

The Relationship between Body Image and Lifestyle Choices in College Students

The college years bring with them a lifestyle different than any other phase of life; college students are mainly on their own for the first time but also often do not have the same adult responsibilities as college graduates who have transitioned into the “real world.”

Stereotypical college-student life consists of too little sleep, cheap junk food, and caffeine to get them through the day. Students may try new forms of extracurricular activities, hobbies, and forms of exercise. The college years can also be a time of significant emotional, mental, and even spiritual growth. These young adults are away from their parents—the people that shaped and influenced their actions throughout their childhood. Students must make their own faith decisions. They decide whether to get up every Sunday to go to church, and they are exposed to a variety of spiritual backgrounds and beliefs unlike their own, often for the first time. All these things and more influence the growth and formation of college students’ identity. They are continually forming their identity and finding their niche, and one of the most crucial aspects of students’ mental states is their body image perception.

According to several independent studies, body dissatisfaction correlates with a host of problems for college students, including social physique anxiety,¹ unhealthy methods of weight management,² risky sexual behaviors,³ and worsened academic performance.⁴ Due to the harmful implications that negative body perceptions have for students, it is important to find and study the causes of body dissatisfaction to uncover ways to help students overcome and prevent these issues. Many college students’ lifestyle choices, including their sleeping habits, nutrition, and exercise habits, as well as other factors, such as religiosity and demographics, may have

negative effects on their body image perceptions. This paper attempts to examine the relationships between body image in college students and those lifestyle factors

Sleeping Habits

College students are stereotypically notorious for their sleeping habits. Several studies examine the importance of sleep for all people's wellbeing, including undergraduate students, who are undoubtedly going through one of the most stressful times in their lives. One such study examines sleep disturbance (which can include over- and under-sleeping) in relation to undergraduate students' depression, anxiety, and general functioning.⁵ All the studies' participants showed symptoms of depression, but the students experiencing sleep disturbance had worsened anxiety and showed poorer mental and physical functioning than those without sleep disturbance. Obviously, these issues can grow to be detrimental to an undergraduate student's success in college if their sleep quality becomes poor enough. The results of a study conducted by Lilac Lev Ari and Shmuel Shulman emphasized the role of sleep in helping students successfully transition into college.⁶ These findings could then lead to the assumption that disturbances in sleep have negative effects on mental health. This is supported by studies such as the one focusing upon Lebanese undergraduate students, which indicated a strong correlation between sleep disorders and anxiety, including the way students view themselves.⁷ One could presume that poor sleep habits and sleep quality could negatively affect the body image perception component of mental health. Many factors affect the overall *sleep quality* of students, including their average bedtime, average number of hours and minutes slept each night, typical minutes it takes to fall asleep, and usual wake-up time. The Pittsburgh Sleep Quality Index (PSQI) measures each of these elements—among others—hence it was utilized by a 2011 study to examine the sleep quality of undergraduate students.⁸ A score of greater than 5 on the PSQI

indicates poor perceived sleep quality, which was found to be positively correlated with mental health issues in the participants.

Nutrition

Students are also known to struggle with meeting their nutrition needs. For instance, many students skip breakfast or eat unhealthy snacks instead of meals, and these kinds of choices may indeed be causing lower levels of body satisfaction. Positive body image perceptions in college students have been clearly related to healthy nutrition.⁹ Liat Korn, Ester Gonen, Yael Shaked, and Moria Golan found strong correlations in their study between students' healthy nutrition and positive body image.¹⁰ Similarly, poor nutrition, such as what is seen in people with eating disorders, is highly correlated to negative body image perceptions.¹¹ In a study conducted by Walid El Ansari, Emily Dibba, and Christiane Stock, nutrition was found to be an important factor in the students' body image concern level for both genders.¹² Females with higher-calorie diets were more likely to have a moderate body image concern, while males with higher-calorie diets were less likely to have a marked (the highest level of concern in this study) body image concern. Measuring students' caloric intakes seems to be a simple and fairly effective way to find their perceived nutritional status. Measuring their frequency of consumption of high calorie food groups is also a useful indicator.

Exercise habits

Physical exercise may be one of the most highly correlated variables to positive body perceptions. One study found that college students' participation in physical exercise played a role in their positive body image perceptions even more than healthy nutrition.¹³ Proper exercise seems to lead to higher body satisfaction. In their 2001 study, Pamela Williams and Thomas Cash found that students that participated in a circuit weight training program both were

physically stronger and had significantly improved body image perceptions after they completed the weight-training program.¹⁴ One study used the American Heart Association's guidelines for physical activity as their scale with which to compare students' exercise habits; they found that for the female students in their sample, their level of physical activity was significantly associated with moderate body image concern.¹⁵

Religiosity

Several studies indicate that spirituality and religiosity positively affect body image perceptions.¹⁶ Kaili Zhang reported that students that described themselves as "spiritual" reported body dissatisfaction less often than those that described themselves as "free thinkers" (in this study meaning they had no religion).¹⁷ In the 2007 study conducted by Boyatzis, Kline, and Backof, most of the participants were affiliated with Christianity, which seemed to affect their body image perceptions in a positive way. This study also found that the participants reported higher levels of body satisfaction after reading a set of spiritual affirmations on body image.¹⁸

Other Factors: Gender, Age, and Ethnicity

Several demographic factors seem to have a correlation with body image perception. These include gender, age, and ethnicity. Traditionally, women have been found to struggle with body dissatisfaction more than men.¹⁹ Additionally, women tend to want to be thinner while men typically wish to be more muscular.²⁰ One study found that 35 percent of the females in the study were moderately or markedly concerned with their body image as compared to 8 percent of the males.²¹ Additionally, the male and female subjects' body image concerns were associated with different factors. While the males' body image concern was most highly correlated with

low quality of life and older age, the females' body image concern was highly related to low physical activity, high perceived stress, and low perceived health.

Although age does not vary greatly among typical college students (with most traditional students being approximately between eighteen and twenty-two years old), age can still be a factor in body image perceptions. El Ansari, Dibba, and Stock found that in their study's 765 male participants, body image concern worsened with older age.²² Another study conducted on 301 body builders reported that the older men in their study presented greater body dissatisfaction than the younger men.²³ Similarly, Melinda Craike, Janet Young, Caroline Symons, Michelle Pain, Jack Harvey, Rochelle Eime, and Warren Payne studied the body dissatisfaction of two cohorts and found that in metropolitan regions, the participants in the older cohort were more likely to show body dissatisfaction.²⁴

Race and ethnicity clearly play another role in body image perceptions. Different cultures value different things when it comes to beauty. Typically, white men and women are thought to have more body dissatisfaction because of the effects of mainstream Western culture's ideal of the perfect Caucasian body, which often emphasizes physical appearance, including the thin ideal for women and the muscular ideal for men. In their 2006 study, Meghan Gillen and Eva Lefkowitz divided participants into three groups based on their choice between the following three options: those who wanted to be smaller, those who were content with their bodies, and those who wanted to be larger.²⁵ African Americans, compared to European Americans and Latino Americans, had the largest percentage of participants that were content with their bodies, confirming a finding of many other researchers. White women are often found to feel larger and have lower body image perceptions than those of other ethnicities.²⁶

Hypotheses

This study focuses upon discovering the relationships (if any) between lifestyle choices (as well as demographic factors) and body image concerns in college students. It proposes that the everyday lifestyle choices of college students, including sleeping habits, nutrition, and exercise habits have a significant effect on their body image perceptions. It was hypothesized that the following factors will be significantly correlated to poor body image perceptions in undergraduate students: 1) poor sleep quality (late bedtimes, long amounts of time required to fall asleep, wake-up times, and low amounts of sleep), 2) high total nutrition scores, 3) low amounts of exercise, both moderate and vigorous, 4) low religiosity scores, 5) being female, 6) being among the older students in the sample, and 7) identifying as White in ethnicity.

Methods: Participants, Measures, and Procedure

This study included both male and female students of all classifications (freshman, sophomore, junior, and senior) attending a smaller, private, religious university in Texas. The researcher spoke to several of the university's professors and asked their permission to give out the survey/perform the study during their classes. The total number of participants was 258.

For this study, a survey was constructed containing five different scales and several demographic questions. To begin, the participant completed a short demographics questionnaire containing 5 items: 1) the current date, 2) their date of birth, 3) gender, 4) race, and 5) religious affiliation.

The Pittsburgh Sleep Quality Index (PSQI) was used to measure sleep quality. Created by Daniel Buysse, Charles Reynolds, Timothy Monk, Susan Berman, and David Kupfer in 1989, this instrument studies the participants' sleep habits during the previous month.²⁷ For the purpose of this study, only the first four questions were used: 1) "During the past month, what

time have you usually gone to bed at night?;” 2) “During the past month, how long (in minutes) has it usually taken you to fall asleep each night?;” 3) “During the past month, what time have you usually gotten up in the morning?;” and 4) “During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)” Cronbach’s alpha for this scale was 0.736, which shows a satisfactory reliability.²⁸

This study utilized four items taken from the student health questionnaire created by El Ansari, Dibba, and Stock to assess nutrition.²⁹ After asking the question, “How often do you eat the following foods?” each of the four items measured the frequency of consumption of a specific kind of high-calorie food: 1) sweets, 2) cakes/cookies, 3) snacks, and 4) fast/canned food. Each participant rated the frequency of each item on a 5-point Likert scale (5 points for several times a day, 4 points for daily, 3 points for several times a week, 2 points for 1-4 times a month, and 1 point for never). A total nutrition score will be calculated for each participant by adding their scores from each food category. The scores can range from 4-20, with a score of 20 indicating a high-calorie diet.

This study used the guidelines set forth by the American Heart Association (AHA) to assess exercise, which recommends at least 150 minutes of moderate exercise or 75 minutes of vigorous exercise each week for cardiovascular health.³⁰ Simply put, one can meet the AHA guidelines by participating in thirty minutes of moderate exercise five times a week and by participating in twenty-five minutes of vigorous exercise three times a week. Borrowing two questions from the study by El Ansari, Dibba, and Stock,³¹ two items were measures: “On how many of the past 7 days did you participate in moderate exercise for ≥ 30 minutes?” and “On how many of the past 7 days did you participate in vigorous exercise for ≥ 20 minutes?” Participants’

answers for both questions were tested independently to see if any significant correlations exist with body image perception.

The Centrality of Religiosity Scale (CRS-5) was used to measure religiosity. This scale, created by Stefan Huber and Odilo Huber, measures the importance of religiosity in an individual.³² It does this by measuring five dimensions of religiosity: the intellectual dimension, ideology, public practice, private practice, and religious experience. There are three versions of the scale, each a different length. This study utilized the CRS-5, which contains 5 questions, each covering a different dimension of religiosity. The questions on the CRS-5 are as follows: 1) “How often do you think about religious issues?;” 2) “To what extent do you believe that God or something divine exists?;” 3) “How often do you take part in religious services?;” 4) “How often do you pray?;” and 5) “How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?” Each item’s answer choices range from answers that code from not-religious to highly-religious. Huber and Huber confirmed that this measure is valid.³³ A total religiosity score was computed by adding the scores associated with each of their answers, with a higher score indicating a stronger religiosity.

The Figure Rating Scale (FRS), originally created by Albert Stunkard, Thorkild Sørensen, and Fini Schulsinger, measured body image perception.³⁴ The scale presents participants with nine drawings of human figures depicting varying sizes, from a severely underweight figure (figure 1) to an obese figure (figure 9).³⁵ The FRS then measures 6 different attitudes (only the first three were included and measured in this study) towards the figures by giving the following instructions to the participant: 1) “choose your ideal figure;” 2) “choose the figure that reflects how you think you look;” 3) “choose the figure that reflects how you feel most of the time;” 4) “choose the figure that you think is most *preferred by men*;” 5) “choose the

figure that you think is most *preferred* by women;” and 6) “pick the *opposite sex* figure that you find most attractive.” Three different scores are then computed for each participant that measure the amount of body dissatisfaction in the participants: 1) “*feel* minus ideal;” 2) “*think* minus ideal;” and 3) “*feel* minus *think*.” J. Kevin Thompson and Madeline Altabe report that the FRS has sound test-retest reliability as well as satisfactory validity.³⁶

After acquiring permission from the various professors, the researcher took copies of the survey to their classes and personally distributed them to the students. Before giving the students the survey, the students were instructed to read, sign, and return an informed consent form. Information about the university’s counseling center was also provided for the participants in case the questionnaire provoked an emotional response.

Results

The survey reported four sleep variables: average bedtime, average number of minutes it took to fall asleep, average wake-up time, and average number of hours slept. Each of these was tested using a Pearson correlation test to assess whether any had statistically significant correlations with any three of the body dissatisfaction scores. The “*feel* minus ideal” score was found to be statistically correlated to the average number of minutes it took to fall asleep, $r(243) = .191, p < .01$. The “*think* minus ideal” score was also statistically correlated to the average number of minutes it took to fall asleep, $r(244) = .157, p < .05$. The “*feel* minus *think*” score was significantly correlated to the average number of hours slept, $r(245) = -.219, p < .01$. No other significant correlations were found between the sleep and body dissatisfaction variables.

A Pearson correlation test between the total nutrition score and each of the body dissatisfaction scores was computed, but all three tests showed no statistically significant correlation.

To assess the relationship between exercise and body dissatisfaction, Pearson correlation tests between each of the two types of exercises assessed and each of the three body dissatisfaction scores were conducted. The “feel minus ideal” score was found to be significantly correlated with the amount of vigorous exercise, $r(244) = -.143, p < .05$. The “think minus ideal” score correlated significantly with both the amount of moderate exercise, $r(245) = -.188, p < .01$, and the amount of vigorous exercise, $r(245) = -.205, p < .01$. The “feel minus think” score was not found to be significantly correlated with either the amount of moderate or vigorous exercise.

A Pearson correlation test between the total religiosity score and each of the body dissatisfaction scores was run. No statistically significant correlation was found between the total religiosity score and the “feel minus ideal” score or between the total religiosity score and the “feel minus think” score. However, there was a statistically significant correlation found between the total religiosity score and the “think minus ideal” score, $r(246) = .145, p < .05$.

An independent groups *t*-test was performed comparing the means of all three body dissatisfaction scores for males and females. When comparing the mean “feel minus ideal” score for males ($M=5.1717, SD=1.77879$) and for females ($M=5.6959, SD=1.42695$), this test was found to be statistically significant, $t(245) = -2.560, p < .05$, indicating that females report higher levels of body dissatisfaction when comparing the “feel” and “ideal” figures than males. There was no statistically significant difference in either the mean “think minus ideal” score or the mean “feel minus think” score for males and females.

A Pearson correlation test assessed the relationship of age with all three body dissatisfaction scores. No statistically significant correlation was found between age and the “feel minus ideal” score. There was a statistically significant Pearson correlation found with age

and the “think minus ideal” score ($r(239) = .236, p < .01$), as well as with age and the “feel minus think” score ($r(239) = -.130, p < .05$).

A one-way between-subjects analysis of variance compared all three of the body dissatisfaction scores of the White, Hispanic/Latin, Black/African American, Native American, Asian/Pacific Islander, and “Other” ethnicity participants. None of these tests were found to be statistically significant.

Discussion

Many variables were tested for meaningful correlations, and a few significant findings emerged. Several tests did not show any significant findings, such as the tests that analyzed the ethnicity and nutrition variables. However, several noteworthy findings did appear. Each of the three body dissatisfaction scores were associated with a characteristic of poor sleep quality. Additionally, greater amounts of exercise had some positive effects on the “feel minus ideal” and “think minus ideal” scores, indicating that participants that exercised more frequently had less body dissatisfaction. There was also a positive correlation between religiosity and the “think minus ideal” score. This suggests that in participants whose religious beliefs are central to their lives, there is a smaller difference between what they think they look like and what they wish they look like. As for the demographics, women were found to have a significantly higher level of body dissatisfaction than men. This is concurrent with society’s current belief that women struggle with liking their bodies more than men. Lastly, age was shown to have two correlations with body dissatisfaction. First, as the participant’s age increased, their “think minus ideal” body dissatisfaction score increased. Secondly, there was a negative correlation between the “feel minus think” and age. This indicated that with a participant’s increased age came a smaller

discrepancy between how they felt their body looked and how they thought it realistically looked.

Limitations

This study's participant pool only included students from one particular university. Hence, the findings about body image dissatisfaction may not be generalizable to students from other universities, especially non-private and/or non-religious institutions. Geographic location may be a factor as well; it is quite possible that the correlation between religiosity and body image may not be as strong in other areas of the United States. Additionally, these findings cannot be applied to people of other age groups as the majority of the participants in this study were eighteen and twenty-two years old.

This study also was not able to find any significant findings in body image perceptions between ethnicities, possibly due to the fact that there was not much variety in the population. Out of the six ethnicity choices, approximately 67.4 percent of participants selected White, compared to 8.9 percent responding as Hispanic/Latino, 18.2 percent as Black/African American, 0.4 percent as Native American, 1.2 percent as Asian/Pacific Islander, and 3.9 percent as "Other." This made it difficult to examine the differences between the ethnicities since some of the ethnicities were not sufficiently represented.

Another limitation that existed was that differences in body image perceptions among religious affiliations were not able to be sufficiently assessed. The clear majority of participants identified as Christian or as part of a Christian denomination (94.2 percent), with the other 5.8 percent being made up by those that identified as being agnostic, atheist, Muslim, or having no religious affiliation, and those who chose not to answer. Since most of the students at the university identify as Christian, this study was unable to compare mean scores between the

adherents of different religions. Differences amongst Christian denominations could not be studied either; the religious affiliation question on the survey was open-ended, and some participants were more specific in their answers (answering “Southern Baptist” in the blank) while others were less specific (answering “Christian” in the blank). Due to this, analysis of the religious affiliations was difficult to conduct. If the study were conducted again, the question would be changed to have answer choices with one “Other” option instead of a solely open-ended answer style.

Further Research

While this study examines the relationships between body dissatisfaction and the other variables at the surface level, further research could be done by obtaining more in-depth analyses of the variables. For this study, the scales and questionnaires used to study the variables had to be truncated as to not create an excessively long survey. It would probably be helpful to use the full-length Pittsburgh Sleep Quality Index rather than only the first four questions. This would provide a better overall picture of each participant’s sleep quality and would help to indicate which specific aspects of sleep quality have a relationship with body image perception.

Moreover, the variables researched in this study could be examined in relation to other mental health conditions besides body image dissatisfaction. For example, the correlation between sleep quality (including each specific aspect of it) and depression could be analyzed.

Another variable could also be added to this study if it were conducted in the future in order to investigate body image perception further. If this study were performed again, each participant’s height and weight (as well as measurements such as body fat percentage and ideal weight) could be measured in addition to the other variables, and their BMI could be calculated using their measurements. Knowing this information could have many advantages, including

offering more insight into body image dissatisfaction by showing their actual size compared to their ideal figure, how they think they look, and how they feel they look as assessed in the survey.

Future research with a more diverse population may be helpful as well. Since the participant sample was not very diverse, giving the survey to a different population would make it possible to assess any differences across ethnicities. Additionally, conducting studies in other regions of the United States as well as international research would be worth pursuing in studying body image perceptions. Cultures in different areas of the country and outside of the United States may have vastly different ways of viewing body image. However, even different universities may provide different results, especially those that are not religious institutions located in the South like the university used in this study.

Furthermore, more tests could be run with the data gathered in this study. Relationships between other variables besides body dissatisfaction scores could be assessed as a part of a larger or different study. For instance, Pearson correlation tests could be conducted to analyze the relationship (if any) between sleep quality and exercise.

Conclusion

As previously stated, this study collected data from students at a smaller, private, religious university in Texas to determine whether there were significant correlations between body image perception and lifestyle choices, as well as demographic variables. Each of the three body dissatisfaction scores had a positive correlation with one variable representing poor sleep quality. Amounts of moderate and vigorous exercise were shown to have a negative correlation with body dissatisfaction. Religiosity levels were found to be higher in participants that had lower levels of the “think minus ideal” body dissatisfaction score. As for demographic variables,

females indicated higher levels of body dissatisfaction than males, and age was also found to have significant correlations with body dissatisfaction. As age increased in participants, the “think minus ideal” scores tended to increase and the “feel minus think” scores tended to decrease. With so many findings and variables, there is much opportunity for further research on this important subject.

ENDNOTES

¹ Jeffrey J. Martin, Amy Kliber, Pamela H. Kulinna, and Mariane Fahlman, “Social Physique Anxiety and Muscularity and Appearance Cognitions in College Men,” *Sex Roles* 55, no. 3/4 (2006): 151-158.

² Meghan Gillen and Eva Lefkowitz, “Gender Role Development and Body Image Among Male and Female First Year College Students,” *Sex Roles* 55, no. 1/2 (2006): 25-37.

³ Ashley Merianos, Keith King, and Rebecca Vidourek, “Body Image Satisfaction and Involvement in Risky Sexual Behaviors Among University Students,” *Sexuality & Culture* 17, no. 4 (2013): 617-630.

⁴ Tovah Yanover and J. Kevin Thompson, “Eating Problems, Body Image Disturbances, and Academic Achievement: Preliminary Evaluation of the Eating and Body Image Disturbances Academic Interference Scale,” *International Journal of Eating Disorders* 41, no. 2 (2008): 184-187.

⁵ Maren Nyer, Amy Farabaugh, Kiki Fehling, David Soskin, Daphne Holt, George I. Papakostas, Paola Pedrelli, Maurizio Fava, Angela Pisoni, Ottavio Vitolo, and David Mischoulon, “Relationship Between Sleep Disturbance and Depression, Anxiety, and Functioning in College Students,” *Depression & Anxiety* 30, no. 9 (2013): 873-880.

⁶ Lilac Lev Ari and Shmuel Shulman, “Pathways of Sleep, Affect, and Stress Constellations During the First Year of College: Transition Difficulties of Emerging Adults,” *Journal of Youth Studies* 15, no. 3 (2012): 273-292.

⁷ Nour Choueiry, Tracy Salamoun, Hicham Jabbour, Nada El Osta, Aline Hajj, and Lydia Rabbaa Khabbaz, “Insomnia and Relationship with Anxiety in University Students: A Cross-Sectional Designed Study,” *PLOS ONE* 11, no. 2 (2016): 1-11.

⁸ Kathryn M. Orzech, David B. Salafsky, and Lee Ann Hamilton, “The State of Sleep Among College Students at a Large Public University,” *Journal of American College Health* 59, no. 7 (2011): 612-619.

⁹ Walid El Ansari, Emily Dibba, and Christiane Stock, “Body Image Concerns: Levels, Correlates and Gender Differences Among Students in the United Kingdom,” *Central European Journal of Public Health* 22, no. 2 (2014): 106-117; Liat Korn, Ester Gonen, Yael Shaked, and Moria Golan, “Health Perceptions, Self and Body Image, Physical Activity and Nutrition Among Undergraduate Students in Israel,” *PLOS ONE* 8, no. 3 (2013): 1-7.

¹⁰ Korn, Gonen, Shaked, and Golan, 1-7.

¹¹ Ibid.

¹² El Ansari, Dibba, and Stock, 106-117.

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- ¹³ Korn, Gonen, Shaked, and Golan, 1-7.
- ¹⁴ Pamela A. Williams and Thomas F. Cash, "Effects of a Circuit Weight Training Program on the Body Images of College Students," *International Journal of Eating Disorders* 30, no. 1 (2001): 75-82.
- ¹⁵ El Ansari, Dibba, and Stock, 106-117.
- ¹⁶ Chris J. Boyatzis, Sarah Kline, and Stephanie Backof, "Experimental Evidence that Theistic-Religious Body Affirmations Improve Women's Body Image," *Journal for The Scientific Study of Religion* 46, no. 4 (2007): 553-564; Kaili Zhang, "What I Look Like: College Women, Body Image, and Spirituality," *Journal of Religion & Health* 52, no. 4 (2013): 1240-1252.
- ¹⁷ Zhang, 1240-1252.
- ¹⁸ Boyatzis, Kline, and Backof, 553-564.
- ¹⁹ Gillen and Lefkowitz, 25-37.
- ²⁰ Ibid.
- ²¹ El Ansari, Dibba, and Stock, 106-117.
- ²² Ibid.
- ²³ Diego S. Silva, Rafael C. da Silva, and Eliane A. Goncalves, "Body Image Among Men Who Practice Body Building: Comparison by Age, Economic Status, and City Size," *Perceptual & Motor Skills* 121, no. 2 (2015): 537-547.
- ²⁴ Melinda Craike, Janet A. Young, Caroline M. Symons, Michelle D. Pain, Jack T. Harvey, Rochelle M. Eime, and Warren R. Payne, "Trends in Body Image of Adolescent Females in Metropolitan and Non-Metropolitan Regions: A Longitudinal Study," *BMC Public Health* 16, no. 1 (2016): 1143.
- ²⁵ Gillen and Lefkowitz, 25-37.
- ²⁶ Jane Wardle, Renu Bindra, Beverley Fairclough, and Alex Westcombe, "Culture and Body Image: Body Perception and Weight Concern in Young Asian and Caucasian British Women," *Journal of Community & Applied Social Psychology* 3, no. 3 (1993): 173-181; Kristine L. Lokken, Sheri L. Worthy, F. Richard Ferraro, and Julianne Attmann, "Bulimic Symptoms and Body Image Dissatisfaction in College Women: More Affected by Climate or Race?," *Journal of Psychology* 142, no. 4 (2008): 386-394.
- ²⁷ Daniel J. Buysse, Charles F. Reynolds, Timothy H. Monk, Susan R. Berman, and David J. Kupfer, "The Pittsburgh Sleep Quality Index (PSQI): A New Instrument for Psychiatric Research and Practice," *Psychiatry Research* 28, no. 2 (1989): 193-213.
- ²⁸ Dilshad Manzar, Jamal A. Moiz, Wassilatul Zannat, David W. Spence, Seithikurippu R. Pandi-Perumal, Ahmed S. BaHammam, and M. Ejaz Hussain, "Validity of the Pittsburgh Sleep Quality Index in Indian University Students," *Oman Medical Journal* 30, no. 3 (2015): 193-202.
- ²⁹ El Ansari, Dibba, and Stock, 106-117.
- ³⁰ "American Heart Association Recommendations for Physical Activity in Adults," American Heart Association, http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/American-Heart-Association-Recommendations-for-Physical-Activity-in-Adults_UCM_307976_Article.jsp#.WCJ5so-cFYc (accessed November 08, 2016).
- ³¹ El Ansari, Dibba, and Stock, 106-117.
- ³² Stefan Huber and Odilo W. Huber, "The Centrality of Religiosity Scale (CRS)," *Religions* 3, no. 3 (2012): 710-724.
- ³³ Ibid.

³⁴ Albert J. Stunkard, Thorkild Sørensen, and Fini Schulsinger, "Use of the Danish Adoption Register for the Study of Obesity and Thinness," *Research Publications-Association for Research in Nervous and Mental Disease* 60 (1983): 115.

³⁵ J. Kevin Thompson and Madeline N. Altabe, "Psychometric Qualities of the Figure Rating Scale," *International Journal of Eating Disorders* 10, no. 5 (1991): 615-619.

³⁶ Ibid.