

Link between eating disorder risk, self-esteem, and body image among Puerto Rican high school student-athletes

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Abstract

Negative eating behaviors are problematic and can often lead to more serious health issues. Eating disorders can progress to clinical disorders, requiring immediate attention. Student-athletes often face social and cultural pressures that exponentially increase the possibility of developing dangerous eating disorders. High expectations and constant scrutiny from coaches, teammates, and friends may similarly encourage a sense of desperation to meet and exceed the demands of their sport. For this reason, this quantitative correlational research study aims to: (a) examine eating disorder risk in Puerto Rican high school student-athletes; (b) assess statistically significant relationships between self-esteem and the risk of eating disorders; (c) identify statistically significant relationships between body image and the risk of eating disorders, and (d) analyze if body image and self-esteem significantly predicted eating disorder risk. Thirty-six Puerto Rican high school student-athletes completed a sociodemographic questionnaire, the Eating Attitudes Test (EAT-26), the Rosenberg Self-Esteem Scale (RSE), and the Body Appreciation Scale (BAS). A Pearson correlation coefficient examined the relationship between body image and eating disorder risk, and the relationship between self-esteem and eating disorder risk. Multiple regression analysis was used to assess whether body image and self-esteem could predict the risk of a potential eating disorder. Results show that in high school student-athletes, this was generally low, given a normal body image and a favorable degree of self-esteem. As such, no correlation was found between body image, self-esteem, and eating disorder risk. In this light, the above variables did not predict eating disorder risk. These results are positive, but further exploration with a larger sample of student-athletes would better corroborate the findings of this study.

Keywords: body image, eating disorders, quantitative, self-esteem, sports, student-athletes

Introduction

Eating disorders are pathological eating behaviors that need to be addressed due to the significant consequences they bring. These life-threatening behaviors, which can be triggered by a negative body image and low self-esteem, are dangerous because individuals follow strict diets and rigid food rules (Simpson & Mazzeo, 2017). Anorexia nervosa, bulimia nervosa, and binge eating disorders are all problematic because they can progress into clinical disorders that require immediate attention (Mitchell, Petrie, Greenleaf, & Martin, 2017). Since student-athletes are constantly present in highly competitive environments, the risk of eating disorders can be higher (Escobar-Molina, Rodríguez-Ruiz, Gutiérrez-García, & Franchini, 2015; Filaire, Massart, Hua, & Scanff, 2015; Gitau, Micklesfield, Pettifor, & Norris, 2014; Stewart, Plasencia, Han, Jackson, & Becker, 2014; Teixeira, Pereira, Marques, Saraiva, & Macedo, 2016). Student-athletes are under constant scrutiny, which can lead to an excessive focus on body weight and shape, especially when their body can influence their performance. In addition, athletes are constantly comparing themselves to their peers, which might lead them to use different methods to improve sports performance as well as their body image and shape. Student-athletes may be willing to do anything to meet and exceed the demands of their sport (Filaire et al., 2015).

Western culture idealizes a thin body, even though these ideals may be unrealistic. Since Western culture emphasizes the importance of physical appearance and social media constantly stresses the value of a slim, muscular, fit, and attractive physique, athletes in today's environment feel more pressure than ever before (Ahlich, Choquette, & Rancourt, 2018; Shanmugam, Jowett, & Meyer, 2014). In order to adapt to cultural and social expectations, some athletes are willing to try unorthodox methods to reach those unrealistic expectations, especially when they have body dissatisfaction (Robbeson, Kruger, & Wright, 2015). In addition, student-athletes are exposed to a sports environment that can increase their chances of suffering from eating disorders. Sports-related pressures and demands, combined with the socio-cultural and psychological pressures to improve body size, body shape, athletic performance, and athletic image, can bring about negative consequences (Ahlich et al., 2018; Kroshus, Kubzansky, Goldman, & Austin, 2015). Unrealistic expectations are critical in determining and predicting future eating disorders and problems with body image and self-esteem (Kong & Harris, 2015).

Participation in sports is usually associated with positive health, well-being, fitness, body image, and self-esteem, but athletes have been highlighted by their risk of developing eating disorders. The sporting environment as well as coaches, critics, and other external pressures to win and be successful can compromise their nutrition, health, performance, and well-being (Shanmugam et al., 2014). Some athletes are willing to do anything to improve their performance. If competitiveness increases, athletes feel even more pressure to maintain or improve their body image, weight, and shape, which in turn can affect their body image and self-esteem. Body image dissatisfaction and low self-esteem are strong predictors of eating disorders—that is, the risk of eating disorders is higher when athletes present body dissatisfaction and low self-esteem (DiPasquale & Petrie, 2013; Filaire et al., 2015; Lofrano-Prado, Luiz Prado, Virgílio Gomes Barros, & Lopes de Souza, 2015).

Despite all of the evidence and information available on eating disorders in high school student-athletes, additional studies are required to identify those at a higher risk of eating disorders and the variables that can influence eating disorders to provide more effective and preventive disordered eating programs. No studies were found associated with eating disorders in Puerto Rican high school student-athletes and the link between eating disorders, body image, and self-esteem, which adds value and further signifies the value of this study. The goal is to provide new insight and contribute to the body of knowledge regarding this topic. It is vital to address these issues to improve efforts that will help vulnerable populations, especially student-athletes (Kroshus et al., 2015).

Material and methods

Participants and Procedures

Student-athletes from three different academic institutions in Puerto Rico were invited to participate in the study. A non-randomized convenience sample was used. The researcher recruited 36 male and female high school student-athletes to participate in the study. All Hispanic high school student-athletes were eligible for inclusion. The only requirements for the study were to be a current high school student-athlete and be willing to participate in the data collection process. The researcher ensured that all participants complied with the study parameters by confirming their participation in sports with the athletic director. Participants were free to decline participation without consequence at any time.

The researcher contacted the school principal and athletic director of the three schools located in Toa Baja, Puerto Rico, to explain the study and obtain approval. The researcher followed all protocols and procedures required by Northcentral University's Institutional Review Board to ensure adherence to all standards for adequate protection and well-being of participants. The Ethics Committee of all of the academic institutions provided approval before beginning the study. Then, the researcher contacted the school principal and athletic director of the three schools located in Toa Baja, Puerto Rico, to provide the recruitment letter. Participants were invited and recruited to participate in the study through the school's athletic director. Parents contacted the researcher to enroll the student-athletes, and then the consent form was sent to the parents by email. The parents completed the consent form and sent it back to the researcher via email. Finally, the link to the scales was sent to the email that the parents provided. The students accepted the waiver of assent form and completed the scales anonymously using the online tool SurveyMonkey.

Instruments

A total of four instruments were used in this study. Eating disorder risk was measured using the Spanish version of the Eating Attitudes Test (EAT-26), which was originally developed by Garner, Olmsted, Bohr, and Garfinkel (1982). Rivas, Bersabé, Jiménez, and Berrocal (2010) conducted a study to validate the Spanish version of EAT-26, and the scale was valid and reliable and demonstrated adequate internal consistency ($\alpha = .938$). Body image was measured using the Spanish version of the Body Appreciation Scale (BAS) created by Avalos, Tylka, and Wood-Barcalow (2005) and translated by Lobera and Ríos (2011). BAS is valid and reliable and demonstrated adequate internal consistency ($\alpha = .908$). The Spanish version of the BAS was translated using a translation/back-translation procedure. The values obtained in the test-retest correlation were $\alpha = .88$, and $\alpha = .90$, respectively (Lobera & Ríos, 2011). Self-esteem was analyzed with the Spanish version of the Rosenberg Self-Esteem Scale (RSS), which is a valid and reliable tool that has been translated and tested for internal consistency using Cronbach's alpha. The values obtained in the test-retest correlation were $\alpha = .85$, $\alpha = .88$, and $\alpha = .84$, respectively. This instrument represents the most common tool used to measure self-esteem (Lowry, Sallinen, & Janicke, 2007; Nemcek, Kracek, & Perackova, 2017). The RSS, BAS, and EAT-26 were the primary data collection tools for this study. All three Likert-type scales have good internal consistency, test-retest reliability, and construct validity. Finally, a socio-demographic questionnaire was used to collect additional information regarding age, gender, grade, and sport(s) played.

The RSS had five negative items and five positive items; thus, the researcher recoded the negative items. A self-esteem index was calculated by adding the ten items that constitute this scale. This index is considered a continuous-interval scale with values that range from 10-40 points. The EAT-26 was computed by summing all 26 items. The researcher recoded the last item because it was inverted. The BAS is a 13-item instrument that uses a 5-point scale, and this scale was computed by summing all items. The researcher changed item 12 depending on the sex of the participant because the scale had a sex-specific question. All scales were considered interval scales that produced data indexes when summed.

Data collection and analysis

Once the participants completed the scales, the researcher used the most current version of the Statistical Package for the Social Sciences for data analysis. Means, standard deviations, frequencies, and percentages were used for descriptive statistics. Pearson’s correlation coefficient was calculated to assess the dependence and statistical significance between the interval-level data collected for body image, self-esteem, and eating disorder risk. Multiple regressions were used to assess if body image and self-esteem influence and predict eating disorder risk. The assumptions of normality of residuals, homoscedasticity of residuals, absence of multicollinearity, and the lack of outliers were assessed. The researcher used a conservative p-value (0.05).

Results

Descriptive and summary statistics were calculated for each interval and ratio variable. Frequencies and percentages were calculated for each nominal variable. The most frequently observed category for gender was male ($n = 24, 67\%$), and the most frequently observed category for sport was soccer ($n = 9, 25\%$). Frequencies and percentages are presented in Table 1.

Table 1. Frequency Table for Nominal Variables.

Variable	<i>n</i>	%
Gender		
Female	12	33.33
Male	24	66.67
Missing	0	0.00
Sports		
Volleyball	8	22.22
Multiple sports	6	16.67
Basketball	6	16.67
Track and Field	3	8.33
Tae Kwon Do	2	5.56
Soccer	9	25.00
Swimming	1	2.78
Table Tennis	1	2.78
Missing	0	0.00

Note. Due to rounding errors, percentages may not equal 100%.

The observations for grade had an average of 11.19 ($SD = 1.09, SE_M = 0.18, Min = 9.00, Max = 12.00$), and the average for age was 16.61 ($SD = 1.23, SE_M = 0.20, Min = 14.00, Max = 18.00$) years. The RSS average was 32.28 ($SD = 4.48, SE_M = 0.75, Min = 22.00, Max = 40.00$). The observations for the BAS average was 53.67 ($SD = 6.39, SE_M = 1.06, Min = 39.00, Max = 63.00$). The EAT-26 had an average of 11.22 ($SD = 8.06, SE_M = 1.34, Min = 0.00, Max = 29.00$). The average of all scales was in a normal range. Skewness and kurtosis were also calculated in Table 2.

Table 2. Summary Statistics Table for Interval and Ratio Variables.

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SE_M</i>	Skewness	Kurtosis
Grade	11.19	1.09	36	0.18	-0.93	-0.64
Age	16.61	1.23	36	0.20	-0.54	-0.76
RSS	32.28	4.48	36	0.75	-0.26	-0.28
BAS	53.67	6.39	36	1.06	-0.81	-0.37
EAT-26	11.22	8.06	36	1.34	0.74	-0.33

The average reported grade was 10.92 ($SD = 1.16, SE_M = 0.34, Min = 9.00, Max = 12.00$) for females and 11.33 ($SD = 1.05, SE_M = 0.21, Min = 9.00, Max = 12.00$) for males. Average ages were 16.42 ($SD = 1.44, SE_M = 0.42, Min = 14.00, Max = 18.00$) years for females and 16.71 ($SD = 1.12, SE_M = 0.23, Min = 14.00, Max = 18.00$) for males. Females had an RSS average of 30.25 ($SD = 5.22, SE_M = 1.51, Min = 22.00, Max = 38.00$), and males had an RSS average of 33.29 ($SD = 3.78, SE_M = 0.77, Min = 26.00, Max = 40.00$). The female average BAS score was 47.83 ($SD = 6.21, SE_M = 1.79, Min = 39.00, Max = 60.00$). For males, the average BAS score was 56.58 ($SD = 4.13, SE_M = 0.84, Min = 43.00, Max = 63.00$). Finally, the average EAT-26 score was 11.75

($SD = 8.17$, $SE_M = 2.36$, $Min = 0.00$, $Max = 28.00$) for females, and 10.96 ($SD = 8.17$, $SE_M = 1.67$, $Min = 1.00$, $Max = 29.00$) for males. Skewness and kurtosis were also calculated in Table 3.

Table 3. Summary Statistics Table for Interval and Ratio Variables Split by Sex.

Variable	M	SD	n	SE_M	Skewness	Kurtosis
Grade						
Female	10.92	1.16	12	0.34	-0.56	-1.10
Male	11.33	1.05	24	0.21	-1.16	-0.19
Age						
Female	16.42	1.44	12	0.42	-0.21	-1.36
Male	16.71	1.12	24	0.23	-0.73	-0.22
RSS						
Female	30.25	5.22	12	1.51	-0.15	-1.16
Male	33.29	3.78	24	0.77	0.25	-0.61
BAS						
Female	47.83	6.21	12	1.79	0.34	-0.63
Male	56.58	4.13	24	0.84	-1.51	3.16
EAT-26						
Female	11.75	8.17	12	2.36	0.48	-0.50
Male	10.96	8.17	24	1.67	0.87	-0.20

Self-Esteem and Eating Disorder Risk

A Pearson correlation analysis was conducted to examine the relationship between self-esteem and eating disorder risk among Puerto Rican high school student-athletes. There were no significant correlations between any pairs of variables. In particular, there was no statistically significant relationship between self-esteem and eating disorder risk among Puerto Rican high school student-athletes. Results of the correlation are presented in Table 4.

Table 4. Pearson Correlation Matrix Between Self-Esteem and Eating Disorder Risk.

Variable	1	2
1. RSS	-	
2. EAT-26	-0.33	-

Note. The critical values are 0.33, 0.42, and 0.53 for significance levels .05, .01, and .001 respectively.

Body Image and Eating Disorder Risk

A Pearson correlation analysis was conducted to examine the relationship between body image and eating disorder risk among Puerto Rican high school student-athletes. There were no significant correlations between any pairs of variables, and in particular, there was no statistically significant relationship between body image and eating disorder risk among Puerto Rican high school student-athletes. The results of the correlation are presented in Table 5.

Table 5. Pearson Correlation Matrix Between Body Image and Eating Disorder Risk.

Variable	1	2
1. BAS	-	
2. EAT-26	-0.22	-

Note. The critical values are 0.33, 0.42, and 0.53 for significance levels .05, .01, and .001 respectively.

Self-Esteem, Body Image, and Eating Disorder Risk

A linear regression analysis was conducted to assess whether self-esteem and body image significantly predicted eating disorder risk. The results of the linear regression model were not significant, $F(2,33) = 2.05$, $p = .144$, $R^2 = 0.11$, indicating that self-esteem and body image did not explain a significant proportion of variation in eating disorder risk. The results suggested that self-esteem and body image do not significantly predict eating

disorder risk among Puerto Rican high school student-athletes. The results of the regression model are summarized in Table 6.

Table 6. Results for Linear Regression with Self-Esteem and Body Image predicting Eating Disorder Risk.

Variable	<i>B</i>	<i>SE</i>	95% CI	β	<i>t</i>	<i>p</i>
(Intercept)	32.48	11.96	[8.15, 56.81]	0.00	2.72	.010
Self-Esteem	-0.53	0.35	[-1.25, 0.18]	-0.30	-1.52	.137
Body Image	-0.07	0.25	[-0.58, 0.43]	-0.06	-0.30	.764

Note. Results: $F(2,33) = 2.05$, $p = .144$, $R^2 = 0.11$
 Unstandardized Regression Equation: Eating Disorder Risk = 32.48 - 0.53*Self-Esteem - 0.07*Body Image

Discussion

The sample population consisted of 36 high school student-athletes with an average age of 16.61 (14-18) years. All of the student-athletes were from grades 9 to 12, most being from the 12th grade (n = 21, 58%). Most participants were males (n = 24, 67%). The findings of the study provided interesting results. The eating disorder risk among high school student-athletes was considered low since the average was 11.22, and a score less than 20 is considered low risk. The researcher found that 19% (n = 7) of the student-athletes scored over 20 in the scale, meaning that they would be considered at risk for eating disorders. The self-esteem of the student-athletes was also considered within a normal range, averaging around 32.28. The average body image score was 53.67, which is considered to be within a healthy range as well. The healthy and normal ranges found in these three variables in student-athletes are supported by several studies (DiPasquale & Petrie, 2013; Esenturk, Ilhan, & Celik, 2015; McLester, Hardin, & Hoppe, 2014). In addition, there was a significant positive correlation between self-esteem and body image—higher self-esteem corresponded with a more positive body image (rp= 0.54, p < .001).

In general, males had a more positive self-esteem and body image, and a lower risk of eating disorders than females, as suggested by most of the literature, because women tend to have stronger societal influences and pressures (DiPasquale & Petrie, 2013; Escobar-Molina et al., 2015; Gaines & Burnett, 2014; Hansson, Daukantaitė, & Johnsson, 2016; Kong & Harris, 2015; Stewart et al., 2014; Yilmaz, Esenturk, Ulas, & Ilhan, 2017). On the other hand, there was no relationship between self-esteem, body image, and eating disorder risk. In addition, self-esteem and body image did not predict eating disorder risk. The small sample that was analyzed refuted other research studies that found a link between self-esteem, body image, and eating disorders risk among high school student-athletes (Argyrides & Kkeli, 2015; Filaire et al., 2015; Francisco et al., 2015; Jáuregui Lobera, Bolaños-Ríos, Valero-Blanco, & Ortega-de-la-Torre, 2016; Kong & Harris, 2015; Shanmugam et al., 2014; Teixeira et al., 2016). No significant correlations were found between the independent variables and eating disorder risk, and the independent variables did not predict eating disorder risk.

Limitations

There were several potential limitations within this study. The first limitation was that the awareness of the study could have biased the participant’s responses. A second possible limitation was that there was not an equal representation of gender since most of the participants were males. A third limitation was the possibility of students being fearful of exposing their low self-esteem, negative body image, and/or eating disorder risk. Since they were high school student-athletes who needed permission from their parents, the fear of exposure could have been present. A fourth limitation was the small sample size and the low response rate, which was less than 30%. The relatively small sample size limits generalizability. Finally, the last limitation is the lack of a control group due to time constraints and resources.

Implications

Previous literature suggests that the student-athlete population is prone to a higher risk of eating disorders and that body image and self-esteem in student-athletes might not be in a healthy range due to their elevated social pressures and demands, which is opposite to the findings of this study (Argyrides & Kkeli, 2015; Filaire et al., 2015; Francisco et al., 2015; Jáuregui Lobera et al., 2016; Kong & Harris, 2015; Shanmugam et al., 2014; Teixeira et al., 2016). On the other hand, several researchers have found that student-athletes tend to have high self-esteem and positive body image, especially when compared to non-athletes (DiPasquale & Petrie, 2013; Esenturk et al., 2015; McLester et al., 2014; Wollenberg, Shriver, & Gates, 2015). Coaches, parents, and athletic directors should not be surprised by the results of this study since student-athletes are supposed to be engaged in constant physical activity due to the demands of their sport, which tends to improve body image, self-esteem, and eating disorder risk (Galante & Ward, 2017; Sabiston, Pila, Vani, & Thøgersen-Ntoumani, 2018). Being engaged in organized sports can have a positive physical and psychological influence on student-athletes (Rottensteiner, Tolvanen, Laakso, & Kontinen, 2015).

Eating disorder risk among high school student-athletes was considered low. Self-esteem and body image of the student-athletes were considered to fall within a normal range. There are cultural variations that are present and need to be considered before generalizing the results. Most studies on risk factors, body image, and

eating disorders have been conducted on female adolescents or female college students, assuming that the same factors would apply to adolescent boys and girls. Several sociocultural and psychological factors might influence the results. Sociocultural variables among adolescents in different cultures need to be considered since the development of body image and eating disorders are a multifactorial process (Francisco et al., 2015).

Gitau et al. (2014) conducted a study to examine body image, self-esteem, and eating attitudes and found that ethnic differences affected self-esteem, body mass index, and eating attitudes. The findings led them to conclude that ethnic and cultural differences could affect and influence an adolescent's attitudes and behaviors toward eating habits and patterns. In addition, males and females can perceive their body image differently, which can explain why body image scores are different in males and females. The social construction theory (SCT) posits that social expectations, influences, beliefs, and social norms will affect individuals (Biever, De Las Fuentes, Cashion, & Franklin, 1998). Females tend to have a higher risk of eating disorder, a more negative body image, and a lower self-esteem when compared to males because they might feel more observed, assessed, and monitored due to cultural influences and pressures of society (Budzisz&Nawrocka, 2016; DiPasquale & Petrie, 2013; Escobar-Molina et al., 2015; Gaines & Burnett, 2014; Hansson et al., 2016; Kong & Harris, 2015; Stewart et al., 2014; Yilmaz et al., 2017).

In this study, males had more positive self-esteem and body image and a lower risk of eating disorders, but in general, most of the participants were not considered at-risk for an eating disorder, including female student-athletes. McLester et al. (2014) conducted a study that led them to conclude that female student-athletes, contrary to popular belief, are not at high risk of developing eating disorders because they tend to possess high levels of self-concept, self-esteem, and body image satisfaction. The results of their study were deemed positive and support the findings of this study. Galli et al. (2014) also demonstrated that a significant amount of male and female student-athletes do not present symptoms of eating disorders and that psychological variables do not predict eating disorders. Similar to the present study, the psychosocial variables of self-esteem and body image did not predict eating disorders.

Although the results were positive, more studies need to be conducted in this area. Athletic directors should continue to take preventive measures to avoid student-athletes from engaging in eating disorders and having low self-esteem and body image. It is essential to understand how health professionals can incorporate different strategies to avoid a future increase in eating disorder risk. Psychosocial variables, such as self-esteem and body image, did not affect eating disorder risk, but should still be considered in future studies and interventions since many other studies have proven that these correlations do exist. Athletic directors and coaches should address eating disorder risk, self-esteem, and body image. Sports managers can help identify potential barriers, develop ways to overcome those barriers, improve adherence to a healthy eating and exercise routines, and improve self-esteem and body image by taking the necessary steps to create prevention programs in schools.

Recommendations for Practice

Athletic departments should create preventive programs for the student-athletes. Schools should have health care professionals available for student-athletes to avoid future problems with eating disorders, self-esteem, and body image, even if student-athletes are at low risk of eating disorders and of having problems with self-esteem and body image. Neal et al. (2015) recommend having a careful and detailed plan to recognize and refer student-athletes who might present eating disorder risks or mental health concerns. School counselors and clinical and sports psychologists should be available to athletes. Also, having a thorough physical and psychological examination of student-athletes before participation in sports is a great way to screen for possible needs. If there are students with potential concerns, the athletic directors and coaches can arrange a meeting with the student-athletes. Athletic directors and coaches can assist the students using a non-judgmental approach to connect them with the most appropriate help. For these things to happen, athletic directors need to understand eating disorders, self-esteem, and body image. Athletic directors must be up-to-date with this information and take courses that will prepare them for these situations. In addition, athletic directors need to create a culture that focuses less on appearance and more on cultivating a healthy body image and self-esteem (Soulliard, Kauffman, Fitterman-Harris, Perry, & Ross, 2019). Sports managers should promote an environment of openness and a culture that invites the students to voice their concerns without negative repercussions. By providing adequate tools and destigmatizing mental health concerns, student-athletes are more prone to share vulnerabilities with a mental health professional, their coaches, and athletic directors. Coaches and athletic directors can direct students to the appropriate venues if they are available.

Recommendations for Future Research

Gitau et al. (2014) confirmed that limited research has been conducted in low- and middle-income countries on eating attitudes, body image, and self-esteem, especially with adolescents. More studies need to be conducted in Puerto Rico to confirm or deny the findings of this study in high school student-athletes. Academics could focus on conducting studies with other ethnic populations and use different variables in a much larger sample size. Other variables need to be studied and addressed to analyze other possibilities as well. More psychosocial variables can be studied to analyze different correlations. Some of these variables might include gender, sports played, social media influence, coach's coaching style or method, and peer and parental influence, among others.

Future research studies could provide more time and resources in different areas of the Puerto Rican population. Increasing the length of time and resources to reach a larger sample size could improve external validity and increase the generalizability of the results. A similar representation of males and females is also needed to analyze the differences between genders. Since the study was conducted in the metropolitan area, future studies could focus on different parts of the island, including the rural and urban areas. In addition, using a mixed-methods intervention could provide more insight. Future research studies should conduct a more thorough analysis to obtain both quantitative and qualitative data. Specific experiences and details can provide useful feedback for future prevention programs. A qualitative component can provide essential data. In addition, it would be valuable to include a control group to compare student-athletes with non-student-athletes. Finally, a longitudinal study could be performed to examine eating disorder risk in student-athletes from high school to college. Taking these recommendations into consideration will provide a significant amount of data and help reach a more definite conclusion of the results of this study, and it will also provide more insight into eating disorder risk in high school student athletes.

Conclusion

This study was conducted to determine eating disorder risk in high school student-athletes and possible correlations between body image, self-esteem, and eating disorder risk. It also served to determine whether or not body image and self-esteem predicted eating disorder risk. Three valid and reliable scales were used for data collection. This study on 36 Puerto Rican high school student-athletes was successful in providing a clear snapshot of an under-researched population. Even with a small sample size, the essential data provided in this study can be useful to understand eating disorder risk as well as self-esteem and body image of Puerto Rican high school student-athletes.

Pearson's correlation coefficient analysis helped to assess the dependence between the interval-level data collected for self-esteem, body image, and eating disorder risk. Multiple regression analysis was used to assess if body image and self-esteem influenced eating disorder risk. Based on the analyses, eating disorder risk was considered low among student-athletes. The results showed that 19% ($n = 7$) of the student-athletes (five males and two females) were categorized as high risk, and the other 81% ($n = 29$) were categorized as low risk. In general, males had more positive self-esteem and body image and a lower risk of eating disorders compared to female student-athletes. Body image and self-esteem average values were considered within a healthy and normal range and demonstrated a positive correlation. The higher the self-esteem, a more positive body image was observed ($r_p = 0.54$, $p < .001$). Although a relationship between body image and self-esteem was seen, there was no relationship between self-esteem and eating disorder risk, or for body image and eating disorder risk. In addition, self-esteem and body image did not predict eating disorder risk. The independent psychosocial variables were not useful in determining or predicting eating disorder risk in high school student-athletes.

These results were positive, but more studies are needed to confirm or deny the results of this study, ideally with a larger sample size. The findings and knowledge gained may be used to help guide future research studies, interventions, and prevention programs for student-athletes. Few to no studies have been conducted with Puerto Rican high school student-athletes to address eating disorder risk, body image, and self-esteem; therefore, this study provides a cornerstone for future research studies focused on this population.

Winning is important for schools, coaches, and athletic directors, but the physical and mental health of the student-athletes should go well beyond the win or loss column. The psychological wellbeing and overall health of the student-athletes supersedes everything. Students can experience socio-cultural pressures and need to deal with the demands of their sport, which may not be easy for a young teenager. Being exposed to constant scrutiny and the external pressures created by the sporting environment can take a toll on student-athletes. The topic of eating disorders is a serious issue that requires constant attention. The positive results seen in this study are encouraging but cannot be generalized for the entire population of Puerto Rican high school student-athletes. Low self-esteem, a negative body image, and eating disorders should not be taken lightly, which is why more studies are needed. The findings of this study can be a productive start to understanding the issue, but more research and prevention programs are needed.

Conflicts of Interest

The author declares no conflicts of interests.

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