch (1962) explains, Filipinos were driven to achieve the approval of others. Being socially noticed intensified their body image desires and led to stressing on how visually pleasing they are to others. The cultural idea of the female body is a big influence set by the society to drive women to internalize these standards; hence, women objectify themselves (Melbye, Tenenbaum, and Eklund 2007). This is believed to increase the occurrence of high SPA. The objectification theory claims women view their bodies as an object, and this intensifies their awareness of their bodies, thereby leading to increased negative emotions, anxiety, and body shame (Melbye et al. 2007). Furthermore, women are at risk of developing eating disorders when they objectify themselves (Muscat and Long 2008). image are highly associated, and both negatively and positively influence an individual's body acceptance (Nemeth, Park, and Mendle 2020). Collegiate female basketball players were observed to be more confident in their loose-fitted uniforms, while cross country athletes felt intimidated the smaller and tighter their opponent's wear their tight-fitted uniforms. Uniform styles are non-negotiable as they facilitate movement and activities required by the sport (Gillespie 2017). Sports uniforms can be categorized into revealing (i.e., volleyball, track and field, swimming, cheerleading, etc.) and non-revealing (i.e., tennis, Bzadminton, Combat, Basketball, Football, etc.). Athletes with revealing uniforms often indicates the need for a leaner body as their ideal body image. Form-fitting and revealing athletic uniforms may be beneficial in some types of sports and cases, but it may also influence an athlete's weight pressure (Layde 2018), leading to the increase of their body image dissatisfaction and to their participation in negative body change behaviors. In a study involving the NCAA Division 1 Women's Volleyball Team, athletes claim skintight uniforms as beneficial these do not get in the way of their plays (Steinfeldt 2013). However, a study shows swimmers developing eating disorders due to negative body image perception secondary to their tight swimwear (Melin 2014). Another study shows athletes with tight and revealing uniforms are less comfortable than athletes who wear less revealing sportswear due to self-consciousness of their body shape (Cox et al. 2020).

RISK OF DEVELOPING EATING DISORDERS

According to the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV), Eating Disorders Not Otherwise Specified (EDNOS), namely, purging disorder

and binge eating disorder (BED), are the most common eating disorders. Other clinical eating disorders include Specified Eating Disorders (SED), which include Anorexia Nervosa and Bulimic Nervosa (Smink, van Hoeken and Hoek 2012; American Psychiatric Association 1994). In a study that included 587 female athletes, 118 (20.1%) were shown to have SED (Williams, Sargent, Valois, Drane, Parra-Medina, Durstine 2003). Compared to non-athletes, eating disorders are more common in female athletes due to the goal or attraction for thinness. In addition, Greenleaf, Petrie, Carter, and Reel (2009) note in their study that 54.4% of the population are dissatisfied with their body weight and 88.2% of this number see themselves as overweight. While DiPasquale and Petrie (2013) recorded 93.5% of the participating athletes showed to be asymptomatic. There are athletes who intentionally go on an energy deficit to reduce body weight or go through body re-composition to benefit athletic performance. However, some female athletes undereat with reasons unrelated to sports, and this stems from the lack of knowledge on nutrition, food availability issues, time constraints, food allowance, and other unconscious tendencies (Beals 2013, p. 190; Gibbs et al. 2013). Moreover, she and her colleagues also cite in their study the challenges in screening athletes who have disordered eating. Due to the demands of a sport regarding body image, the symptom for disordered eating tends to go unnoticed with the sport environment. Because of this, measuring the prevalence of eating disorders among athletes have been a constant struggle for researchers (Arthur-Cameselle and Quatromoni 2011).

PREDICTORS OF EATING DISORDERS

Internal Predictors. MResearchers have examined those athletes participating in sports focused on leanness and athletes in weight matched activities scored higher EAT-26 scores, being recorded at-risk of developing eating disorders. This observation is linked to sports-related intrinsic pressures. The demands of sports can be associated with aesthetically pleasing physiques or performance success. According to Arthur-Cameselle and Quatromoni (2011), the internal factors that contribute to the onset of eating disorders are: (1) negative mood, (2) low self-esteem, (3) perfectionism, and (4) desire for control. Athletes with dysphoria and poor self-image and body concept often develop disordered eating behaviors (i.e., vomiting, fasting, and use of laxatives and diet pills to lose weight). Along with disordered eating, low self-esteem is a predictor of eating disorders (Johnson et al. 1999). Together, low self-esteem and a high level of negative perfectionism are potentially dangerous factors leading to the development of eating disorders (Polivy and Herman, 2002; Arthur-Cameselle and Quatromoni 2013). In a study by Vohs et al. (2001), women with low self-esteem and high scores on perfectionism and body dissatisfaction showed increased bulimic symptoms.

External Predictors. Atrthur-Cameselle and Quatromoni (2011) cite external factors that contribute to the onset of eating disorders, namely, (1) negative influences on self-esteem, (2) hurtful relationships, (3) hurtful role models, and (4) sport performance. Direct negative comments from peers, coaches, and family members are the most common predictors that influence onset eating disorders. The influence from coaches is cited as a leading pressure (Reel and Gill 1996). In addition, sports environment would also show difference in the prevalence of external pressures. Female gymnasts, track and field athletes, and swimmers have been noted to express abnormal avoidance of indulgent foods compared to non-weight restricted sports, whereas combat athletes have been observed to adopt extreme weight control habits and focus more on their weight than their appearance (Stoutiesdyk and Jevne 1993). On the other hand, leanness-focused sports value a lower body fat percentage due to the belief that it enhances performance (Williams et al. 2003). Specifically, athletes competing in aesthetic sports (e.g., gymnastics, ballet, and diving), endurance sports (e.g., distance running, cycling, and triathlons), and weight-class/combat sports (e.g., weightlifting, judo, and taekwondo) are commonly recognized for intentionally

CONCEPTUAL FRAMEWORK

FIGURE 1. CONCEPTUAL FRAMEWORK.

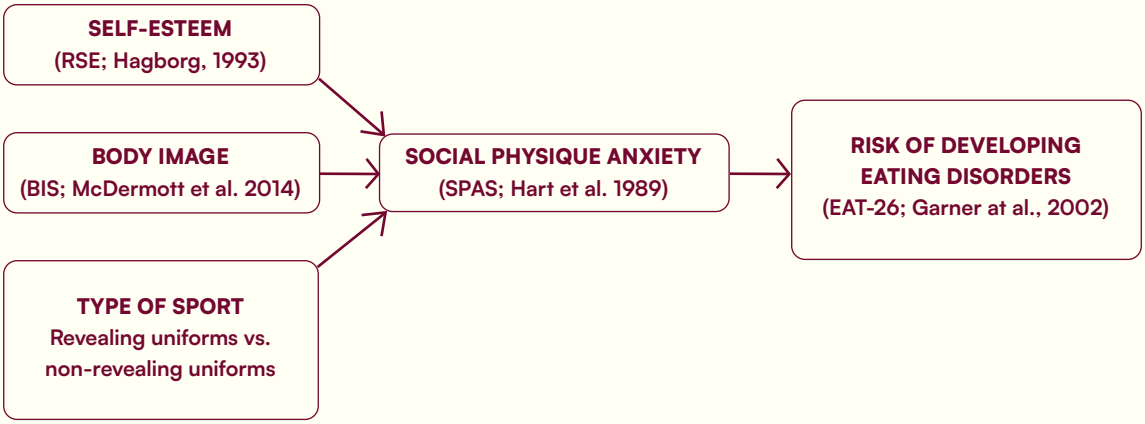

Figure 1 shows the independent variables: (1) self-esteem, (2) body image, and (3) type of sport uniforms, with SPA as the dependent variable. In a study done by Martin, Engels, Wirth and Smith (1997), self-esteem is cited as a predictor of SPA. Moreover, Prnjak, Jukic, and Tufano (2019) claim that body image dissatisfaction may result to increase SPA. According to Cox, Sabiston, Karlinsky, Manzone, Neyedli, and Welsh (2020), athletes with revealing uniforms are less comfortable than athletes with less revealing uniforms due to awareness of their body image. Furthermore, Figure 1 extends to SPA being an independent variable to the risk of developing eating disorders as the association of both variables are being observed. Female athletes who prefer to have smaller body frames and who have high levels of SPA were observed to be at-risk of developing eating disorders. Vohs et al. (2001) claim that women with low self-esteem and high body dissatisfaction have increased symptoms of bulimia.

METHODOLOGY

Research Design. This study measured the association of the SPA with the risk of developing eating disorders among collegiate female athletes. In addition, predictors of SPA were measured to evaluate their influence on SPA. Self-esteem and body image dissatisfaction were measured through online surveys. The statistical relationship from the collected quantitative data were evaluated to describe the relationship of the variables with one another. The participants were divided according to the nature of their sports uniforms: (1) revealing uniforms (i.e., Filipiniana Dance Group, cheerleading, Street Dance Company, track and field, swimming, and volleyball) and (2) non-revealing uniforms (i.e., badminton, basketball, judo, taekwondo, lawn tennis, table tennis, fencing, football, and soft ball) to observe differences among sports environments that can be related to SPA (Gillespie 2017). Through these quantitative observations, the researcher wishes to find meaning in the relationship of SPA among the given events.

FIGURE 2. RESEARCH DESIGN

RESEARCH INSTRUMENTS

Validity of Instruments

Social Physique Anxiety. The 12-item questionnaire to measure SPA (see Appendix C) was constructed by Hart et al. (1989). It measures the degree of an individual's anxiety when their physique is being evaluated by others. A study by Maïano et al. (2010) states that Social Physique Anxiety Scale (SPAS) represents an acceptable internal consistency, with a provided consistency of, and it also has moderate correlations with other measurements. The scale had predictive validity by recording higher numbers which meant higher levels of SPA or anxiety among the participants.

Self-Esteem. Along with SPA, the Rosenberg Self-Esteem Scale (RSES; Rosenberg 1965) was distributed to further observe its influence on SPA as a casual factor (see Appendix D). The RSES is one of the most widely used self-esteem measurement tools in social science research (Tinakon et al. 2012). The data collected from RSES scale was analyzed with the given reliability of . Predictive validity was measured by recording higher numbers as high self-esteem and lower numbers as low self-esteem.

Body Image Dissatisfaction. Along with SPA, the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was distributed to further observe its influence on SPA as a casual factor (see Appendix D). The RSES is one of the most widely used self-esteem measurement tools in social science research (Tinakon et al. 2012). The data collected from RSES scale was analyzed with the given reliability of . Predictive validity was measured by recording higher numbers as high self-esteem and lower numbers as low self-esteem.

Susceptibility to Eating Disorder. EAT-26 was used to examine athletes who were normal or at-risk of developing eating disorders (see Appendix F). The questionnaire has good specificity and moderate sensitivity in detecting eating disorders (Rivas et al. 2010). Furthermore, it has high accuracy, or a low false-positive rate, when used to identify participants without symptoms of eating disorders. This instrument is therefore suitable for non-clinical settings. The scale had predictive validity by recording higher scores which meant being at-risk of developing eating disorders and lower scores which meant they were normal.

PROCEDURE

The study was approved by the Varsity office director. A formal letter of request for data collection was submitted through email and was signed by the researcher's adviser. Research participant eligibility was confirmed through a list of members given by each team captain. The distribution of surveys began soon after each coach's approval of data collection. Due to the pandemic, the study was limited to using an online survey that was accessed through a link and was completed in about 15 to 20 minutes.

Data Evaluation and Analysis. The collected data were tabulated and generated using IBM SPSS Statistics. The level of significance was set at alpha 5%. Thus, if p-value was < 0.05, we rejected the Null Hypothesis; otherwise, fail to reject Ho.

Linear regression was observed to predict the value of a variable based on the value of another variable. SPA was observed using 2 casual factors: (1) Self-esteem and (2) Body Image. The dependent variable for both was SPA and self-esteem and body image were the independent or predictor variables. R determined the strength of the variables' relationship, and the value of R2 indicated the amount of variation among the variables.

A Chi-Square Test for Association or Pearson's Chi-Square Test of Association was used to determine the relationship of the occurrence SPA with (1) the risk of developing eating disorders and (2) the type of sport uniforms. A contingency table represented the distribution of the observed frequencies in each category. Afterwards, a stacked bar graph was generated and this graph presented the percentage of each observation and interaction between the categorical variables with SPA. Lastly, a risk estimate table was generated to further examine the relationships.

Null Hypothesis

Ho1: Body image dissatisfaction and self-esteem does not significantly influence the occurrence of SPA among collegiate female athletes.

Ho2: Level of SPA is not significantly associated with the type of uniform in female sports team.

Ho3: SPA is not significantly related to the risk of developing eating disorders among collegiate female athletes.

RESULTS AND DISCUSSION

Data was obtained through an online survey with 5 different questionnaires. Out of 184 collegiate female athletes who completed the online survey, 167 qualified for the research. All 15 women's varsity teams were represented and were categorized into: (1) Revealing Uniform with 6 varsity teams and (2) Non-revealing Uniform Sports with 9 varsity teams. The population age average was and have been playing their sports with an average of years. The average BMI of the participants were 21.587 ± 3.069.

Varsity Team Profile	f	%
Revealing Uniform Sports		
Filipiniana Dance Group	12	7.19
Pep Squad	19	11.38
Street Dance	9	5.39
Track and Field	10	5.99
Women's Varsity Swimming Team	10	5.99
Women's Volleyball Team	14	8.38
Non-revealing Uniform Sports		
Women's Badminton	4	2.40
Women's Basketball Team	9	5.39
Women's Fencing (Foil, Saber and Epee)	10	5.99
Women's Football Team	20	11.98
Women's Judo	16	9.58
Women's Lawn Tennis	10	5.99
Women's Table Tennis	6	3.59
Women's Taekwondo	10	5.99
Softball	8	4.79

TABLE 1. VARSITY TEAMS CLASSIFIED BY TYPE OF SPORUNIFORMS (N = 167)

The Risk of Developing Eating Disorders

Eating Attitudes Test is a standardized and reliable 26-item questionnaire (EAT-26) that measures the risk for developing eating disorders in non-clinical settings (Garner et al. 1982). Table 2 shows the summary of EAT-26 scores from the survey conducted. Table 2 shows that majority of the sample scored normal, with 68.26% of the participants scoring , whereas only 31.74% of the participants were At-Risk of developing eating disorders, with an average of scores.

Athletes may hesitate revealing symptoms of eating disorders (Garner et al., 1998). Moreover, the lack of concrete definitions of eating disorders can hinder athletes from being screened as being at risk for eating disorders, and pathogenic weight-control routines are secretive in nature. Furthermore, female athletes show higher prevalence in having eating disorders than male athletes and non-athletes (Bratland & Sundgot-Borgen, 2013). The prevalence of eating disorders among athletes has always been inconsistent, and findings in numerous studies remain uneven. Additionally, many weight-control methods are similar to eating disorder patterns (Sundgot-Borgen, 1993).

EAT-26								
	Normal (≤ 20)				At-Risk (>20)			
Varsity Team Profile	f	%	Mean	SD	f	%	Mean	SD
Revealing Uniform Sports	47	28.14	10.81	5.14	27	16.17	29.26	9.04
Filipiniana Dance Group	8	4.79	10.38	4.27	4	2.40	25.50	4.65
Pep Squad	10	5.99	11.70	5.50	9	5.39	27.11	7.29
Street Dance	6	3.59	12.83	5.27	3	1.80	28.67	6.66
Swimming	6	3.59	8.50	5.21	4	2.40	24.50	3.00
Track and Field	8	4.79	10.88	6.60	2	1.20	31.00	1.41
Volleyball	9	5.39	10.33	4.56	5	2.99	39.60	14.01
Non-revealing Uniform Sports	67	40.12	9.10	4.79	26	15.57	29.77	8.93
Badminton	4	2.40	5.25	1.50	-	-	-	-
Basketball	8	4.79	11.50	2.67	1	0.60	26.00	-
Fencing	7	4.19	8.71	5.28	3	1.80	30.67	12.22
Football	16	9.58	8.81	4.58	4	2.40	35.00	5.03
Judo	9	5.39	10.22	4.58	7	4.19	26.57	4.58
Lawn Tennis	7	4.19	7.57	5.22	3	1.80	36.33	18.77
Softball	6	3.59	10.00	6.32	2	1.20	27.50	9.19
Table Tennis	5	2.99	10.60	4.51	1	0.60	23.00	-
Taekwondo	5	2.99	7.40	6.99	5	2.99	28.60	8.88
Overall			9.81	4.98			29.51	9.90

TABLE 2. DISTRIBUTION OF EATING ATTITUDE TEST-26 SCORES (EAT-26)

The Occurrence of Social Physique Anxiety

Social Physique Anxiety Scale (SPAS; Hart et al. 1989) is a 12-item standardized questionnaire that measures the prevalence of SPA. Table 3 summarizes the overall SPAS scores of the participants organized into low- and high-level SPA. Table 3 shows majority of the participants scored high levels of SPA, with only 5 out of 167 collegiate female athletes having low-level SPA. Furthermore, those with low-level SPA showed a mean of , which is lower than the cutoff for high-level SPA. Athletes with high SPA increase exercise participation due to being highly unsatisfied with their body image (Robinson 2009). Furthermore, the most evident motivation for exercise among Filipinos is weight management (Cagas, Torre and Manalastas 2014). Among Filipino females, BMI and body weight were the best predictors for increased exercise participation. Filipino culture is sensitive to body image (Macam 2020). The findings of her study showed Filipino collegiate females had high SPA, claiming Filipino culture to be a casual factor of SPA due to the construct of Philippine society favoring bodies with smaller frames. Women raised in a culture that objectifies the female body would most likely objectify themselves. The constant feeling of wondering how they appear would intensify negative emotions, such as anxiety and shame.

SPAS								
	Low (<30)				High (≥30)			
Varsity Team Profile	f	%	Mean	SD	f	%	Mean	SD
Revealing Uniform Sports	2	1.20	28.50	0.71	72	43.11	40.42	3.94
Filipiniana Dance Group					12	7.19	40.17	4.11
Pep Squad					19	11.38	40.95	4.35
Street Dance					9	5.39	40.67	4.66
Swimming	2	1.20	28.50	0.71	8	4.79	40.25	1.58
Track and Field					10	5.99	39.60	4.40
Volleyball					14	8.38	40.43	3.86
Non-revealing Uniform Sports	3	1.80	25.33	2.08	90	53.89	39.13	4.95
Badminton					4	2.40	35.25	3.10
Basketball					9	5.39	38.56	4.61
Fencing	1	0.60	27.00		9	5.39	39.33	5.59
Football					20	11.98	40.10	5.80
Judo	2	1.20	24.50	2.12	14	8.38	39.93	4.75
Lawn Tennis					10	5.99	41.00	5.23
Softball					8	4.79	40.38	4.24
Table Tennis					6	3.59	35.50	3.33
Taekwondo					10	5.99	37.30	3.65
Overall			26.40	2.30			39.70	4.56

TABLE 3. DISTRIBUTION OF SPAS SCORES

Predictors of Social Physique Anxiety

Self-esteem. Table 4 shows the overall summary of the linear regression model of RSES and SPAS, where they are both moderately correlated (. Additionally, the model accounts for 30.7% (of the variance.

Figure 3 shows the scattered plot of RSES and SPAS, where it determines the interaction of the variable and shows a weak positive correlation. In a study done by Krane et al. (2001) claimed athletes found their body as something they should be proud of, but still quickly found problem areas. Even with normal to high RSES scores, these results still predicted athletes being dissatisfied with their body image, influencing the level of SPA. A positive correlation would mean high self-esteem would still influence high SPA. This result contradicts findings claiming low self-esteem leads to increased SPA among athletes. This may predict that athletes with high self-esteem may take pride in areas other than their bodies.

	R	R^2	p-value
Social Physique Anxiety Scale	0.554	0.307	< 0.001
Rosenberg Self-esteem Scale			

TABLE 4. MODEL SUMMARY OF RSES

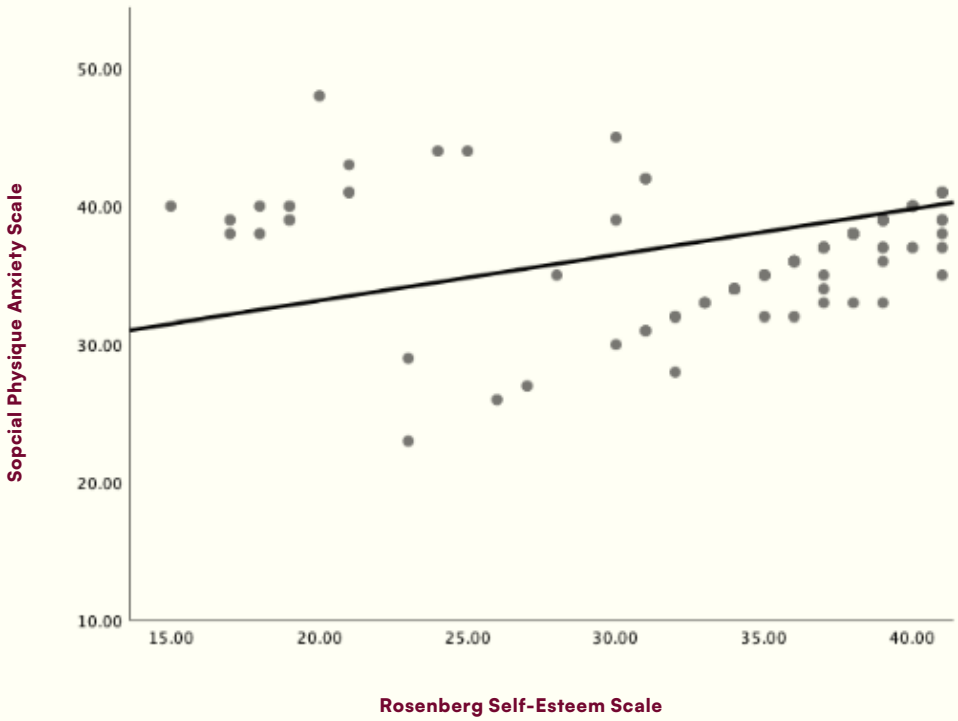

FIGURE 3. SCATTERED PLOT OF ROSENBERG SELF-ESTEEM SCALE AND SOCIAL PHYSIQUE ANXIETY SCALE

Body Image Dissatisfaction

Table 5 summarizes the overall linear regression model of BIS and SPA. It shows BIS is moderately correlated to SPA (. The linear regression model accounts for 4.4% (of the variance. Despite the low value of variance, it still shows positive body image dissatisfaction does influence the increase of SPAS scores. The scatter plot in Figure 4 shows a strong positive relationship in which BIS increases with SPA. Similarly, in the linear regression of RSE and SPA, regardless of the BIS scores, SPA remains high. Female athletes struggle more than their male counterparts when it comes to body image (Prapavessis et al. 2004). Additionally, Lynch (1962) observed that to Filipinos favor the approval of others. It is important for them to be socially noticed and to be liked, thereby adding pressure to be visually pleasing to others. Subscribing to the Philippine society's standards and having to live up to those expectations may increase SPA.

	R	R^2	p-value
Social Physique Anxiety Scale	0.209	0.044	< 0.007
Body Image Scale			

TABLE 5. MODEL SUMMARY OF IMAGE SCALE (BIS)

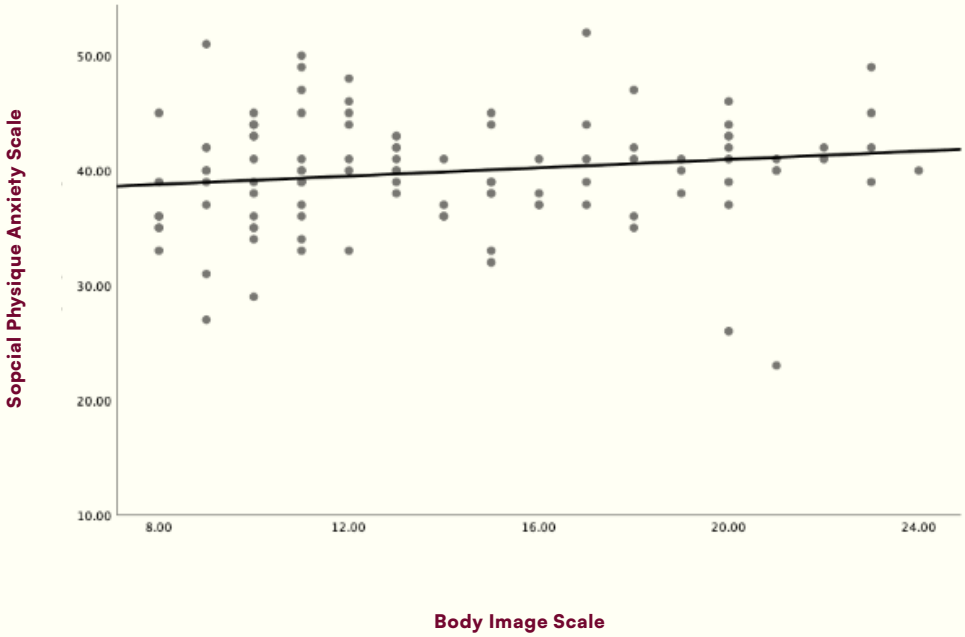

FIGURE 3. SCATTERED PLOT OF BODY IMAGE SCALE AND SOCIAL PHYSIQUE ANXIETY SCALE

Type of Sport Uniforms

The contingency table below shows the overlapping of types of sports uniforms and SPAS scores. Majority of the participants have high SPA; only a total of 5 female athletes has low SPA. Table 8 shows minimal difference among each type of sport uniform. Chi-Square indicates little to no association regarding type of Sport Uniforms and SPA (Cramer's V = 0.015). The risk of high SPA is not influenced by the type of sport uniform.

	Social Physique Anxiety		
Type of Sport Uniforms	Low	High	Total
Non-revealing	3	90	93
Revealing[1]	2	72	74
	5	162	167

TABLE 6. CONTINGENCY TABLE OF SPAS AND THE TYPE OF SPORT UNIFORMS

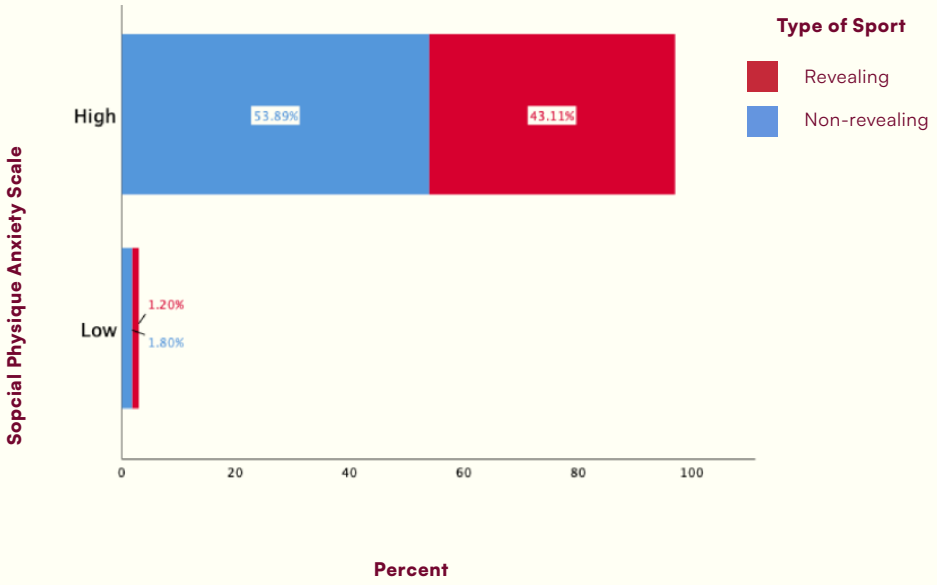

FIGURE 5. DISTRIBUTION OF SPAS WITH THE TYPE OF SPORT UNIFORMS

Risk Estimate	Value	95% CI
Odds Ratio for Social Physique Anxiety Scale (High / Low)	0.833	[0.136, 5.122]
Type of Sport: Non-revealing	0.926	[0.447, 1.919]
Type of Sport: Revealing	1.111	[0.375, 3.296]

TABLE 7. RISK ESTIMATES OF TYPE OF SPORT UNIFORMS WITH SPAS LEVELS

Cultural preferences have also been observed to be a predictor of SPA. Following this, Furnham and Nordling (1998) studied the cross-cultural evaluation of European countries regarding preferences of body shapes and found that Danish females wanted to lose weight, whereas Portuguese women were against weight loss. Specifically, hourglass bodies, defined by wide hips, medium bust, and a slim waist, were attractive to the Portuguese population. Additionally, Gitter, Lomranz, and Bar-Tal (1983) examined American and Israeli collegiate students regarding their female physique perceptions. The findings did not show significant differences in cross-cultural evaluations; however, both were examined to highly focus on body shape and focused on belly protrusions. Macam (2020) explains Filipinos favors smaller body frames. Body image is evidently a predictor of high SPA; however, it is not due to the type of sport uniform. The 167 collegiate female athletes all belonged to a Filipino household. It can be said high SPA was prevalent due to the cultural preference.

Association of SPA and the Risk of Developing

Eating Disorders. The contingency table below shows the overlapping of EAT-26 and SPAS scores. Majority of the participants have high SPA; only 5 female athletes have low SPA. However, Table 6 shows higher frequency (67.07%) among Normal EAT-26 scores with high SPA, while less than half of the population

(29.94%) with high level SPA were at risk for developing eating disorders. Table 7 shows the risk estimates of the variables. Findings present the risk of developing eating disorders is 1.04 times lower when SPA is high. Therefore, the risk of developing eating disorders is higher with low SPA. However, the association of EAT-26 and SPA using Chi-Square indicates little to no association (Cramer's V = 0.107).

	Social Physique Anxiety		
Eating Attitudes Test-26	*Low*	High	Total
Normal	2	112	114
At-Risk	3	50	53
Total	5	162	167

TABLE 8. CONTIGENCY TABLE OF EAT-26 AND SPAS

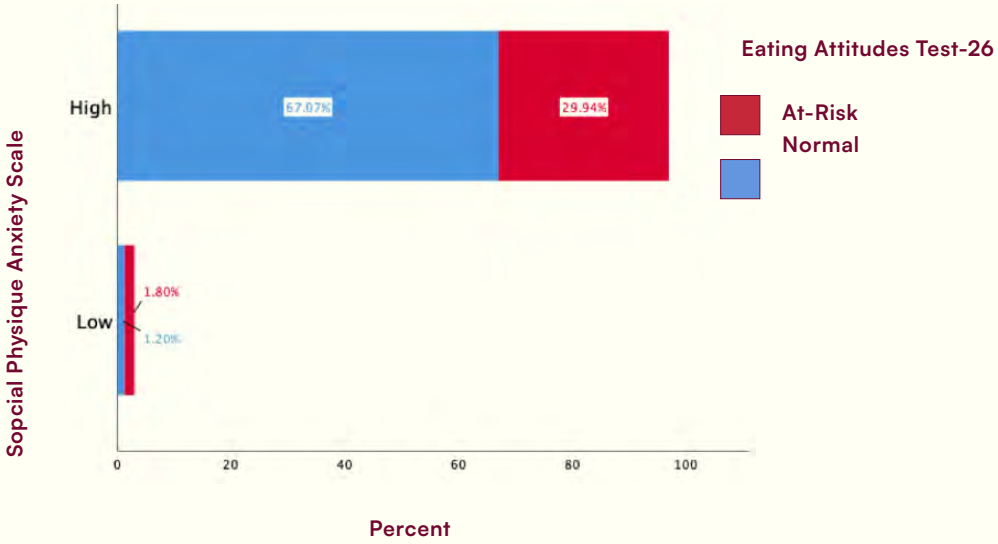

FIGURE 5. DISTRIBUTION OF EAT-26 SCORES AND SPAS

Risk Estimate	Value	95% CI
Odds Ratio for Eating Attitudes Test-26 (At-Risk / Normal)	0.298	[0.048, 1.837]
High Social Physique Anxiety Scale Score	0.960	[0.053, 1.800]
Low Social Physique Anxiety Scale Score	3.226	[0.971, 1.117]

TABLE 9. RISK ESTIMATE OF EAT-26 SCORES AND SPAS

According to Furnham and Baguma (1994), cross-cultural differences influence the risk of populations for developing eating disorders. Literature has recorded eating disorders in non-Caucasian populations to be lower compared to those in Caucasian populations. Additionally, the prevalence of eating disorders among athletes has been inconsistently high and benign (Garner, Rosen, and Barry 1998). The interpretation of conflicting findings should consider the different settings. Training philosophies, level of competitiveness, peer pressure, coaches' attitudes about body weight, and exposure to sports nutrition could either protect or promote disordered eating. Reel and Gill (1996) studied the prevalence of eating

disorder among cheerleaders and found that the coach's influence to be a leading pressure to lose weight and change their body image. Byme and McLean (2001) claim that controlling the sample between athletes usually results in little to no detection of eating disorders due to the design weaknesses, such as sample sizes and inadequate statistical comparisons.

SUMMARY OF FINDINGS

The unexpected results, in contradiction to prior research, imply that SPA is influenced by factors beyond self-esteem and body image. Cross-cultural differences emerge as a potential avenue for exploration, suggesting that understanding how various cultural elements shape SPA is crucial for a comprehensive analysis. Furthermore, the results suggest that body image-related factors alone may not be the sole determinants for the onset of eating disorders. Other internal and external motivations, not accounted for in this study, may contribute to the occurrence of both SPA and eating disorders.

CONCLUSION

In conclusion, this study highlights the complexity of the relationships between SPA, self-esteem, body image, and the risk of developing eating disorders among Filipino collegiate female athletes. It emphasizes the need for future research to delve into cross-cultural differences and consider a broader spectrum of internal and external motivations influencing these psychological and behavioral outcomes. Understanding these multifaceted influences is crucial for the development of targeted interventions and support strategies tailored to the unique needs of collegiate female athletes.

RECOMMENDATIONS

Consideration of Cultural Factors. Future studies should take into account the influence of Filipino culture and societal views on athletes' perceptions of body image. Understanding how cultural beliefs shape individuals' ideals of body acceptance within the context of sports can provide a more comprehensive analysis.

Comprehensive Measurement of The Risk of Developing an Eating Disorder. Despite having used standardized instruments for this study, researchers should address the potential gap of understanding among athletes regarding what constitutes disordered eating behaviors. It is recommended to provide thorough information, briefings, and discussions on both healthy and unhealthy eating behaviors to ensure accurate responses. Confidentiality assurance is also vital to encourage honest and open participation.

Social Physique Anxiety. Researchers should explore strategies to mitigate bias from participants' tendency to respond in socially acceptable ways, rather than expressing their genuine response and employ techniques to ensure confidentiality and emphasize the importance of an honest response in order to enhance data validity.

Expanded Sample Size and Standardization. This study examined a limited number of participants and relied on the use of an online survey due to the pandemic; future studies should aim for a more diverse and larger sample size. Standardizing variables such as the level of competition and weekly training hours among athletes can contribute to more robust and consistent findings. This approach will allow for a broader understanding of the relationship between athlete attire, social physique anxiety, and eating disorders.

Exploration of Additional Environmental Factors. As this study recognizes the limitation of focusing solely on body image and self-esteem without considering other environmental factors, future research endeavors should incorporate a broader scope, considering various environmental influences, such as family dynamics, peer relationships, and coaching styles, to offer a more holistic understanding of the athlete's sports environment.

Longitudinal Studies. Future studies, lasting, should consider the implementation of longitudinal studies to track changes over

time in order to provide a deeper insight into the dynamic nature of the relationship between athlete attire, social physique anxiety, and eating disorders. This could unveil patterns and trends that may not be apparent in a cross-sectional study.

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