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Impact of body image ideals on form and frequency of exercise in college students

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Impact of body image ideals on form and frequency of exercise in college students

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Abstract

Objective: Body image issues are very prevalent among college students and can cause a variety of physical and mental health problems as determined by previous research. The SUNY Cortland student population, which tends to have a higher active student population than other campuses, may have a unique correlation between exercise and body image. This study aims to examine the impact of body image ideals in SUNY Cortland students in relation to exercise habits.

Methods: This study was conducted through survey-based methodology and distributed to various classes and organizations of undergraduate SUNY Cortland students through Google Forms. A total sample of 74 students answered a two-part questionnaire consisting of the Physical Activity and Sedentary Behavior Questionnaire (PASB-Q) and the Body Image State Scale (BISS).

Results: The study found no significant differences between male and female responses, and between those classified with good body image and poor body image. A significant correlation was found between sedentary time and body image score, with higher sedentary time correlating with lower body image score. Other significant findings included a correlation between total activity time and muscle strength activities and between total activity time and total sedentary time.

Conclusion: As a result of college students having high daily total sedentary time, body image perceptions are being negatively impacted. It is important to promote physical activity and healthy screen time consumption, so students develop healthy habits. In addition, resources on campus should focus on promoting ways to help those struggling with poor body image.

Introduction

Body image is defined as a "…a multidimensional dynamic construct that involves internal biological and psychological factors as well as external cultural and social determinants" (Brudzynski & Ebbenâ, 2010). Body image is complex and unique for every individual, making it challenging to determine how it effects people's daily habits. Body image ideals in college students can impact their physical and mental wellbeing in many ways, as noted by the Office on Women's Health (2021). Body image beliefs can also influence people's desire to exercise, why they exercise and how they exercise. Social and cultural factors can also play a major role with one study finding individuals who perceive their bodies negatively regarding culturally valued features more susceptible to low self-esteem, low satisfaction in life and feeling of inferiority and pose themselves at higher risk for depression, anxiety or eating disorders (Goswami et al., 2012). The extent to how much body image influences events in daily life is important to understand when addressing mental health issues. In particular, exercise habits in college students tend to be inconsistent with another study finding that this may be caused by exercising only to physically change the body which also led to less fulfillment after exercise (Hatch, S. et al.).

SUNY Cortland has a very active student population with constant gym activity at the Student Life Center. One of the largest majors on campus is Kinesiology. This study aims to determine whether body image perceptions impact exercise patterns in the SUNY Cortland student population. Understanding college students' exercise patterns and how their body image perceptions influence their daily lives, will help provide necessary resources to help reduce potential negative body image issues.

The data regarding the relationship of exercise and body image in college students is diverse and extensive. Recently it was noted that, "Among college students, body dissatisfaction

is a common but distressing experience; up to 84% of college students report feeling unsatisfied with their body" (Davis, 2022). Body image is a multidimensional construct due to factors including psychological components, cultural influences, peers, ethnicity, and media (Putra et al., 2020). The complexity of body image has offered many areas of research to study the correlation between body image and exercise patterns. Various studies have determined that body image can act as both a motivator and a barrier to exercise participation (Brudzynski, 2010). In addition, it was found that body image was a significant factor in determining the amount of exercise participated and the location of exercise for some (Marschin & Herbert, 2021). Negative body image beliefs tended to act as barrier for location of exercise but acted as a motivator for participation as well.

One common area of study is the correlation between females and body image. It has been found that "Body dissatisfaction continually increases across adolescents for female and male populations, with girls continuing to report higher negative body image" (Hausenblas, 2006). With studies suggesting that younger populations have higher rates of negative body image, it is important to understand this in relation to the SUNY Cortland campus community. Another study emphasized that college females particularly engage in excessive exercise due to higher body dissatisfaction (Hausenblas, 2006). These findings have found that female college students tend to be impacted more by their body image than male students. In this study, sex differences will be examined and analyzed, with the hypothesis that females will have a significantly lower body image score than the male participants. The meta-analysis done by Hausenblas failed to incorporate an even number of effect sizes for men and women. There is a lack of research done for men and boys about the correlation of physical activity and body image. An updated meta-analysis focusing on men and body image concluded that physical

activity is positively associated with body image among men (Bassett-Gunter, 2017). Due to this lack of research for the male population, it will be highly important to analyze sex differences in this study.

One of the main variables this study addressed is frequency of exercise. In one qualitative study about body image and exercise study, 58% of exercisers reported that body image affected the amount they exercise (Brudzynski & Ebben, 2010). They found that body image acts as both a motivator and barrier to exercise. The top higher order themes for why people workout included to change appearance and lose weight. It was found that 28.4% of people exercise more when they feel/look fat, and another 16% exercise when they feel fatter than their friends. While most respondents exercise more when feeling fat, only 1.2% said they exercise more when feeling thin. This could be due to the respondents being 66% female and only 34% male. It would be expected that males are motivated to exercise to get bigger when feeling thin as opposed to males. These results lead into how the type of exercise can be impacted by body image.

Published in 2021, a study was conducted to examine the relationship between body image and exercise and if it varies with the type of exercise individuals prefer to engage in (Marschin & Herbert). This study involved four different exercise groups and examined the differences between those exercising in a group or team vs individual exercise. The study concluded that there was no significant difference between individual and team exercisers. However, it was noted that individual exercisers could have completely different body image related experiences based on if they primarily engage in strength training vs aerobic exercise. There are few studies about this, which allows for another area to be studied.

The type of exercise students engage in can directly correlate with their body image perceptions. In a study examining college women and strength training, it was indicated that "…women express a desire to feel good about themselves rather than to conform to a specific weight or size" (Ahmed et al., 2002). This is a significant result in that it furthers the hypothesis that exercise for health, not weight loss, contributes to a more positive body image. "If strength training continues to reveal itself as a positive force for women in improving body image, it should be embraced for this purpose alone" (Ahmed et al., 2002). With strength training becoming more popular for women, especially with SUNY Cortland students, it will be interesting to see the effect this has on the study results.

Methods

Participants

A sample of about 150 SUNY Cortland students, ranging in age from 17-22, were invited to participate in the study over a one-month period. There were 74 responses, however 4 responses were excluded due to answering errors. In total, 70 complete participant responses were analyzed (Males n=22; Females n=48). The mean (SD) age of the entire sample was 19 (1). There were 23 participants aged 18, 16 participants aged 19, 12 participants aged 20, 18 participants aged 21 and 1 participant aged 22.

Procedure

To conduct this study, a survey was created on Google Forms with two pre-made, reliable questionnaires. This survey was completed anonymously and consisted of a set of closed and open questions. The questions were self-reported by each participant. A statement of informed consent preceded participation in the study about the reason for the study and what the study entailed.

Measures

Aerobic Activity, Sedentary Time, Muscular Strength Activities

The questionnaires used in this study are one of the key components of this study. To ensure an accurate and reliable process of research, surveys that have been previously used before in other studies were utilized. The first questionnaire addressing student's frequency and form of exercise is the Physical Activity and Sedentary Behavior Questionnaire (PASB-Q). This survey was used in a Canadian study assessing undergraduate physical activity levels and assured the validity and reliability of the questionnaire being used (Fowles et. al., 2017). The questions involve assessment of exercise frequency and sedentary behavior. Some questions addressing frequency include: "In a typical week, how many days do you do moderate-intensity (like brisk walking) to vigorous- intensity (like running) aerobic physical activity?", and "On average for days that you do at least moderate-intensity aerobic physical activity (as specified above), how many minutes do you do?". These questions combined provided answers about student's total time exercising. Data from these questions was analyzed by multiplying the number of days per week spent exercising and the number of minutes per day exercising to find the average number of minutes per week doing physical activity. These open-ended questions allowed respondents complete freedom to answer and may provide more accurate results. The question addressing form of exercise was "In a typical week, how many times do you do muscle strengthening activities (such as resistance training or very heavy gardening)?" This question compared to the other two addresses strength training, a different form of exercise. Another part of the questionnaire addressed sedentary time. One question asked students on a typical day how many hours are spent sitting in transport, meetings, and at work; while another question asked how many hours per day are spent sitting for leisure (watching television, reading, using a computer, etc.). Total

sedentary time per day was calculated by adding these two values together. Using these questions from a validated questionnaire ensured proper data was collected about form and frequency of exercise.

Body Image Perceptions

The second half of the survey questions addressed body image perceptions. The questionnaire used for this portion is the Body Image State Scale (BISS). The BISS created by Thomas Cash in 2002, has been used in numerous studies about assessing body image. It is a six-question survey and responses are based on a 9-point, bipolar, Likert-type scale (Cash, 2002). These questions assessed how the participant was feeling at the very moment, with all the questions starting with "Right now I feel…". The questions focused on feelings associated with weight, body size and shape, physical appearance, and attractiveness. This survey classified body image score as 1 being poor body image and 9 being excellent body image. The average of the six questions was used to determine the participants body image score. A body image score greater than or equal to 5.1 was considered good, and a score less than or equal to 5 was considered poor.

Data Analysis

The means and standard deviations for all the variables were calculated with Excel software. Data are presented as mean ± standard deviation. Multiple statistical tests were run on the data collected to see the statistical differences and correlations between the variables being tested. The SPSS statistical software was used to run these tests. An independent t-test was used to examine mean differences in main outcomes between males and females. Another independent t-test was used to examine mean differences in main outcomes between poor and good body image groups. Pearson's bivariate correlations were run to examine relationships between all main variables with the significance set to $p<0.05$.

Results

Descriptive statistics for all participants are presented in Table 1 and descriptive statistics by sex are in Table 2. All tables analyzed the main variables which included age, total activity time, total sedentary time, body image score and muscle strength activities.

Males vs. Females

Current study found no differences in age, total activity time, total sedentary time, muscle strength activities, and body image score between male and female participants (Table 2, $p>0.05$).

Good vs. Poor Body Image

Current study found no differences in age, total activity time, total sedentary time, muscle strength activities, and body image score between poor and good body image groups (Table 3, $p>0.05$). Interestingly, there was a trend ($p<0.07$) towards a significant difference in total sedentary time, with the "Good" body image group reporting less sedentary time (6 ± 2 hrs) than the "poor" body image group which reported higher sedentary time (8 ± 2 hrs). These results are presented in Table 3.

Correlation Matrix

In Table 4, correlation tests revealed no relationship between age and any main variables. Total activity time however was significantly associated with total sedentary time ($r = -.29$) and muscle strength activities ($r = .34$). The greater total activity time, the more likely students would engage in muscle strength activities. Also, the greater total activity time, the less sedentary time students had. Most notably, total sedentary time was significantly associated with body image score ($r = -.33$). The greater sedentary time, the lower the body image score.

Table 1: Descriptive statistics for entire sample

	Total Sample
Age	19 ± 1
Total Activity Time (min/week)	293 ± 248
Total Sedentary Time (hrs/day)	7 ± 2
Body Image Score	4.9 ± 1.7
Strength Activities (days/week)	3 ± 2

Table 2: Descriptive statistics and P-Values for male and female groups

	Male (n=22)	Female (n=48)	P-Value
Age	19 ± 1	19 ± 1	.434
Total Activity Time (min/week)	323 ± 223	279 ± 260	.655
Total Sedentary Time (hrs/day)	7 ± 2	7 ± 2	.807
Body Image Score	5.7 ± 1.7	4.6± 1.7	.414
Strength Activities (days/ week)	4 ± 2	2 ± 2	.798

Table 3: Descriptive statistics and P-Values of good body image and poor body image groups

	Good Body Image ≥ 5.1 (n=32)	Poor Body Image ≤ 5.1 (n=38)	P-Value
Age	19 ± 1	19 ± 1	.123
Total Activity Time (min/week)	325 ± 242	266 ± 252	.445
Total Sedentary Time (hrs/day)	6 ± 2	8 ± 2	.068
Body Image Score	6.4 ± 0.8	3.7 ± 1.2	.884
Strength Activities (days/week)	3 ± 2	2 ± 2	.084

Table 4: Correlation Matrix of Main Variables

	Correlation Coefficient (r -values)			
Variables	Body Image Score	Muscle Strength Activities	Total Sedentary Time	Total Activity Time
Muscle Strength Activities	.185			
Total Sedentary Time	.005	.265		
Total Activity Time	**-.332***	-.135		
Age	.053	**.338***	**-.291***	
	-.029	.056	.028	-.163

*Statistical Significance

Discussion

This study aimed to find the influence of body image ideals on the form and frequency of exercise in college students. It was hypothesized that students engaging in physical activity more frequently would have higher body image scores. The study found no significant differences for the main variables between males and females and between those who had "good" vs "poor" body image scores. However, the study found a significant difference between sedentary time and body image score. It was found that students with a higher sedentary time had a lower body image score. Additionally, those individuals who reported more activity time had lower sedentary time. These main findings support the hypothesis and current research.

Sex differences in physical activity and body image

The current study found no differences between males and females relating to total activity time, total sedentary time, body image score, and muscle strength activities. Current research supports females tending to have a lower body image score and engaging in muscle strength activities less than men (Davis, 1991; Almeida, 2019). One study stated women reported greater body dissatisfaction and body focus than men and were more likely to exercise to lose weight (Davis, 1991). Our results do not support this hypothesis. However, these results may be

due to a larger number of female responses in the current study compared to male. Also, because the SUNY Cortland population is generally more active, more females could be engaging in muscle strength activities than compared to the general population. Currently, there is a lack of research regarding body image issues and the male population. Because of this, it was important to examine in the current study. One recent study examined a sample of 265 physically active and sedentary undergraduate men and their relationship between body image disturbances and commitment to exercise (Almeida, et al., 2019). The study found similar results to this study stating that sedentary subjects had greater body dissatisfaction. While important research for men and body image is usually centered around men in weight class sports, this study was important in finding results about the male population who are physically active and sedentary. It is important to continue analyzing body image issues in both male and female populations and how they might be different.

"Good" vs "Poor" body image and physical activity

This study found no differences between those with "good" body image and those with "poor" body image relating to total activity time, total sedentary time, body image score, and muscle strength activities. It was hypothesized that these groups would have statistically significant differences, however groups were similar. This might be due to our smaller sample size but also could be because good and poor body image can act as both a motivator and barrier to exercise (Brudzynski & Ebben, 2010). It has also been found that "Social physique anxiety may indeed influence exercise behavior, whereby individuals with higher levels of social physique anxiety may be less likely to engage in physical exercise in situations where their bodies may be evaluated negatively (Lantz et al, 1997). Therefore, a person's body image perception can have a major impact on their exercise habits.

Sedentary time and body image

The main finding of this study showed that students with higher sedentary time, had lower body image scores. As students spend most of their time being sedentary it is important to evaluate how this is affecting them. Most importantly, it is crucial to study what students do during their sedentary time that may be exacerbating physical and mental health issues dealing with body image. It has been established by past research the many harmful effects social media has on adolescents and young adults, with one study concluding "The widespread use of social media in teenagers and young adults could increase body dissatisfaction as well as their drive for thinness, therefore rendering them more vulnerable to eating disorders" (Jiotsa et al., 2021). Another study examined the effects of non-screen sedentary behavior (nSB) vs screen-based sedentary behavior (sSB) between males and females (Suchert et al., 2015). The results of this study determined "Among girls, lower scores in self-esteem, physical self-concept as well as general self-efficacy were associated with higher sSB but not nSB" (Suchert et al., 2015). The current study supports the findings that increased sedentary behavior is associated with negative body image. It is important to continue studying the impact of social media on physical activity and body image. Future studies should examine what comprises individual sedentary time and explore how different types of sedentary behavior impact body image.

Limitations

The main limitation of this study was a small sample size and the survey which relied on self-reported data. Since our total sample was only 70 people it may have not represented the student population accurately and could be biased. In fact, it is well known that those individuals who respond to a survey are more likely to be interested in the study topic. Additionally, the male and female groups were disproportional with the male group only being 22 students and the female

group having 48 students. Since our body image and physical activity data were self-reported we assumed that participants were telling the truth in their responses and accurately answered questions. Other limitations included time and resources. Due to limited time, the questionnaire was only sent over a month-long period. Future studies should provide the survey to a larger proportion of the college population. Lastly, we only used correlational analyses in the current study so we cannot infer causation from correlation. Future studies utilizing more robust statistical analyses and a larger sample size are needed to support our findings, specifically in examining sedentary behavior practices.

Strengths

This is the first study at SUNY Cortland that offers data about students' physical activity time, sedentary time, and body image ideals. The data collected offers insight into students' feelings about body image and exercise during the current semester. This can offer relevant information to help students incorporate more healthy habits and address body image issues prevalent among college students.

Conclusion

To summarize, this study found low body image score was associated with high sedentary time, suggesting that activity engaged in during the sedentary time might be detrimental to body image perceptions. This study also found that students with higher activity time engaged in more muscle strength activities. This is important as muscle strength activities offer numerous physical health benefits but also seem to be important for empowering women and improving body image perceptions. Lastly, higher activity time was associated with lower sedentary time, showing that more active individuals have less sedentary time. More importantly, college students need to prioritize healthy habits including exercise and minimize sedentary time, especially screen-based

sedentary behavior. Future studies are necessary to further explore the relationship between exercise, sedentary time, and body image in college aged adults.

References

Ahmed, C., Hilton, W., & Pituch, K. (2002). Relations of strength training to body image among a sample of female university students. *Journal of Strength and Conditioning Research*, *16*(4), 645–648. https://doi.org/10.1519/00124278-200211000-00025

Almeida, M., Campos, P. F., Gomes, V. M. G. M., Neves, C. M., Queiroz, A. C. C., Brito, C. J., Miarka, B., Ferreira, M. E. C., & De Carvalho, P. H. B. (2019). Muscle dysmorphia, body image disturbances and commitment to exercise: A comparison between sedentary and physical active undergraduate men. *Journal of Physical Education and Sport*, *19*(1), 507–513. https://doi.org/10.7752/jpes.2019.01074

Bassett-Gunter, R., McEwan, D., & Kamarhie, A. (2017). Physical activity and body image among men and boys: A meta-analysis. *Body Image*, *22*, 114–128. https://doi.org/10.1016/j.bodyim.2017.06.007

Brudzynski, L. R., & Ebbenâ, W. (2010). Body image as a motivator and barrier to exercise participation. *International Journal of Exercise Science,* 3(1), 14-24. https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1172&context=ijes

Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond Body Image as a Trait: The Development and Validation of the Body Image States Scale. *Eating Disorders*, *10*(2), 103–113. https://doi.org/10.1080/10640260290081678

Davis, C., & Cowles, M. (1991). Body Image and Exercise: A Study of Relationships and Comparisons Between Physically Active Men and Women. *Sex Roles, 25*(1), 33. https://www.proquest.com/scholarly-journals/body-image-exercise-study-relationships/docview/1308100438/se-2

Davis, Molly Rush & Gregory T. Smith (2022): Reciprocal relations between body dissatisfaction and excessive exercise in college women. *Journal of American College Health.* DOI: https://doi.org/10.1080/07448481.2022.2080508

Jiotsa, B., Naccache, B., Duval, M., Rocher, B., & Grall-Bronnec, M. (2021). Social Media Use and Body Image Disorders: Association between Frequency of Comparing One's Own Physical Appearance to That of People Being Followed on social media and Body Dissatisfaction and Drive for Thinness. *International journal of environmental research and public health*, *18*(6), 2880. https://doi.org/10.3390/ijerph18062880

Jonathon R. Fowles, et. al. (2017). A pilot study: Validity and reliability of the CSEP−PATH PASB-Q and a new leisure time physical activity questionnaire to assess physical activity and sedentary behaviours. *Applied Physiology, Nutrition, and Metabolism*. **42**(6): 677-680. https://doi.org/10.1139/apnm-2016-0412

Goswami, S., Sachdeva, S., & Sachdeva, R. (2012). Body image satisfaction among female college students. *Industrial Psychiatry Journal*, *21*(2), 168–172. https://doi.org/10.4103/0972-6748.119653

Hatch, S., Thomsen, D., & Waldron J. J. (n.d.). Extrinsic rewards and motivation. *Association for Applied Sport Psychology.* https://appliedsportpsych.org/resources/resources-for-coaches/extrinsic-rewards-and-motivation/

Hausenblas, H. A., & Fallon, E. A. (2006). Exercise and body image: A meta-analysis. *Psychology & Health*, *21*(1), 33–47. https://doi.org/10.1080/14768320500105270

Lantz, C. D., Hardy, C. J., & Ainsworth, B. E. (1997). Social physique anxiety and perceived exercise behavior. *Journal of Sport Behavior*, *20*(1), 83–93.

Marschin, V., & Herbert, C. (2021). Yoga, Dance, Team Sports, or Individual Sports: Does the Type of Exercise Matter? An Online Study Investigating the Relationships Between Different Types of Exercise, Body Image, and Well-Being in Regular Exercise Practitioners. *Frontiers in Psychology*, *12*, 621272–621272. https://doi.org/10.3389/fpsyg.2021.621272

Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *The Journal of Adolescent Health: Official publication of the Society for Adolescent Medicine*, *39*(2), 244–251. https://doi.org/10.1016/j.jadohealth.2005.12.001

Pellerine, L.P.; Bray, N.W.; Fowles, J.R.; Furlano, J.A.; Morava, A.; Nagpal, T.S.; O'Brien, M.W. The Influence of Motivators and Barriers to Exercise on Attaining Physical Activity and Sedentary Time Guidelines among Canadian Undergraduate Students. *Int. J. Environ. Res. Public Health* 2022, *19*, 12225. https://doi.org/10.3390/ijerph191912225

Suchert, V., Hanewinkel, R., & Isensee, B. (2015). Sedentary behavior, depressed affect, and indicators of mental well-being in adolescence: Does the screen only matter for girls? *Journal of Adolescence (London, England.)*, *42*(1), 50–58. https://doi.org/10.1016/j.adolescence.2015.03.014

Office on Women's Health. (2021). https://www.womenshealth.gov/mental-health/body-image-and-mental-health/body-image