Original Research

Body Image Dissatisfaction: Responses between Male and Female Exercisers and Non-Exercisers

KATIE L. MELCHING†, J. MATT GREEN‡, ERIC K. O'NEAL‡, and LEE RENFROE‡

Department of Health, Physical Education and Recreation, University of North Alabama, Florence, AL, USA

†Denotes graduate student author, ‡Denotes professional author

ABSTRACT

International Journal of Exercise Science 9(3): 249-257, 2016. Body image dissatisfaction (BID) is defined as the difference between actual and desired image. Body image or BID is subject to high levels of societal pressure and discrepancies are frequent between actual and desired image. This study examined BID among male exercisers (ME), female exercisers (FE), male non-exercisers (MNE) and female non-exercisers (FNE). Further, the potential relationship of personal BID on individual's beliefs regarding what their peers' perceptions would be was examined. College-aged men (n = 169) and women (n = 246) used the Stunkard scale to self-assess body image. Participants labeled a) which silhouette they felt accurately represents their body, b) which silhouette they would like to be, c) which silhouette reflects other women's perception of them and d) which silhouette reflects other men's perception of them. ANOVA detected a significant difference among groups. Follow up tests revealed less dissatisfaction (score closer to zero) ($p < 0.05$) for ME (-0.09 $\pm$ 1.15) than MNE (0.61 $\pm$ 1.36), FE (0.87 + 0.92) and FNE (1.13 $\pm$ 1.09) and, less BID for MNE vs. FNE. Specific correlations for anticipated perceptions of male and female peers ranged from 0.05 to 0.27. Current results confirm ME desires to be larger (i.e. muscular) while MNE and females regardless of exercise status desire to be smaller. Although limited by a narrow range of dissatisfaction score, the current study suggests personal body image perceptions are not meaningfully related to what individuals anticipate their peers will think of them.

KEY WORDS: Physique displeasure, awareness, exercise, gender

INTRODUCTION

Body image dissatisfaction (BID) is defined as the difference between actual and desired image (9). In part through media, society creates and cultivates a "culture of slimness" exposing individuals to images of slim females and excessively lean, muscular males. Crandall (6) examined the difference between the internalization and externalization value of thinness and found that woman tend to internalize the value of thinness with a focus on a fear of becoming overweight. Conversely, men, tend to externalize the value of thinness and focus on others expressing a dislike of overweight individuals instead of focusing on their own bodies.

Previous research has shown that men, while commonly larger than women physically, still have a tendency to be more content with their bodies (17). Therefore, it is plausible that societal pressures may

have a greater influence on females vs. males in regards to maintaining a slim figure. This is indirectly supported by the observation that females are more likely to diet, and have the potential to practice more extreme, unhealthy dietary practices (18, 29). While studies have examined self-esteem (5), self-perception (5, 12, 17), how one wishes to be perceived (12, 17), body image as a barrier to exercise (28, 4), how one believes peers perceive them (27) and the image individuals believe peers would like their appearance to be (27), research examining perceptions of the opposite sex is limited. Specifically, studies directly examining the influence of how one feels they are perceived by males and female peers are limited.

Just as BID differs among males and females, there is growing evidence of differences between college age athletes and non-athletes. Research has found athletes report higher body dissatisfaction due to task of one's specific sport and social pressures to achieve a desired appearance (8, 30). However, conflicting evidence indicates athletes report lower or similar body image concerns compared to non-athletes (2, 13, 16). Torres-McGehee et al. (27) found female general population students, collegiate dancers, and collegiate athletes all perceived themselves as heavier than their actual size, consequently the more inaccurate a woman's estimate of her body size, the more likely she was to diet.

Body image and exercise participation may be linked, with research showing the more overweight one perceives them self, the more likely they will focus on exercise as a means to lose weight (4). Thome and Espelage (26) found that individuals who are motivated to exercise for appearance versus health related benefits have a greater body dissatisfaction and greater prevalence of eating disorders, decreased self-esteem, increased social physique anxiety (7) and decreased physiological well-being (19). Conversely, Strelan et al. (24) found those who exercise for health related benefits have greater body satisfaction, higher self-esteem and greater overall psychological well-being. Collectively, it seems those who exercise for health-related benefits do so for intrinsic reward, whereas those who exercise for appearance do so for extrinsic rewards.

Body Image is subject to high levels of societal pressure and consequently there is potential for discrepancies between actual and desired image, (i.e. body dissatisfaction) (9). While research has focused on individual's body dissatisfaction, there is limited research exploring the discrepancy between one's actual image and the image they believe their peers possess of them. If an individual perceives a difference between their "actual" image and how they believe others perceive them, this could affect their "ideal" image and therefore dissatisfaction. It is plausible that a gender bias might also exist. Therefore, this study examined body image dissatisfaction among males and females classified as exercisers and non-exercisers. Further, the potential impact of body dissatisfaction on individual's beliefs regarding peers' perceptions among groups was examined.

METHODS

Participants

Table 1. Descriptive characteristics of subgroups. Values are means and standard deviations. Single factor ANOVA among groups for BMI: p = 0.07. Asterisks denote follow-up t-tests.

	Height (m)	Weight (kg)	BMI	Age (yr)
ME (n = 57)	1.79 ± 0.08	83.9 ± 15.8	26.2 ± 4.7	21.4 ± 1.7
MNE (n = 112)	1.80 ± 0.08	86.2 ± 21.4	26.76 ± 6.4	21.4 ± 1.7
FE (n = 47)	1.64 ± 0.07	64.9 ± 13.1	24.2 ± 4.8*	21.1 ± 3.0
FNE (n = 199)	1.62 ± 0.18	69.0 ± 19.6	25.3 ± 7.1**	21.4 ± 1.8

*p ≤0.05 FE vs. ME and FE vs. MNE. ** p = 0.09 FE vs. FNE.

College-aged men and women served as participants. Only non-athletes were allowed to participate. Prior to data collection, all participants read a consent statement at the top of the survey instrument indicating completion of the survey reflected their willingness to participate. All procedures were approved by the local review board for protection of human subjects. Each participant self-reported age, height and weight. While there is a possibility of reporting bias self-reported height and weight have been found valid in younger adults (25). Participants self-reported body weight and height were used to calculate BMI ($kg \cdot m^2$).

Protocol

The Stunkard et al. (24) scale was used to measure body image. The scale is comprised of 9 male and female contours (i.e. silhouette drawings) which systematically increase incrementally in size from contours representing severely underweight to extremely obese. Participants viewed the silhouettes and were instructed to label a) which silhouette they felt accurately represents their body, b) which silhouette they would like to be, c) which silhouette they felt most accurately reflects other women's perception of them and d) which silhouette they felt most accurately reflects other men's perception of them. The points on the scale marked by each participant was recorded as their perceptual response regarding body image.

To classify physical activity status, participants completed a questionnaire asking the following four questions addressing exercise frequency, intensity, and duration: (1) How many times per week do you engage in structured exercise; (2) what is the average intensity (RPE) of your session; (3) how long do your sessions last on average; (4) how long have you been consistently engaged in your current exercise program? These answers were used to classify participants as exerciser or non-exerciser according to ACSM (1). Non-exercisers were defined as not participating in at least 30 min of moderate intensity (40%-60% VO_2R) physical activity on at least three days of the week for at least three months. To be considered "moderate", average self-reported RPE was required to be 5 or greater. These criteria, along with gender were utilized to assign each respondent to one of the following groups; (Male exercisers [ME], male non-exercisers [MNE], female exercisers [FE], female non-exercisers [FNE]).

Statistical Analysis

Body image dissatisfaction was calculated as actual minus desired body image from survey responses. This calculation allows assessment of the direction of dissatisfaction with a negative value

Table 2. Percentages of each subgroup indicating positive dissatisfaction, negative dissatisfaction, and no dissatisfaction.

	Positive Dissatisfaction (Desire to be smaller)	No Dissatisfaction (Content with body)	Negative Dissatisfaction (Desire to be larger)
ME (n = 57)	26% (n = 15)	40% (n = 23)	33% (n = 19)
MNE (n = 112)*	64% (n = 72)	13% (n = 15)	22% (n = 25)
FE (n = 47)*	79% (n = 37)	14% (n = 7)	6% (n = 3)
FNE (n = 199)*	75% (n = 149)	18% (n = 36)	7% (n = 14)
All (n = 415)	66% (n = 273)	20% (n = 81)	15% (n = 61)

*Chi-square showed a significant difference within the respective group for frequencies of negative, positive and zero dissatisfaction scores.

reflecting a desire to be larger/more masculine where a positive number reflects a desire to be smaller and a value of zero reflecting no dissatisfaction (actual and desired are equal). Body image dissatisfaction was compared among groups using ANOVA. For ANOVA's follow up tests (unpaired t-test) were completed when necessary to identify between group differences. Significance was accepted at $p \leq 0.05$. A chi-square analysis was completed to assess frequencies of respondents having dissatisfaction scores that were negative, positive and zero. This analysis was completed within each of the four groups (ME, MNE, FE, FNE).

To assess the potential relationship between individual body image dissatisfaction and beliefs regarding peers' perception, Spearman rho correlations were calculated between personal body image dissatisfaction (absolute values) and perceptions individuals believed their male and female peers would have of them. Relationships were examined per group (ME, FE, FNE, MNE) and independently for gender-specific peers. SPSS version 20 software was used to conduct the analyses for the current study.

RESULTS

Descriptive data including age, height, weight, body mass index are reported by group (Table 1). Also of potential interest, the groups included non-Caucasian participants [ME: n=6 (10.5%), MNE: n=17 (15.1%), FE: n=5 (10.6%) and FNE: n=17 (15.6%). The number and percentage individuals per group having no dissatisfaction as well as positive and negative dissatisfaction scores are presented in Table 2. ANOVA for body image dissatisfaction detected a significant difference among groups. Follow up tests showed dissatisfaction score for ME was significantly lower than MNE, FE and FNE (Figure 1). Dissatisfaction score for MN was significantly lower than for FNE (Figure 1). There was no significant difference for dissatisfaction scores between FE and FNE or FE vs. MNE (Figure 1). Chi-square analyses showed no significant difference among frequencies of body dissatisfaction score for ME. However, there was a significant difference among frequencies for MN, FE and FN.

Spearman Rho correlations are presented in Table 3. Ranges for correlations were 0.05 –

Table 3. Spearman Rho correlations for anticipated peers' perceptions vs. personal body dissatisfaction for male and female exercisers and non-exercisers.

	Males		Females	
	Exercisers	Non-exercisers	Exercisers	Non-exercisers
Other males	0.07	0.20	0.11	0.26
Significance	0.61	0.04	0.45	<0.001
Other females	0.05	0.27	0.10	0.19
Significance	0.71	0.004	0.49	0.009

0.27. Small but statistically insignificant positive associations identified for these correlations. P values are presented to show which correlations reached statistical significance ($p \leq 0.05$).

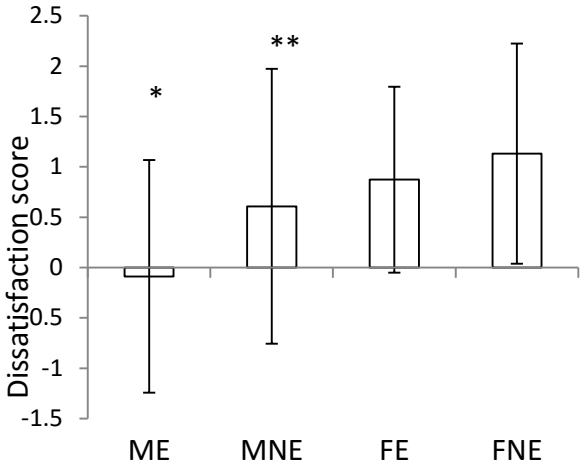

Figure 1. Body image dissatisfaction scores per group. *ME significantly lower than MNE, FE and FNE. **MN significantly lower than FN. No significant difference: FE vs FNE, FE vs. MNE

DISCUSSION

The current study examined body image dissatisfaction among male exercisers (ME) and female exercisers (FE), male non-exercisers (MNE) and female non-exercisers (FNE). In addition, individuals reported perceptions they felt their male and female peers would have of them to assess the potential relationships between personal body image dissatisfaction and gender-specific peer perceptions. This study is unique in that both male and female peers' anticipated perceptions were examined, to determine if greater body dissatisfaction is linked with personal feelings that male and female peers would perceive the respondent's body with similar discordance (actual vs. desired) as the respondent themselves. In general, body dissatisfaction scores indicated FE and FNE consistently desire to be smaller as do MNE (Table2). Conversely, based on mean dissatisfaction scores, ME desired to be larger (Table2) although Chi-square analyses indicated no significant difference among frequencies of body dissatisfaction scores for ME. ME has more than double the number of respondents with a zero BID (no dissatisfaction) than all non-exercisers combined and over three times that of FE. Chi-square analyses confirmed results of the ANOVA for mean dissatisfaction scores for FE, FN and MN showing an overall desire to be smaller (Table 2). No significant relationships were found between anticipated peer perceptions and personal body dissatisfactions for ME or FE (Table 3). For non-exerciser groups (MNE, FNE) relationships were significant (Table 3). Regardless of significance, relationships for all (ME, MNE, FE, FNE) were weak between anticipated peer perceptions and personal body dissatisfaction (Table 3)

suggesting there is no meaningful association between personal body dissatisfaction and anticipated peer dissatisfaction (of respondents) in college-aged non-athletes.

Figure 1 displays mean dissatisfaction scores for body dissatisfaction. It is important to note that mean values revealed every group showed some degree of body dissatisfaction although there was a portion of each group showing no dissatisfaction (Table 2). Further, both positive and negative dissatisfaction scores were observed in all four groups (Table 2) although relative responses were not proportional among positive dissatisfaction, negative dissatisfaction and no dissatisfaction. Mean values show all groups possessed a desire to be smaller with the exception of ME (Figure 1). Table 2 shows 33% of ME desired to be larger. Reasons for this group possessing a mean desire to be larger are speculative. Body mass and BMI for ME and MNE were similar (Table 1). However, it is plausible that body composition differed between these groups and MNE viewed a need to lose body fat which was reflected in a desire to be smaller. Conversely, ME may have been leaner and simply desired to enhance muscle volume which was reflected in a mean body image dissatisfaction score reflecting an overall desire to be larger.

Females, regardless of exercise status, consistently showed a desire to be smaller with respect of group means (Figure 1). However, 6% (FE) and 7% (FNE) possessed a dissatisfaction score reflecting a desire to be larger. Chi-square indicated significant differences among percentages for these values (Table 2). Overall, there is far less pressure in society for females to possess a highly muscular appearance and individuals in the current study having this desire reflect anomalous responses. Conversely, media encourages the opposite championing the position that petite, small-framed, lean females possess the most desirable images. Current results tend to agree with these gender-specific lines of thinking and confirm previous studies of a similar nature (15).

As stated, ME were the only group whose mean score reflected a desire to be larger. In Table 2, individual response indicate that, while 33% of ME had a negative mean (wished to be larger), 26% had a positive mean (wished to smaller), along with 40% reporting zero dissatisfaction. Furthermore, in other groups "no dissatisfaction" was reported by 13% (MNE), 14% (FE) and 18% (FNE). Because the current study only assessed college-aged students, it can be speculated that the relatively young age of participants resulted in finding such small differences. However, if the sample were expanded to include a larger variety of older participants it is possible that larger differences may exist with the groups.

Previous studies have focused on unrealistic media images of males and females (15), along with data that show men, while larger than woman, still have a tendency to be more content (i.e. dissatisfaction score closer to zero) with their bodies (22). Current results concur with these findings. ME had both the lowest mean body dissatisfaction (-0.09 $\pm$ 1.15), and additionally was the only group with a mean score reflecting a desire to be

larger (Figure 2). As expected, FE, and FNE both wished to be smaller and had the largest mean degree of body dissatisfaction of the 4 groups (FE= 0.87 $\pm$ 0.92, FNE = 1.13 $\pm$ 1.09). These findings are consistent with previous research showing that females on average are more dissatisfied with their bodies vs. males, despite males being larger on average (11). These differences that exist amongst genders can be partially explained by societal pressures placing more emphasis on woman than men, associating life's joys with images of being thin (15).

Previous research shows body image and exercise participation may be linked. The more overweight one perceives them self the more likely they will focus on exercise as a means to lose weight (4). As shown in table 2, the percentages of individuals per group satisfied, positive dissatisfaction (wish to be larger), and negative dissatisfaction (wish to be smaller) show that 64% of MNE and 75% of FNE wished to be smaller. Furthermore, 79% of FE wished to be smaller. This could be explained by previous research showing athletes reporting higher levels of body dissatisfaction due to social pressures to achieve a desire appearance (8, 30). While the current study intentionally omitted athletes as participants, it is plausible that an individual who is an exerciser (vs. non-exercisers) will be of similar mindset and body awareness of that of an athlete. Future research should directly investigate this notion for confirmation.

Unlike their female counterparts, ME were the only group wishing to be larger on average. Our findings are consistent with previous literature showing men experienced greater psychological distress if they perceived their bodies to be too thin, as opposed to overweight (20). Men tend to desire or maintain a muscular, lean build known as the "mesomorphic" body type, concurring with our results (21). Little research has been done regarding different aged males with a desire to achieve the "mesomorphic" body type, however it is plausible that with increased age and more social awareness, the desire to achieve this particular body type may wane. If this is the case, it would be expected that body image dissatisfaction scores would progressively move closer to zero reflecting less focus on body type or possibly a diminished desire to achieve a given body type.

It is plausible that individuals who have a greater personal level of dissatisfaction will believe their peers perceive them in a similar way. Current results indicate (33%) of ME desire to be larger (Table 2) and it is reasonable to assume they would believe peers would also perceive them as being inappropriately small. Likewise those males and females who believe they need to lose weight likely believe their peers would also perceive them as needing to lose weight. Therefore it is reasonable to assume personal dissatisfaction and perceptions regarding peers' beliefs would be linked. Current results however, indicate only weak relationships between personal level of body dissatisfaction and how individuals believe their male and female peers' perceive them. Spearman Rho values are reported in Table 3. While the correlations for other male and female anticipated perceptions for MNE and FNE were significant, male and females believed peer perceptions for both FNE and MNE, the relationships were weak.

Comparatively, findings might suggest that non-exercisers are more heavily concerned with other's believed perception which in turn leads to a greater degree of body dissatisfaction. Even considering the highest correlation (r = 0.27) only 7% of the variance is accounted for (r = 0.07) indicating that, in college males and females anticipated peer perceptions hinge on factors other than personal dissatisfaction.

Previous research has shown significant differences between actual and ideal perceptions being dependent on perceptions from others (e.g., friends, parents, coaches) and across gender. Both males and females alike perceived the largest discrepancy in body image from coaches (27). While the current study did not find a strong link between peers anticipated perceptions and personal body dissatisfaction, only non-athletes were permitted to participate, unlike Torres-McGehee, Olgetree-Cusaac (27) who specifically tested athletes. Collectively, current results and Torres-McGehee, Olgetree-Cusaac (27) may indicate athletes are more sensitive to others perceptions, (especially coaches) with regard to personal body dissatisfaction and anticipations of others.

In the current sample of college-aged (non-athletes) students, even among participants expressing some level of dissatisfaction, most participants expressed a dissatisfaction of 2 units or less indicating there were few respondents excessively dissatisfied. This indicated that, in college-aged individuals it is uncommon to observe severe dissatisfaction. In fact, only 2% (n=1) of FE, 2% (n=1) of ME, 8% (n=9) of MN, and 7% (n=14) of FN reported a dissatisfaction score of 3 or greater. Because the college-aged males and females do not display extreme dissatisfaction scores, detection of a relationship is difficult. That is, the overall tight clustering of dissatisfaction scores in this group of respondents disallows assessment of extreme cases which would be necessary to more rigorously examine the presence of a relationship across the spectrum from satisfied to extremely dissatisfied. Specific correlations were significant (Table 3) yet weak and the lack of extreme cases may account in part for this result. Future studies should seek to assess a greater diversity of respondents having broader dissatisfaction scores to more effectively assess the potential correlation between anticipated peer perceptions and personal-body dissatisfaction. Although current results show college students infrequently possess extreme levels of dissatisfaction, with age and potential weight gain the level of dissatisfaction would be expected to increase in those who are currently satisfied or desire to be smaller. An interesting approach would be to conduct a similar investigation at specific intervals (i.e. 10 year increments) using a longitudinal or cross-sectional approach. This would permit an evaluation of dissatisfaction across time and a determination of how it may or may not be linked with weight gain with similar inquires addressed regarding expected peer perceptions.

In summary, body image dissatisfaction scores in the current study confirms previous studies indicating females (exercisers and non-exercisers) and male non-exercisers desire to be smaller while male exercisers would prefer on average to

be larger (6). Further, current results indicate there is little to no meaningful relationship between personal levels of dissatisfaction and anticipated dissatisfaction (what individuals think their male and female peers think of them). While it would seem logical that individual perceptions would be tightly linked with expectations regarding peer beliefs, results show that, in the current sample (non-athlete, collage-aged males and females) individual beliefs and perceptions of peers' beliefs are not tightly related. From an application standpoint, those in personal training setting should be aware of the common perceptions of body image when assisting clients in setting and attaining personal appearance-related goals. However, the variability within sub-groups clearly indicates highly individualized responses which are the more critical concern. Limitations of the study include omission of a focus on potential ethnic influences on body image. Also, because athletes were not permitted to participate, results cannot be inferred to this group. Future studies should seek to more definitively address questions regarding peers' perceptions in broader age groups, and different socioeconomic classes with specific aims at including individuals having extreme dissatisfaction scores on the positive and negative ends of the spectrum. It is proposed that an approach using multiple regression analysis might function well to differentiate among the multiple factors linked with body image dissatisfaction.

REFERENCES

1. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. 8thed. Williams and Wilkins, 2014.

2. Anderson SL, Zager K, Hetzler RK, Nahikian-Nelms M,Syler G. Comparison of Eating Disorder Inventory-2 (EDI-2) scores of male bodybuilders to the male college student subgroup. Int J Sport Nutr 6:255-262, 1996.

3. Arugeuete MS, Yates A, Edman. Gender Differences in Attitude about Fat. N Am J Psych 8(1):183-192, 2006.

4. Brudzynski L, Ebben WP. Body Image as a Motivator and Barrier to Exercise Participation. Int J Exerc Sci 3(1):14-24, 2010.

5. Brytek-Matera A. Exploring the factors related to body image dissatisfaction in the context of obesity. Arch Psychiatry Psychotherapy 1:63-70, 2011.

6. Crandall CS, Beirenat M. Prejudice against fat people: Ideology and self-interest. J Pers Soc Psy 66:882-894, 1994.

7. Crawford and Eklund. Sport psychology active women, social physique anxiety, and exercise J Sport Exerc Psyc 16(4); 431 – 448, 1994.

8. Davis C, Cowles M. A comparison of weight and diet concerns and personality factors among female athletes and non-athletes. J Psychosomatic Res 33:527-536, 1989.

9. Dohnt H and Tiggemann M. The Contribution of Peer and Media Influences to the Development of Body Satisfaction and Self-Esteem in Young Girls: A Prospective Study. Dev Psych 42(5): 929–936, 2006.

10. Ebben W, Brudzynksi L. Motivations and Barrier to Exercise Among College Students. J Exerc Phys (online) 11(5):1-11, 2008.

11. Feingold A and Mazella R. Gender differences in body image are increasing. Psych Sci 98 (9): 190-196, 1998.

12. Forrest KZ, Studhldreher WL. Patterns and Correlate Body Image Dissatisfaction and Distortion among College Students. Am J Health Studies 22(1):18-25, 2007.

13. Fulkerson JA, Keel PK, Leon GR. Eating-disordered behaviors and personality characteristics

of high school athletes and non-athletes. Int J Eat Disord 26:73-79, 1999.

14. Grover V.P, Keel PK, Mitchell JP. Gender differences in implicit weight identity. Int J Eating Disorders 26: 880-882, 2003.

15. Harvey JA, Robinson JD. Eating disorders in men: Current considerations. J Clin Psych Medical Settings 10(4): 297-306, 2003.

16. Hausenblas HA, Mack DE. Social physique anxiety and eating disorder correlates among female athletic and non-athletic populations. J Sport Behav 22:502-513, 1999.

17. Lawler M, Nixon E. Body Dissatisfaction Among Adolescent Boys and Girls: The Effects of Body Mass, Peer Appearance Culture and Internalization of Appearance Ideals. J Youth Adol 40:59-71, 2011

18. Liebman M, Cameron BA, Carson DK, Brown DM, Meyer SS. Dietary fat reduction behaviors in college students: relationship to dieting status, gender and key psychosocial variables. Appetite 36(1):51-6, 2001.

19. Maltby J, Day L. The relationship between exercise motives and psychological well-being. J Psychol 135(6):651-60, 2001.

20. Olivardia R, Pope HG, Borowiecki JJ, Cohane GH. Biceps and body image: the relationship between muscularity and self-esteem, depression, and eating disorder symptoms. Psych of Men and Masculinity 5(2): 112-120, 2004.

21. Olivardia R. Textbook of Men's Mental Health. American Psychiatric Publishing, 2007.

22. Wardle J, Haase AM, Steptoe A, Nillapun M, Jonwutiwes K, Bellisle F. Gender differences in food choice: the contribution of health beliefs and dieting. Ann Behav Med 27(2):107-16, 2004.

23. Rao VP, Overman SJ. Psychological well-being and body image: A comparison of black woman athletes and non-athletes. J Sport Behav 9:79-91, 1986.

24. Rozin, P., Trachtenberg, S., & Cohen, A. B. (2001). Stability of body image and body image dissatisfaction in American college students over about 15 years. Appetite., 37, 235-238..

25. Strelan P, Mehaffey SJ, Tiggeman M. Self-objection and esteem in young woman: the mediating role of reasons for exercise. Sex Roles 48:89-95, 2003.

26. Stunkard AJ, Sørensen T, Schulsinger F. Use of the Danish Adoption Register for the study of obesity and thinness. In S. Kety (Ed.), The genetics of neurological and psychiatric disorders (pp. 115-129), 1993ew York: Raven Press, 1993.

27. Thome JL, Espelage DL. Obligatory exercise and eating pathology in college females: replication and development of a structural model. Eating Behav 8:334-349, 2007.

28. Torres-McGehee TM, Monsma EV, Dimpier TP. Eating Disorder Risk and the Role of Clothing in Collegiate Cheerleader's Body Images. J Athl Train 47(5):541-548, 2012.

29. Torres-McGehee TM, Olgetree-Cusaac, K. Practical Screening Methods for Eating Disorders for Collegiate Athletics, New Insights into the Prevention and Treatment of Bulimia Nervosa, Prof. Phillipa Hay (Ed.), ISBN: 978-953-307-767-3, InTech, DOI: 10.5772/20804, pg 51-68, 2011.

30. Vartanian LR, Wharton CM, Green EB. Appearance vs. health motives for exercise and for weight loss. Psych Sport Exerc 13:251-256, 2012.