ABSTRACT

Self-Regulation and Weight Status in University Students

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Growing obesity rates have become a topic of great interest. Previous studies have examined self-regulation as a method to reduce weight gain. Young adults are especially at risk for weight gain and the negative health risks associated with obesity. The aim of the current study was to assess whether there were differences in self-regulation of eating behaviors among university students of different weight status. I found overweight and obese university students self-reported they try to recruit others to support their eating plan at greater frequency than underweight and normal weight university students. Future interventions aimed at addressing weight gain in young adults should take these findings into account.

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The Relationship Between Self-Monitoring, Self-Regulation, and Obesity in College Students

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CHAPTER ONE

Background and Literature Review

Rising obesity rates have become a topic of great interest. Obesity is the term used to describe an excess of adipose tissue. It is often measured using body mass index (BMI; the weight is in kilograms divided by the square of height in meters). A BMI, equal to or above 30 for adults is considered obese while a BMI between 25 and 29.99 is classified as overweight (Yanovski, Susan & Yanovski, Jack, 2011). Data from the National Health and Nutrition Examination Survey from 2009-2010 demonstrated that 35.7% of U. S. adults and 16.9% of U.S. children and adolescents had a BMI in the obese range (Ogden, Carroll, Kit, & Flegal, 2012). The effects of obesity are numerous, and include physical, psychological, and economical consequences (Yanovski, Susan & Yanovski, Jack, 2011). Of particular, concern is, the growing prevalence of diseases associated with obesity such as type 2 diabetes, nonalcoholic fatty liver disease, and hypertension (Yanovski, Susan & Yanovski, Jack, 2011).

A number of studies have been conducted examining weight prevention methods, causes, and treatments with adolescents and young adults. An alarming 80% of obesity cases at the age of 35 had an onset after the age of 17, which suggests that intervention and prevention methods are crucial for young adults (Patton, Coffey, Carlin, Sawyer, Williams, Olsoon, & Wake, 2009). Patton and colleagues conducted a 10-year prospective cohort study on overweight and obesity, and they found significant changes in the weight status between mid-adolescence and young adulthood (Patton et al., 2009)

Most notably, the prevalence of overweight status with a BMI ≥ 25 increased by 65% between mid-adolescence and age 24; the prevalence of obesity with a BMI ≥ 30 doubled during this period (Patton et al., 2009). Those that were persistently overweight but not obese during adolescence did not recover to a normal weight in young adulthood (Patton et al., 2009). Yet, for those with less persistent and less severe weight problems, obesity was less common later on, especially in women (Patton et al., 2009).

It is important to identify effective strategies to combat weight gain in adolescence and young adulthood (Boutelle, Libbey, Neumark- Sztainer, & Story, 2009). Boutelle and colleagues found that adolescents who lost weight were more likely to report using healthful weight control measures such as drinking less soda, increasing exercise levels, self-weighing, consuming diets with high protein, and spending less time watching TV (Boutelle et at., 2009). A study done by the National Weight Control Registry (NWCR) suggests similar results in that the most common weight control strategies include low-fat diet, monitoring food intake, increased physical activity, and regular breakfast consumption (National Weight Control Registry, 2009).

More recent studies have expanded on the concept of "self-regulation" eating and exercise behaviors. Self-regulating behaviors emphasize thoughts, feelings, and actions directed to the personal attainment of goals (Turner, 2006). A self-regulated learner thinks in terms of self-beliefs, attitudes, goals, behaviors, and choices of strategies, self-verbalization, and co-construction (Turner 2006). More importantly, self- regulating skills are not simply achieved in a linear fashion, but it is a continuous effort to monitor behaviors, choices, and goals (Turner 2006). Self-monitoring is similar in the sense that it

focuses on the ability to monitor and manage one's self-presentation by controlling one's behavior to environmental stimuli (Soibel, Fong, Mullin, Jenkins & Mar, 2012). Several studies have investigated the concepts of self-monitoring and self-regulation as weight control mechanisms. Burke and colleagues (2011) examined studies from 1993 to 2009 and found self-monitoring was the centerpiece of behavioral weight loss intervention programs (Burke, Wang, & Sevick, 2011). They noted in their systematic review that a variety of methods were used in the 22 studies to assess self-monitoring such as paper diaries, use of technology, which included the Internet, personal digital assistants, and electronic digital scales (Burke et al., 2011). The self-weighing studies showed a significant weight loss difference between weighing daily and weekly and those weighing less often (Burke et al., 2011). As noted by the authors, most studies in their systematic review had limitations such as descriptive designs and methodological weaknesses; only six out of 22 studies were randomized trials, and the generalizability of findings were limited to overweight, obese white women (Burke et al., 2011). Another study that was conducted by Burke and colleagues (2010) examined the practice of self-monitoring as a method of systematic self-observation, periodic measurement, and recoding of target behaviors with the goal of increasing self-awareness (Burke, Swigart, Turk, Derro, & Ewing, 2009). The 15 individuals in the study were classified into three categories of self-monitoring experience: "Well-Disciplined" –those who had high adherence to self-monitoring and high weight loss and a "can do" positive approach, "Missing the Connection"-those who had moderate adherence, moderate to low weight loss, and "it's an assignment" approach, and "Diminished Support"- those who had poor adherence, poor weight control, and were adversely affected by co-existing negative factors (Burke

et al., 2010). Those who were classified in the "Well-Disciplined" group were mainly males who had the attributes of "keeping track", commitment to techniques of self-monitoring, recurrent self-examination, and also had strong social support (Burke et al., 2009). This group of participants lost 14% to 26% of their body weight at 6 months, and also, maintained their weight loss at 18 months with 12% to 25% of their body weight (Burke et al., 2009). The "Missing the Connection" group and the "Diminished Support" group were linked to three distinct attributes: a) failure to cognitively integrate self-monitoring into everyday life, b) lack of self-nurturing or pre-occupation with taking care of others, and c) emotional eating (Burke et al., 2009). Both the "Missing the Connection" and the "Diminished Support" groups were unable to maintain a desirable rate of weight loss, and failed to understand the value of self-monitoring (Burke et al., 2009).

One study examined self-regulatory skills in relation to self- efficacy for improved eating, exercise, and weight in severely obese adults (Annesi, 2011). Adults with "class 2 and class 3" obesity were monitored in a 26-week nutrition and exercise treatment class (Annesi, 2011). Results showed that change in weight was significantly predicted by changes in fruit and vegetable consumption and exercise, but an increase in variance was shown when self-regulatory skills were added (Annesi, 2011). The findings suggest that self-management methods may produce better outcomes, and self-regulatory skills not only positively affect weight loss in the initial months, but also extend to sustaining long-term weight loss (Annesi, 2011).

The use of self-weighing twice a day in overweight and obese subjects compared

to self-weighing once a day may impact weight loss (Oshima, Matsuoka, & Sakane, 2011). Oshima and colleagues (2013) divided adults into two groups- Group 1 weighed at the same time once a day and Group 2 self-weighed twice a day in the morning and night (Oshima et al., 2013). Average weight reduction was significantly higher in Group 2 than in Group 1. Two potential factors were noted by the authors: the participant's knowledge of measuring body weight twice per day, and daily target setting and feedback obtained from the scale (Oshima et al., 2013). A study by Sandilands and colleagues (2011) assessed the importance of self-monitoring and change in percent body fat of overweight adolescents (Sandilands, Brennan, Walkley, Fraser, & Greenway, 2011). Participants self-monitored food and physical activity and split into groups of "Losers and Gainers" with qualitative and quantitative measures of self-monitoring (Sandilands, 2011). Those who lost more percent body fat, the "Losers", completed more self-monitoring and better quality of self-monitoring than the "Gainers" (Sandilands, 2011). Thus, self-monitoring led to increased awareness of current problematic behaviors in the type and amount of food consumed, which provided specific information to evaluate performance to adjust goals and behaviors accordingly (Sandilands, 2011). Results also suggest that classifying food and drink items into food groups can lead to better weight loss outcomes (Sandilands, 2011).

One study examined the initiation and cessation of eating in obese men and women in order to help identify patterns that are contributors to the growing obesity rates (Tuomisto, T., Tuomisto, M.T., Hetherington, & Lappalainen, 1998). Tuomisto and colleagues noted the most important reasons for initiation were time of day and habitual

patterns of mealtime; but reasons for the cessation of eating was determined by a feeling of "I had eaten enough or my stomach became full" (Tuomisto et al., 1998). These results indicated that reasons for the initiation and cessation among obese adults were not physiological cues but social behaviors, cues, and lifestyles (Tuomisto et al., 1998). Cessation of eating further reflected an ability or lack of ability to control eating, thus self-assessment and cognitions were important factors in eating habits (Tuomisto et al., 1998). Toumisto and colleagues identified the method of self-monitoring as an important method that enables accurate behavioral analyses in the connection with the treatment of obesity (Tuomisto et al., 1998).

The relationship of self-weighing and weight control behaviors was found to be important among both male and female adolescents (Alm, Neumark-Sztainer, Story, & Boutelle, 2009). Two groups with a BMI $\geq 85^{th}$ percentile were classified as "frequent self- weighers" (weekly or more) and "infrequent self-weighers" (monthly or less) (Alm et al., 2009). Alm and colleagues (2009) noted that "frequent self-weighers" among both males and females, reported using behavior change strategies (e.g., structured diet, and healthy weight control behavior). These behavior strategies indicated lower average BMI percentile among this group of frequent self-weighers. Adolescents, that reported self-monitoring of weight at least weekly did have lower intakes of dietary fat, more physical activity, and a trend of lower BMI compared to "infrequent self-weighers" (Alm et al., 2009). The study was limited by the use of self- report assessments, categorical evaluation, and a cross-sectional study design (Alm et al., 2009). Despite the limitations, frequent "self-weighing" was associated with positive behaviors among adolescents and it was concluded that self-weighing may be a useful tool (Alm et al., 2009).

Some studies have suggested frequent self-weighing behaviors could have negative consequences. Quick and colleagues (2012) examined the relationship between self-weighing frequency, weight related behaviors, and psychological well-being among non-overweight and overweight adolescents (Quick, Loth, MacLehose, Linde, & Neumark-Sztainer, 2013). Frequent self-weighers exhibited greater unhealthy behaviors (e.g., extreme weigh control behaviors, use muscle-enhancing behaviors) and poor psychological well-being (e.g., lower self-esteem, greater body dissatisfaction and greater depressive symptoms) for both men and women (Quick et al., 2013). Data emphasized the importance of health care professionals to carefully monitor young adults engaging in self-weighing behaviors; but more importantly, screen for unhealthy weight-control practices and poor psychological well-being before recommending self-weighing. In Gokee-LaRose and colleagues (2009), two different treatments (behavioral self-regulation and adapted standard behavioral treatment) were provided to obese young adults. Both groups achieved significant weight loss post-treatment (Gokee-LaRose, Gorin, & Wing, 2009). However, the behavioral self-regulation group maintained almost all their initial weight loss at follow up (20 weeks), while only half of standard behavioral treatment maintained their weight loss at follow up (20 weeks) (Gokee-LaRose, 2009). The frequency of weighing at follow-up was also positively associated with greater overall weight change (Gokee-LaRose, 2009). Most noteworthy, all participants in both conditions experienced positive changes in body image dissatisfaction, binge eating, behavior, and depressive symptoms (Gokee-LaRose, 2009). Overall, this study suggests that self-weighing may be a more effective method to improved long-term weight loss than other standard behavioral treatments.

The relationship between social support and healthy eating behaviors was found to be important among college students (McKinley, 2009). Data emphasized that social support may act as both a suppressor of negative influence of perceived threat on healthy eating behavior and also may contribute to unhealthy disordered eating attitudes (McKinley, 2009). Women in the study associated high levels of social support from others with healthy eating behavior, but social support also predicted the drive for thinness in women (McKinley, 2009). A similar study complemented the results from McKinley's data that revealed the need for monitoring and continued social support in obese men and women (Hardcastle, & Hagger, 2011). Participants received support from administrators of intervention, including practitioners that helped facilitate ongoing commitment to lifestyle changes (Hardcastle, & Hagger, 2011). After the six-month counseling interventions, participants claimed that support from social agents was very important for decreasing rates of relapse (Hardcastle, & Hagger, 2011). Results also showed the impact of social environments on an individual's self-regulating and self-efficacy of future behaviors: the lack of social support meant that the participants were less likely for receive feedback to support their physical activity or dietary modifications, which leads to reduced self-efficacy (Hardcastle, & Hagger, 2011). Thus, a "weight loss sabotage" created by a partner or spouse or even un-motivational providers and administrators provided barriers for sustaining behavioral changes in weight loss methods and decrease self-efficacy (Hardcastle, & Hagger, 2011).

While the above-cited studies contribute to our understanding of self-regulation of eating and exercise behaviors, the generalizability of their findings may be limited due to

the relatively small size of the samples. In addition, the majority of these studies have been limited by utilization of self-reported weight. The objective of the current study is to assess whether there are differences in self-regulation of eating behaviors among university students of different weight status. Several studies have noted the importance of managing a healthy lifestyle by actively improving eating and exercising. It is important to identify effective strategies to combat weight gain in adolescence and young adulthood. Contrary to previous studies, this investigation will sample a larger population with varying weight statuses. The current study will rely on actual measures of height and weight rather than having participants self-report their own height and weight. I hypothesized that those who fall into the underweight and normal weights category will self-report higher scores on the self-regulating measures and the diet-exercise questionnaire.

CHAPTER TWO

Methods

Participants

Undergraduate students (197 women, 42 men, M_{age} = 19, age range: 17-22 years) were selected from the Baylor University Psychology Subject Pool. Participants were Caucasian (59.4%), Hispanic (12.6%), African American (11.3%), Asian (10.9%), and Other (5.8%). Individuals also reported the levels of education completed by their parents, including professional or graduate degree (38.5 %), college degree (35.6%), vocational school or some college (15.5%), high school diploma or GED (7.5%), and some high school or less (2.9%).

Procedure

The Baylor University Institutional Review Board (IRB) approved the study before data collection took place. Data was collected during the 2013 spring semester. Students signed up online for an available date and time through Baylor University Psychology Subject Pool's website, SONA. Informed consent was obtained from each participant. They were then administered a packet of surveys: the demographic questionnaire, the 10-item Self-Regulation survey (modified version by Saelens and colleagues, 2000), and the 7-item Diet and Exercise questionnaire (modified version of the Summary of Diabetes Self Care Activities Measure, Toobert and colleagues, 2000).

Instructions were given verbally to all participants. As participants worked to fill out the surveys, each was pulled side to a private area in the room using their participant number, located on the packet, to obtain height and weight. These values were written on the data sheet provided for the researchers and used to calculate a BMI for each participant with the guidelines from the National Heart, Lung, and Blood's Institute's BMI calculator. After the surveys were completed, the data sheets and surveys were matched using their participant numbers and then inputted into one excel file. Two surveys were discarded, because they were not complete and thus could not be scored.

Materials

A demographics questionnaire was first administered to participants. This assessed for age, gender, ethnicity, and parent's level of education. Saelens and colleagues' modified version of the 10-item Self-Regulation survey (Annesi, 2011) was also given to participants. The items were based on a 5-point scale (1 = never, 2 = rarely, 3 = occasionally, 4 = often) and a total score was computed for the 10 items. The higher the score indicted the higher the level of self-regulation for controlled eating. Another survey was administered, the modified version of the Summary of Diabetes Self Care Activites 7-item Diet and Exercise questionnaire (Toobert and colleagues, 2000). The items represented how often self-care activities were met during a seven day period. The first two items on the scale (healthful eating plan, followed eating plan) were summed together for an overall general diet score. Items 3 and 4 (five or more servings of fruits and vegetables, high fat foods) were summed for a specific diet score; item 4 was reverse scored (0= 7, 1= 6, 2= 5, 3= 4, 4= 3, 5= 2, 6=1, 7= 0). Items 5 and 6 (30 minutes of

physical activity, specific exercise session) were also added together for an overall exercise score. A tape measure and a digital scale were used to record the participant's height and weight. The BMI of each participant was categorized into two groups: 1: underweight and normal (BMI below 18.5 and 18.5-24.9), 2: overweight and obese (BMI 25-29.9 and >30.0).

Statistical Analyses

Descriptive statistics (means and standard deviations) of demographics, the 10-item Self-Regulation Scale (including the summed score), and the 7-item Diet and Exercise Questionnaire were calculated. A two-tailed independent- samples *t* test was used to compare the scores of the two groups (underweight/normal and overweight/obese groups). Effect sizes were also calculated to determine the magnitude of any statistically significant differences.

CHAPTER THREE

Results

Table 1 provides descriptive statistics for the samples, which showed that men (*M= 175.73, SD = 27.94)* weighed more than women (*M* = 140.33, *SD* = 25.99) and the Hispanic participants differed from other races since they had the highest mean for weight (*M* = 151.45, *SD* = 30.89). Table 2 provides descriptive statistics for the 10-item Self-Regulation Scale (including the summed score). Table 3 provides descriptive statistics for the 7-item Diet and Exercise Questionnaire (including the 3 subscales: general diet, specific diet score, and exercise). Tables 4 and 5 present the results of the two-tailed independent-samples *t* tests for the Self-Regulation Scale and the Diet and Exercise Questionnaire. Self-regulation Scale Item 7 (I try to recruit others to support my eating plans) was the only item that was significantly different between the two groups (P =0.043). The effect size was calculated (Cohen's *d*= -0.35), which was a small effect. On Scale Item 7, overweight and obese university students self-reported they try to recruit others to support their eating plan (*M* = 1.88, *SD* = 1.06) at greater frequency than underweight and normal weight university students (*M* = 1.59, *SD* = 0.87). In addition, no significant correlations were found between the demographics, the BMI groups, the self-regulation sum of scores and the diet questionnaire. The specific diet mean score, from the diet questionnaire (five or more servings of fruit/vegetables, and reverse score for high fat food content), was the only item that significantly showed a difference for

gender. Women reported at a higher frequency than men for the specific diet mean score $r(240) = -.162)$, $p < .05$.

CHAPTER FOUR

Discussion

The objective of the present study was to assess whether there were differences in self-regulation of eating behaviors among university students of different weight status. I hypothesized that underweight and normal weight university students would score higher on self-regulating measures and report greater consumption of healthy foods and exercise. Overall, I found that university students in the two groups self-reported comparable self-regulation of eating behaviors and consumption of healthy foods and exercise. The exception to this finding was that overweight and obese university students self-reported that they tried to recruit others to support their eating plan at a greater frequency than underweight and normal weight university students. This effect was in the small effect size range.

The current study emphasized importance to identify effective strategies to combat weight gain in adolescence and young adulthood. Boutelle and colleagues found that adolescents who lost weight were more likely to report using healthful weight control measures such as drinking less soda, increasing exercise levels, self-weighing, consuming diets with high protein, and spending less time watching TV (Boutelle et at., 2009). Boutelle and colleagues noted that most common weight control strategies include low-fat diet, monitoring food intake, increased physical activity, and regular breakfast consumption (National Weight Control Registry, 2009). However, our findings were not consistent with the literature or our previous predictions that underweight and normal

weight university students would score higher on self-regulating measures and report greater consumption of healthy foods and exercise. Inconsistency with the literature and our hypothesis could be attributed to our small sample size of only 80 participants, who were classified as overweight or obese. This limitation could have influenced the ability to detect statistically significant differences. In addition, there was not a sufficient sample of obese participants so the overweight and obese participants were lumped together for the purposes of this study.

The current study also did not contribute to the literature on self-management methods. The findings (Annesi, 2011) suggested that self-management methods may produce better outcomes, and self-regulatory skills not only positively affect weight loss in the initial months, but also extend to sustaining long-term weight loss. Results showed that change in weight was significantly predicted by changes in fruit and vegetable consumption and exercise, but an increase in variance was shown when self-regulatory skills were added (Annesi, 2011). The current study did not find significant associations with fruit and vegetable consumption and exercise from Diet & Exercise questionnaire. Limitations were present for this questionnaire. The Diet and Exercise questionnaire was modified from the Summary of Diabetes Self Care Activities Measure. The Diet and Exercise questionnaire was not based on a common rating scale, but on a week span, which could pose reliability issues. Additionally, the surveys was a self-report measure which may have had some bias since some participants may have been uncomfortable giving a true assessment of their eating habits or exercise plans.

Despite these limitations, the current study may highlight the importance of the

social aspect of self-monitoring. The findings of the current study were consistent with previous literature on the role of social support and eating behaviors (Minkley, 2009). There was a significant finding in our current study that overweight and obese university students self-reported that they tried to recruit others to support their eating plan at a greater frequency than underweight and normal weight university students. Minkley (2009) found that women associated healthy eating behavior with higher levels of social support, and lower levels predicted higher drive for thinness and body dissatisfaction. Hardcastle and Hagger (2011) also noted the importance of supportive environments for sustaining healthy eating behaviors. The lack of social support was also associated with less feedback for success of physical activity, dietary modifications, self-efficacy (Hardcastle, & Hagger, 2011). The current study and literature suggest that further research should be explored for the role of social support and positive feedback in increasing self -efficacy and self-regulating strategies. In addition, the current study noted that women reported at a higher frequency than men for the specific diet mean scores, which consisted of a summed score of two items from the diet questionnaire (five or more servings of fruits/vegetables, and reverse score for high fat foods). These findings complemented a previous study emphasizing the gender differences in the development of dieting from adolescence to early adulthood (Soest, & Wichstrom, 2009). In their study, the results noted that as early as adolescence, women dieted more frequently than men. In addition, men's dieting did not change from the ages of 13-21, but women's dieting increased over this same time period. Gender differences in the dieting were attributed to development of psychological problems, such as depressive symptoms, and instability of self –concept. The current study suggests that further research should

examine gender differences in self-regulation and dieting as well as possibly linking the differences in social support and gender differences of college students of different weight status.

Furthermore, the current study's findings will hopefully encourage future researchers and clinicians to examine whether social support affects other contributors of eating behavior. Minkley (2009) noted that social support can be a buffer stress; college students who experience high stress tend to eat more, thus social support could help maintain healthy eating behaviors when students experience stressful events. Also, additional research could benefit healthcare providers in identifying supportive measures for sustaining weight loss for their patients, such as teaching them self-regulating measures, monitoring their progress, and providing positive feedback. It may also be beneficial to develop effective strategies that combat weight gain with the aid of a reliable peer group or supportive family members. Clinicians may be able to further study the impact of peer groups on weight gain, thus unsupportive friend groups could be a factor in contributing to the growing rates of obesity.

APPENDIX

TABLE 1

Descriptive Statistics.

Measure	*M*	SD
Weight		
Female	140.33	25.99
Male	175.73	27.94
BMI 1 (Normal)	133	19.1
BMI 2 (Obese)	173.57	28.17
Black	149.59	29.88
White	147.41	29.26
Asian	133.98	30.37
Hispanic	151.45	30.89
Other	144.32	24.32
Age		
Female	18.97	0.85
Male	19.31	1.05
BMI 1 (Normal)	19.01	0.87
BMI 2 (Obese)	19.09	0.96
Black	18.81	0.83
White	19.07	0.82
Asian	19.12	0.86
Hispanic	19.03	1.27
Other	18.93	0.92

TABLE 2

Descriptive Statistics: Self-Regulation

	BMI Categories	*N*	*M*	*SD*
Self-Regulation 1	1	158	2.54	1.04
	2	80	2.75	0.91
Self-Regulation 2	1	158	2.72	1.02
	2	80	2.70	1.07
Self-Regulation 3	1	158	2.66	1.03
	2	80	2.61	1.10
Self-Regulation 4	1	158	2.56	1.11
	2	80	2.73	1.02
Self-Regulation 5	1	158	3.28	0.81
	2	80	3.10	0.88
Self-Regulation 6	1	158	1.61	0.93
	2	80	1.76	0.92
Self-Regulation 7	1	158	1.59	0.87
	2	80	1.88	1.06
Self-Regulation 8	1	157	2.35	1.08
	2	80	2.14	1.02
Self-Regulation 9	1	158	2.60	1.12
	2	80	2.68	1.08
Self-Regulation 10	1	158	2.35	1.07
	2	80	2.49	0.98
Sum of Scores	1	158	27.52	8.74
	2	80	28.13	8.65

TABLE 3

Descriptive Statistics: Diet and Exercise Questionnaire

	BMI Categories	*N*	*M*	*SD*
DQ: Healthful eating plan	1	159	3.43	2.23
	2	80	3.30	2.17
DQ: Followed eating plan	1	159	3.50	2.18
	2	80	3.39	1.97
DQ: Five or more servings of fruits/vegetables	1	159	2.89	2.19
	2	80	2.76	2.26
Reverse Score for high fat	1	159	3.46	2.03
	2	80	3.48	2.34
DQ: Specific exercise session	1	159	3.11	2.45
	2	80	3.28	2.53
DQ: 30 minutes of physical activity	1	159	4.40	2.21
	2	79	4.29	2.29
General Diet Mean	1	159	3.47	2.12
	2	80	3.34	2.01
Specific Diet Mean	1	159	3.17	1.67
	2	80	3.12	1.78
Exercise Mean	1	159	3.76	2.16
	2	80	3.76	2.22

TABLE 4

Two-tailed Independent- Samples t Test for Self-Regulation

	t	*df*	*p(2-tailed)*
Self-Regulation 1	-1.62**	178.97	0.107
Self-Regulation 2	0.11	236.00	0.915
Self-Regulation 3	0.32	236.00	0.752
Self-Regulation 4	-1.09	236.00	0.278
Self-Regulation 5	1.56	236.00	0.121
Self-Regulation 6	-1.22	236.00	0.224
Self-Regulation 7	-2.04**	133.89	0.043***
Self-Regulation 8	1.46	235.00	0.145
Self-Regulation 9	-0.49	236.00	0.627
Self-Regulation 10	-0.98	236.00	0.33
Sum of Scores	-0.51	236.00	0.613

Note. Levene's *F* was statistically significant (sig., $p < .05$), Equal variances not assumed line for **, significant $p < .05$ is present *** Non-significant $p < .05$ are present.

TABLE 5

Two-tailed Independent- Samples t Test: Diet and Exercise

	t	*df*	*p(2-tailed)*
DQ: Followed eating plan	0.40	237.00	0.69
DQ: Five or more serv of fruits/veg	0.41	237.00	0.683
Reverse Score for high fat	-0.05**	140.14	0.959
DQ: Specific exercise session	-0.50	237.00	0.621
DQ: 30 minutes of physical activity	0.36	236.00	0.718
General Diet Mean	0.43	237.00	0.67
Specific Diet Mean	0.23	237.00	0.818
Exercise Mean	-0.01	237.00	0.996

Note. Levene's F was statistically significant (sig., $p < .05$), Equal variances not assumed line for **. Non-significant $p < .05$ are present.

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