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Leisure Computer Usage and Perceived Body Weight, Diet, and Physical Activity

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2018

Abstract

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by

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MS, University of Connecticut, 2011

BS, University of Connecticut, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Screened media platforms have been blamed for contributing to the childhood obesity epidemic. The purpose of this study was to determine if leisure computer usage, such as engaging in social media, impacted perceived body weight, dietary habits, and physical activity. The social network theory and the social cognitive theory were the theoretical frameworks of this cross-sectional study using secondary data. The data set used was the 2015 Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance Survey including a sample size of 8,241 youths between Grades 9 and 12. Chi-square test and binary logistic regression analysis were performed to determine leisure computer usage and perceived body weight, diet, and physical activity. It was found that 58.72% of youths spend 2 hours or more per day on leisure computer activities. As youths spent more time on the computer for leisure activities, their perception of how slightly/very overweight they were steadily increased by 30.4% and 38.4% for students who spent 2 and 5 hours, respectively, on daily leisure computer activities. Youths who spent 2 hours or more per day on leisure computer activities had a higher percentage of below-average overall scores for both dietary and physical activity habits (52.9% and 50.10% respectively). The results of the study showed that leisure-time computer usage affects perception of weight and dietary and physical activity habits among youth. The findings of this study have implications for social change in support of public health campaigns to help promote positive behaviors in youth, such as proper body image, and dietary and physical activity habits.

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Section 1: Foundation of the Study and Literature Review

Introduction

Today's teens are spending hours a day using media. Whether they are multitasking while completing homework or using screens for leisure, teens spend about 9 hours a day using media (Common Sense Media, 2015). While a teen's media "diet" may consist of multiple components such as gaming, social networking, listening to music, or watching TV, about 45% of teens use social networking sites daily (Common Sense Media, 2015). This shows that the use of social media is constantly increasing, especially among children between the ages of 12 and 17 years old (Li, Barnett, Goodman, Wasserman, & Kemper, 2013).

Youths who engage in too much screen time may be less physically active, see more advertisements for unhealthier food and beverages choices, and may not get enough sleep (American Academy of Pediatrics [AAP], 2011). To help change behaviors among these youths, researchers have found using screens such as social media to promote public health campaigns and programming to be effective (Li et al., 2013). While social media can be used to promote healthy behaviors, there is a gap in the literature in identifying whether children of different ages, genders, ethnicities, and socioeconomic status have the same access to screened media (American Heart Association [AHA], 2012). In this study, I explored screen usage time and the impact on perceived body weight, dietary habits, and physical activity; I also investigated differences based on age, gender, and ethnicity to help the development of potential public health campaigns and at risk populations (see AHA, 2012).

Findings from this research study can contribute to positive social change as it may help public health professionals plan, develop, and implement future behavioral change campaigns. In this study, I explored the relationship between leisure computer usage (screened media) and perceived body weight, dietary habits, and physical activity among youths. Furthermore, differences between age, gender, and ethnicity were analyzed. By better understanding the impact of screened media, specifically social media, these platforms can instead be used as a positive for creating behavior changes rather than contributing to the obesity epidemic. Additionally, investigating the differences between age, gender, and ethnicity can help identify at-risk populations and targets for such campaigns.

In Section 1, I explain the problem statement, purpose of the study, research questions, theoretical framework, and nature of the study. This section also includes a literature review, definitions of key variables, assumptions, scope limitations, and study significance.

Problem Statement

As mentioned above, media usage consumes many hours of a teen's day (Common Sense Media, 2015). While a teens' media "diet" includes various aspects of screening, social networks, in particular, have become increasingly popular, especially among youths (O'Keeffe & Clarke-Pearson, 2011). Not only are about 45% of teens using social media daily, but 22% of teens access their preferred social media site at least 10 times every day (Common Sense Media, 2015; O'Keeffe & Clarke-Pearson, 2011).

Popular social media platforms include Facebook, Twitter, YouTube, gaming sites, blogs, and others (O'Keeffe & Clarke-Pearson, 2011).

Media sources are often to blame as a contributor to the increase in childhood obesity (AAP, 2011). Increased usage of screened medias can increase sedentary behaviors, resulting in less physical activity, unhealthy dietary habits as a result of advertisements, increased snacking while viewing different medias, and interference with sleep habits (AAP, 2011). Since screened media platforms are used as a communication tool, they could be used by public health professionals to promote healthy behaviors (Li et al., 2013). Furthermore, the use of screened media platforms to promote healthy behaviors and change behaviors has been used with positive outcomes among youth (Li et al., 2013). In 2012, a study conducted by the AHA found that social networks may be used to help children change behaviors and overcome obesity (as cited in Li et al., 2013). Although these findings are promising, more research is needed to determine if differences exist in gender, ethnicity, geographic location, socioeconomic status, and the level of engagement with social media and technology-based weight management programs (Li et al., 2013). In this study, I expanded on the gaps experienced in the AHA study and determined how leisure computer usage affects perceived body weight, dietary habits, and physical activity and if differences are seen based on age, gender, and ethnicity.

Purpose of the Study

The purpose of this study was to determine what role leisure time computer usage (social media) plays on youth's (ages 12-17 years) perceived body weight, dietary habits,

and physical activity. Furthermore, I explored differences with age, gender, and ethnicity. By identifying these relationships and differences, public health professionals may be able to use screened media platforms as public health campaigns to change behaviors among youths. This was a quantitative study using secondary data from the 2015 Youth Risk Behavioral Surveillance Survey (YRBSS; CDC, 2017).

Research Questions and Hypotheses

In this research study, I aimed to answer the following research questions:

Research Question 1: Does leisure time computer usage affect perceived body weight among youth?

$H_0$1: Leisure time computer usage does not affect the perceived body weight among youth.

$H_1$1: Leisure time computer usage affects perceived body weight among youth.

- *Independent variable:* Leisure time computer usage is the independent variable.
- *Covariate variables:* Perceived body weight is the covariate variable.
- How variables were measured: Variables were measured through the YRBSS.

Research Question 2: Does leisure time computer usage affect dietary habits and physical activity among youth?

$H_0$2: Leisure time computer usage does not affect the dietary habits and physical activity levels among youth.

$H_1$2: Leisure time computer usage affects dietary habits and physical activity levels among youth.

- *Independent variable:* Leisure time computer usage is the independent variable.
- *Covariate variables:* Dietary habits and physical activity are the covariate variables.
- How variables were measured: Variables are measured through the YRBSS.

Theoretical Foundation for the Study

Two theories were used as frameworks for this study and are highlighted in this section. They are the social network theory (SNT) and the social cognitive theory (SCT).

The SNT views relationships of individuals with their network and how they are connected and interact with each other (Claywell, 2016). The main construct of SNT that I used was examining the relationships youths build within media "diet" and how their connection and usage to these platforms relates to their perceived body weight, physical activity, and dietary behaviors. Using SNT helped me to examine these relationships to determine if a screened media campaign would be successful for different groups.

Screened media platforms, specifically social media sites, have changed how individuals communicate with each other (Chretien & Kind, 2013). Thus, as leisure computer usage increases, it is important to use SNT to understand how individuals interact online and how this interaction relates to public health and public health campaigns (Chretien & Kind, 2013). As technology increases and individuals are increasingly connected to one another, public health professionals must find new ways to communicate with their community. Therefore, it is important to understand their social

networks and relationships (Chretien & Kind, 2013). This is why the foundation of SNT was used in this study. Understanding how groups interact and the usage time on media sites can help determine if behavior change interventions using screened media platforms can be effective (AHA, 2012).

The SCT, first developed by Bandura, suggests that individuals are influenced through their environment, observations, and communications (Bandura, 2001). SCT helped me evaluate how an individual's social environment and social communications influence their health behaviors (see Bandura, 2001). Figure 1 illustrates Bandura's SCT and how the personal factors, environmental factors, and behavior all influence an individual (Bandura, 2001).

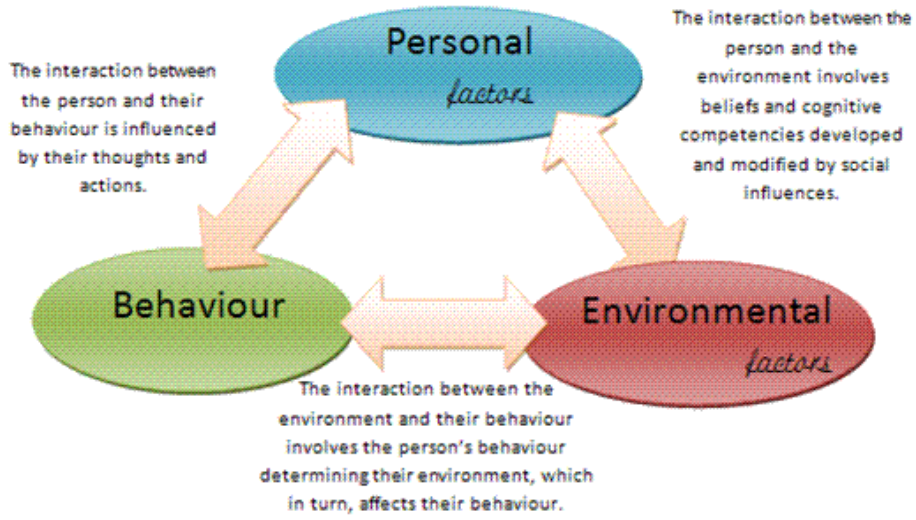

Figure 1. Bandura's social cognitive theory.

According to Bandura (2001), individuals shape themselves based on their relationships, experiences, and their environment. Therefore, for the purposes of this study, using the SCT can help public health professionals understand how the screened media environment (context and length of exposure) influences a youth's perceived body weight, physical activity, and dietary behaviors. Using SCT to understand the social environment and what role it plays by influencing individual's behaviors can then help develop public health interventions targeting youth.

Nature of the Study

As mentioned above, this study was a quantitative study cross sectional design using secondary data. The secondary database used was the YRBSS, a survey administered by the CDC. This database contained the variables needed to answer the

hypotheses. Specifically, the variables in the YRBSS used were age, gender, ethnicity, hours spent on social networks, physical activity, dietary behaviors, and perceived body weight (CDC, 2016b). In addition, this survey monitors body mass index (BMI), which is an indicator for a youth's weight status, and was also used as a variable (see CDC, 2016b). Using these variables helped me determine if social media sites affect perceived body weight, physical activity, and dietary habits and if there are differences between age, gender, and ethnicity.

Literature Search Strategy

For this literature review, I used the Walden University Library as the primary library database to conduct the research. In addition, search engines such as PubMed and Google Scholar were used to input key search words in order to obtain relevant literature. A list of key search terms and combinations of search terms can be found in Appendix A. Throughout the literature review, articles were only reviewed if they were dated within the past 5 years (i.e., since 2011/2012), with the exception of articles that have brought strength and have not been replicated. This literature review is comprised of peer reviewed articles and review articles from reputable journals and statistical reports from dependable research centers.

Literature Review Related to Key Variables and/or Concepts

In the following literature review, I summarize relevant research findings that contribute to the key variables and/or concepts in this doctoral study. The key variables are behavioral change, demographics (age, gender, and ethnicity), perceived body weight

(or image), physical activity, and dietary behaviors and how they relate to social media usage among youth.

Media's Ability to Change/Influence Behavior

Screened media platforms have become popular in recent years, especially among youths (Council, 2013). These media sites require Internet access to be used, and this is no problem for youths as 84% of them have access to high speed internet (Council, 2013). About 75% of youths between the ages of 12 and 17 years old have their own cell phones and primarily access social media sites on their phones (Council, 2013).

Although many of the messages and images on these sites can be harmful to youths, there is the possibility for positive messaging (Council, 2013). Additionally, these outlets may provide the opportunity for users to modify or change their current behaviors (Korda & Itani, 2013). Many social media users have begun to turn to these various platforms for health-related information/issues, making these ideal to promote health education and behavioral change (Korda & Itani, 2013). However, it is important that public health professionals use caution when using social media platforms to encourage the desired behavior outcomes (Korda & Itani, 2013). The key to using social media to change behaviors is understanding the target audience and adapting the message to fit the audience (Korda & Itani, 2013).

Many researchers have found a positive behavior change or increased health education/knowledge when using social media outlets and the Internet in general as a means to target today's youth. Chilvers (2011) examined the pros and cons of school nurses using a Facebook page. Chilvers (2011) found that although privacy and ethical

issues are considerations for when using social media sites such as Facebook, Facebook is a platform that can be used to help engage and provide health services to youths.

In another study conducted by Bull et al. (2012), the authors sought to determine if sexual transmitted infection (STI) information delivered via Facebook was effective at preventing youths from engaging in risky behaviors. Participants were recruited through various means, including from friends, and were targeted in areas of the United States where rates of STI and human immunodeficiency virus (HIV) were higher and were focused on African American and Latino youths (Bull et al., 2012). Participants were eligible to participate if they were between the ages of 16 and 25 years, a U.S. resident, had their own Facebook page, were willing to complete a study behavioral risk assessment, and were able to read and write in English (Bull et al., 2012).

Overall, Bull et al. (2012) recruited 1,578 participants, in which 636 were in the control group and 942 were included in the intervention. The control group "liked" the Facebook page "18-24 News," which shared news happenings that occurred between 6pm and midnight and avoided and sexual health content (Bull et al., 2012). The intervention group, on the other hand, "liked" the Facebook page "Just/Us," which was led by Internet Sexuality Information Services (Bull et al., 2012). Content on this page focused on sexual health and provided a safe place for youth to share among one another and health professionals (Bull et al., 2012). All participants completed the behaviors risk assessment prior to implementation as well as after 8 weeks and again at 6 months (incentives such as $15 gift cards were offered for competition; Bull et al., 2012).

A significant difference among the control and intervention groups was found after the 8-week intervention point for "condom use last sex" (intervention 68% vs. control 56%) and "proportion of protected sex acts" (intervention 63% vs. control 57%; Bull et al., 2012). However, no significant changes were found for "condom self-efficacy," "condom norms," "condom interventions," "≥ 2 sex partners in 2 months," and "drunk or high during sex" (Bull et al., 2012). Additionally, there were no significant changes at the 6-month follow up (Bull et al., 2012). Although not all risky behaviors engaged by youths were significantly decreased by those in the intervention group, the results indicated that a social media site like Facebook can be a venue to help change risky behaviors of youth (Bull et al., 2012).

One of the biggest strengths of this study was the ability to recruit many participants. The big contributing factor to this was the use of incentives by means of gift cards (Bull et al., 2012). Limitations of the study included the fact that all information was self-reported and that there were no changes at the 6-month follow up (Bull et al., 2012). However, this study showed how a Facebook page could potentially change behaviors in youths, and, therefore, if something like the "Just/Us" page was active for more than the 8-week period, behaviors could continue to change and be sustained.

In a systematic review of 11 studies that used social media or text messaging for sexually transmitted disease education, it was found that these media platforms have the ability to educate youths on preventing sexually transmitted diseases s (Jones, Eathington, Baldwin, & Sipsma, 2014). However, it is possible that these social platforms may impact knowledge more than behavior (Jones et al., 2014). A strength of this review

was the ability to compare various studies and identify social media sites and text messaging as venues to educate youth (see Jones et al., 2014). Unfortunately, self-reporting and small sample sizes limited this review (see Jones et al., 2014). The authors concluded that social media and text messaging could be used to educate youth, and the social media sites used for intervention should be ones that are widely used by the target population (Jones et al., 2014). Additionally, more research is needed to determine differences in gender and if behavioral change can occur from these education techniques.

In addition to the studies above that have found social media has helped health behavioral change, recent studies have indicated that social media usage among youths has the ability to further engage youths in politics (Xenos, Vromen, & Loader, 2014). Survey data from 16 to 29-year-olds were analyzed from Australia, the United States, and the United Kingdom to determine their social media usage and political engagement (Xenos et al., 2014). Findings from this study indicated that there is a strong relationship between social media usage among young individuals and political engagement in all three countries (Xenos et al., 2014). These findings show the role in the influence social media plays in helping young individuals become politically engaged.

The above studies all indicated that social media has the ability to educate youth as well as the possibility to change their behaviors and engagement (see Bull et al., 2012; Chilvers, 2011; Jones et al., 2014; Xenos et al., 2014). As times change and social media platforms become more popular and widely used by youth, this provides health professionals an avenue to educate and promote healthy behaviors (Council, 2013).

However, more research is needed to identify differences in social media usage and ethnicity, age, and gender, as well a social media's ability to impact body image, physical activity and dietary behaviors.

Differences in Demographics and Media Usage

As identified above, social media platforms can help educate youth on healthy behaviors. However, ethnicity, age, and gender affect social media usage based on their ability to access such platforms and can, therefore, impact interventions. Understanding these differences is crucial to having the ability to use social media platforms. Some researchers have found that individuals, including youths, are accessing social media sites regardless of their education level and ethnicity (Moorhead et al., 2013). In fact, social media interventions may be able to reach normally difficult groups such as younger individuals, those of different ethnicities, and lower socioeconomic status (Moorhead et al., 2013). Additionally, these social media outlets provide the opportunity to widen health information and access for these groups as compared to regular interventions (Moorhead et al., 2013).

In a 2010 study conducted by Kontos, Emmons, Puleo, and Viswanath, the authors aimed to identify social media usage communication inequalities and psychological well-being in U.S. adults. The National Cancer Institute's 2007 Health Information National Trends Survey was used to help identify cancer communication behaviors and trends in adults (Kontos et al., 2010). The survey was administered by both mail and random digit dial, and both methods were included in study analysis (Kontos et al., 2010). Specifically, questions from the Health Information National Trends Survey

helped to determine Internet access and social networking site usage, psychological distress, and sociodemographic characteristics (Kontos et al., 2010).

Results of this study showed that 70% of respondents reported having Internet access (Kontos et al., 2010). However, there were racial and ethnic disparities. Fifty percent of Hispanics and about 40% of non-Hispanic Blacks reported no Internet access (Kontos et al., 2010). Education and income levels also played a role in access as those without a high school diploma and making less than $20,000 reported having less Internet access as compared to those with a college degree and making more than $75,000 (Kontos et al., 2010). Furthermore, age impacted Internet access as those who were older (over the age of 65 years) reported having less occasional access than those who were younger (18-34 years; Kontos et al., 2010).

Looking at social media usage, 34% of respondents reported visiting one of these platforms within the last 12 months (Kontos et al., 2010). Despite disparities and differences with access to Internet, no significant differences were observed between social media usage and among racial and ethnic groups (Kontos et al., 2010). Additionally, some analyses indicated higher social media usage among racial and ethnic minorities as well as those with lower education levels and incomes (Kontos et al., 2010). When looking at differences between age and social media usage, as age increases, social media usage decreases (Kontos et al., 2010).

Based on the results of Kontos et al.'s (2010) study, Internet access is still an issue, especially among racial and ethnic groups and those with lower education and income. Ultimately, there is more work that needs to be done to help close this gap

(Kontos et al., 2010). Since there were no differences observed between groups and social media usage, there is some support to use social media outlets as a means to communicate health information (Kontos et al., 2010). However, the authors indicated that more research is needed to identify the usage of social media outlets to help promote public health (Kontos et al., 2010).

There are a variety of limitations and strengths to this study. First, the low survey response rate is a limitation as it could have impacted sampling error (Kontos et al., 2010). Another limitation to this study is the fact that information is self-reported. Individuals who self-report may not be as honest and also may not understand the questions being asked which can impact data results (Hoskin, 2012). However, a strength to the study was the author's usage of both survey samples (mail and random digit dial) (Kontos et al., 2010). This allowed oversampling from cell phone only minority population which helped with the low survey response (Kontos et al., 2010). Lastly, this study shed light on differences between internet access and social media usage among groups which is helpful professionals who want to disseminate health education through these venues (Kontos et al., 2010).

In a more recent analysis, Duggan and Brenner (2013), identified the demographics of social media users. Telephone interviews (landline and cell phones) conducted by Princeton Survey Research Associates International, 2,261 adults over the age of 18 were interviewed which were conducted in both English and Spanish (Duggan & Brenner, 2013). Results founds that younger adults (18-29 years) are more likely to use social media sites (83%) than those over the age of 65 years (32%) (Duggan & Brenner,

2013). Women are more likely than men to use social media sites, 71% compared to 62% respectively (Duggan & Brenner, 2013).

Individuals in urban areas (70%) are significantly more likely to use social media sites as compared to those in rural areas (61%) (Duggan & Brenner, 2013). Social media usage was similar among race/ethnicity with white, non-Hispanic at 65%, black, non-Hispanic at 68%, and Hispanic at 72% usage (Duggan & Brenner, 2013). Lastly, there were no significant differences between education and household income and social media usage, indicating that those with lower education and income levels were using as much social media as those with high education and income levels (Duggan & Brenner, 2013).

As mentioned above, minority populations are using social media at the same frequency as the general population (Duggan & Brenner, 2013; Kontos et al., 2010). Studies have shown that minorities historically tend to mistrust health information unless it is provided through the community of individuals with whom they are familiar with (Spence, Lachlan, Westerman, & Spates, 2013). However, there is evidence that these groups are now turning to social media for health information (Spence et al., 2013).

In a study conducted by Spence et al., 2013, individual credibility judgements on health information based on ethnicity were examined. A convenience and snowball sample of 200 undergraduate students (88 Caucasians and 112 African Americans) participated in the experiment (Spence et al., 2013). A Facebook page was created to promote heart disease and participants were randomly assigned to view a Facebook page with either a Caucasian “owner” or an African-American “owner” (Spence et al., 2013).

All information besides profile picture of the "owner" were identical between the two Facebook accounts (Spence et al., 2013). Once participants viewed the Facebook page, they were asked to complete a survey where they were asked about the competence, goodwill/caring, and trustworthiness of the owner of the page (Spence et al., 2013).

While findings from this study show that the African American page owner was credible, the highest level of perceived credibility was seen when African American viewers visited the Caucasian page (Spence et al., 2013). African American participants rated both Facebook pages as trustworthy (Spence et al.,2013). These findings indicate that minority groups tend to be more trusting and use health information they find on social media (Spence et al., 2013). Social media helps individuals build a network which is why it may be a useful tool to help disseminate health information (Spence et al., 2013). In conclusion, all individuals, regardless of race and ethnicity, are using social media as a way to receive and share health information (Spence et al., 2013).

The above studies indicate that while internet access may differ among racial and ethnic groups, social media usage is widely used among all populations regardless of race/ethnicity and income and education level (Duggan & Brenner, 2013; Kontos et al., 2010). Results also indicate that as individuals age social media usage decreases, with 18-29 year olds having the highest percentage of social media usage as well as women using social media more than men (Duggan and Brenner, 2013). Lastly, all racial and ethnic groups are using health information they find on these sites (Spence et al., 2013). Although the above studies refer to demographic differences and social media usage among adults, this information can be used to identify demographic differences and

social media usage among youths. These findings help health professionals use social media platforms to reach all groups, regardless of demographics, to promote healthy behaviors even among youths.

Media Usage and the Impact on Perceived Body Weight

In the above reviews, social media has shown to have the ability to change behaviors as well as has a decent following as there seem to be no differences among groups and their social media usage. However, social media usage may have a negative effective on perceived body image, especially among youths (Perloff, 2014). As youths and young adults, especially women, spend much of their time on social media sites, it is important to understand how social media can influence their perceived body weight and image (Perloff, 2014). These distorted body image thoughts can be attributed to a strong peer presence (network of friends) and visual images of main stream media icons including celebrities on these sites (Perloff, 2014). These factors make social media users vulnerable to feelings of body dissatisfaction and eating disorders (Perloff, 2014).

In a study conducted by Ferguson, Muñoz, Garza, and Galindo (2013), the authors examined the various media influences on body dissatisfaction, eating disorder and life satisfaction among adolescent girls. Participants were pre-adolescent and adolescent girls between 10-17 years old (Ferguson et al., 2013). Overall, 237 participants were recruited, through snowball sampling, of which most of the participants were Hispanic (n = 223) (Ferguson et al., 2013). In addition, participants were asked to partake in a 6-month follow up in which 101 girls did participate (Ferguson et al., 2013).

Program participants were asked basic demographic questions as well as body mass index (BMI), exposure to television, any felt peer competition, and social media usage. These questions help determine body image dissatisfaction, eating disorder symptoms, and life satisfaction (Ferguson et al., 2013). Results of this study found that both television exposure and social media usage did not predict negative outcomes (Ferguson et al., 2013). However, a relationship was found between social media usage and later peer competition, and that peer competition was the only predictor for negative outcomes and not television or social media (Ferguson et al., 2013). This is important to note as peer competition can indirectly affect body related outcomes and social comparison as opposed to television and social media which showed to have no affect (Ferguson et al., 2013).

The above study sheds light on what outside influences may impact a pre-adolescent and adolescents view of themselves and especially their body image (Ferguson et al., 2013). The authors concluded that peer competition may be the reason for body dissatisfaction instead of social media sources (Ferguson et al., 2013). Since the primary component of social media sites is to post pictures and status updates, this, too, may indirectly have a negative influence on body image (Ferguson et al., 2013).

As with any study there are strengths and limitations. A strength to the aforementioned study is the fact that the population comprised of pre-adolescent and adolescent girls who were majority Hispanic. Additionally, having an almost fully Hispanic study helps to shed light on what affects body image within this minority group. On the other hand, limitations of the study include the sample size being too small, and

the results of the study are correlational and thus cannot make causal inferences (Ferguson et al., 2013). This study helped determine that peers impact body image, however social media may be included in this realm as youths build a network of peers on these sites (Ferguson et al., 2013).

To complement the above discussed study, a study conducted by Meier and Gray (2013) sought to determine if Facebook, a popular social media site, photos were associated with body image issues in young girls. The study surveyed 103 middle school and high school girls and asked them about "total Facebook use", "specific features used on Facebook", "weight dissatisfaction", "drive for thinness", "thin ideal internalization", "appearance comparison", and "self-objectification" (Meier & Gray, 2013). From this survey, an appearance exposure score was calculated based on the girls' Facebook photo applications and total Facebook usage (Meier & Gray, 2013).

Results showed Facebook appearance exposure was correlated with weight dissatisfaction, drive for thinness, thin ideal internalization, and self-objectification (Meier & Gray, 2013). No correlations were found between total Facebook use and any body image measures and same was found for Internet use and body image measures (Meier & Gray, 2013). Interestingly, when Facebook users were compared to non-Facebook users, Facebook users scored significantly higher for self-objectification and physical appearance (Meier & Gray, 2013). It was concluded that social media sites like Facebook serve as peer influencers that can negatively affect one's body image (Meier & Gray, 2013).

One of the biggest limitations with the discussed study in the fact that information was self-reported (Meier & Gray, 2013). In addition to problems with self-reported data that were mentioned previously, individuals in this study may have had issues with recalling how often they use Facebook or any of its many features. There may have also been bias from the participants (Meier & Gray, 2013). In contrast, this study was strong in identifying that negative body-image issues may be attributed to social media (Meier & Gray, 2013).

In a more recent study conducted by Fardouly and Vartanian, the authors sought to determine a relationship between the popular social media site Facebook and body image concerns in female university students. A total of 227 females participated in the survey, which included questions about Facebook usage, Facebook appearance comparisons, comparisons to specific target groups on Facebook, and body image concerns (Fardouly & Vartanian, 2015). Results of this survey found that among female university students, Facebook usage did have a positive relationship on their body image concerns (Fardouly & Vartanian, 2015). These results led to the conclusion that more time young women spend on Facebook, the more concerned they are about their body image due to the fact that they compare their appearance to others (Fardouly & Vartanian, 2015).

The above studies indicate that social media can have a negative effect on body image especially among young females (Fardouly & Vartanian, 2015; Ferguson et al., 2013; Meier & Gray, 2013; Perloff, 2014). Additionally, it is important to further evaluate how social media will affect youths perceived body weight compared. More

research is needed in this area to determine how much usage on these social media sites impact perceived body weight and thus body image in both youth girls and boys.

Media Usage and the Impact on Physical Activity and Dietary Behavior

As mentioned previously, social media has become increasingly popular especially among youths (Council, 2013). Additionally, childhood obesity due to the lack of physical activity and dietary behaviors have also increased among youths (CDC, 2015). One culprit for the rise in childhood obesity is increased social media usage, which has been linked to more sedentary behaviors (i.e. physical activity, poor dietary behaviors) among youth. However, some studies suggest that social media can actually help increase/promote healthy behaviors (Li, Barnett, Goodman, Wasserman, & Kemper, 2013). The following review will help establish the impact social media may play in youths' physical activity and dietary behaviors.

Researchers Iannotti and Wang (2013) examined trends in physical activity, sedentary behavior, diet, and BMI in U.S. adolescents from 2001-2009. Students in grades 6-10 were recruited between the years of 2001-2002, 2005-2006, and 2009-2010 to complete the Health Behavior in School-aged Children Survey (Iannotti & Wang, 2013). This survey contained questions pertaining to BMI, physical activity, sedentary behaviors, and dietary behaviors.

Results showed that most adolescents were not meeting the daily recommendations of 60 minutes of physical activity and five servings of fruits and vegetables (Iannotti & Wang, 2013). Interestingly, adolescents did exceed the daily recommendation of screen-time of 2 hours or less a day, showing adolescents

participating in more sedentary behaviors (Iannotti & Wang, 2013). Furthermore, examining computer usage, adolescents did average two or more hours per day which can also contribute to increased sedentary behaviors (Iannotti & Wang, 2013). Over the years however, minutes of physical activity and diet did increase, but not enough to help reverse the childhood obesity crisis and more interventions need to be done (Iannotti & Wang, 2013).

Besides the fact that the information is self-reported, one weakness to this study was its inability to determine exactly what kind of computer usage the students engaging in (i.e. social media, video games, homework, etc.). To have specifics could have made this study stronger and could have helped determine why computer usage was increasing. However, this study brought strength in the fact that the researchers were able to assess the impact of different childhood obesity interventions and still determine behavioral trends that mirror obesity trends (Iannotti & Wang, 2013). This study helps further confirm that physical activity, diet, and sedentary behaviors like computer usage all contribute to childhood obesity rates (Iannotti & Wang, 2013).

A review was conducted by Williams, Hamm, Shulhan, Vandermeer, and Hartling (2014) to determine if social media could be used to help promote physical activity and healthy dietary choices. In total, 22 studies were examined where subjects had to use social media as a way to help increase physical activity and promote a healthy diet (Williams et al., 2014). While results showed there were no changes in physical activity or weight, significant decreases in fat consumption was observed (Williams et al., 2014). Ultimately, the authors concluded from their findings that social media may have a

positive outcome on certain interventions to help promote physical activity and diet. However, there needs to be more interventions with larger participation to fully understand the impact social media may have on increasing physical activity and changing dietary behaviors (Williams et al., 2014).

Rates of childhood obesity continue to remain high as physical activity and poor dietary behaviors continue to be prevalent. Physical activity and poor dietary behaviors are key contributors to the epidemic, and researchers are looking for new ways to implement behavior change interventions (CDC, 2015). According to Li et al., 2013, social media networks may actually be used to help spread awareness of childhood obesity and improve physical activity and dietary choices. Recent studies have been able to show an association between being active on social networks and a change in health behaviors (Li et al., 2013). These social networks could help increase awareness as well as change cultural norms as well as the built environment (Li et al., 2013). It was concluded that the best success for behavior change is a combination of using social media along with parental involvement (Li et al., 2013).

As the childhood obesity epidemic continues, researchers are always looking for interventions that change behaviors and specifically help increase physical activity and dietary choices. The usage of social media may actually be the platform that helps change these behaviors (Li et al., 2013). To help assess this relationship it is important to understand how much time youths are spending on social media and compare that to the time they spend being active or inactive and their current dietary choices. Examining this

relationship may shed light as to the benefit or harm social media may be playing in keeping kids active and making healthy diet choices.

Definitions

Below are definitions of various variables that are included in this research study.

Dietary habits/behaviors : Refers to eating 5 servings of fruits and vegetables and avoiding the consumption of fried foods and sugary beverages (CDC, 2015).

Perceived body weight : Refers to an individual's perception of their weight. Does not always indicate actual weight; this may reflect higher or lower of actual weight (Mikolajczyk et al., 2010).

Physical activity: Refers to being physically active for at least 60 minutes each day (CDC, 2015).

Screened media : Refers to any media that is used on a screen (TV, computer, tablet, gaming device).

Social media : Refers to electronic communications (ie., websites for social networking or blogging) in which "users create online communities to share information, ideas, personal messages, and other content such as videos" (Merriam-Webster, 2017, p. 1).

Youth : Refers to high school students Grades 9 to 12, approximately aged 12 to 17 years (CDC, 2016b).

Assumptions

It is common knowledge that screened media usage is rapidly increasing (O'Keeffe & Clarke-Pearson, 2011). Therefore, it is possible for public health interventions utilizing these outlets help prevent public health problems like childhood

obesity (AHA, 2012; Li et al., 2013). The downfall, however, is that with more screened media usage on sites there is a greater chance of youths not engaging in recommended physical activity and dietary behaviors, as they are spending more time in front of a computer or on a mobile device accessing these sites. With these assumptions, it is crucial that public health interventions targeting youth through means of various media outlets are carefully developed (AHA, 2012). This study will help by understanding how much time youths are spending on such sites and how their current activity and dietary behaviors are affected by that time.

As these media sites allow individuals to quickly and effectively communicate with one another and post pictures, it paves the way for youths to have a distorted picture of their body weight (Perloff, 2014). It is assumed that by constantly being exposed to pictures of others, an individual will have a misleading representation of their body image as well as what is considered to be healthy (Perloff, 2014). Again, understanding how time spent on screened media sites and perceived body weight as compared to actual BMI will help public health professionals develop interventions.

Scope and Delimitations

This study aimed to address how much time youth are spending on screened media sites and time exposed affects their perceived body weight, physical activity, and dietary behaviors. By understanding this, public health professionals can develop and tailor potential public health media campaigns appropriately. To achieve this, a secondary database, YRBSS, was used and thus issues of internal validity are minimized (CDC, 2016b).

The primary target populations addressed in this study were youth and therefore excludes infants, younger children, adults, and older adults. Additionally, since the YRBSS is disseminated nationally, this had the ability to provide information on the average youth in the United States. However, results can only be generalized to the target population and no other groups. Furthermore, it is important to note that this study did not examine socioeconomic status as this is a factor that could impact social media usage, perceived body weight, dietary habits, and physical activity.

Significant, Summary, and Conclusions

The popularity of screened media platforms and social media in particular may provide the opportunity to educate children and adolescents on childhood obesity and healthy behaviors (AHA, 2012). Research has shown that 40% of adults use information they have found on social media posts regarding chronic conditions, diet, and exercise (McNickle, 2012). However not all youths have the same access to screened media networks, so it is important to know the differences in usage and access depending on age, gender, and ethnicity (AHA, 2012). By identifying the difference in screened media usage by age, gender, and ethnicity and how media usage impacts youths perceived body weight, dietary habits, and physical activity, can help guide future social media behavioral change campaigns.

As screened media platforms increase in popularity, and are used for program implementation, it is important to know the groups that would be reached by these campaigns. Findings from this study help determine usage differences by groups, which can then help identify target populations for behavioral change campaigns. Furthermore,

the findings will determine how screened media usage affects these groups perceived body weight, dietary habits, and physical activity. Overall, this study contributed to social change as findings from this study can help plan, develop, and implement future behavioral change screened media campaigns for youths

Section 2: Research Design and Data Collection

Introduction

In Section 1, I explained how screened media, and specifically social media, have changed the ways in which individuals communicate and receive information. I discussed how media platforms can be used by public health professionals to address issues of childhood obesity. However, before this can occur, public health professionals must understand how youths are using screened media and how media usage is affecting youths' perceived body weight, dietary habits, and physical activity. In the following section, the research design, rationale, and methodology are further explored.

Research Design and Rationale

Research Question 1: Does leisure time computer usage affect perceived body weight among youth?

Research Question 2: Does leisure time computer usage affect dietary habits and physical activity among youth?

Based on these research questions, the independent variable was leisure time computer usage, and the dependent variables were perceived body weight, physical activity, and dietary habits.

To answer the above research questions, I conducted a quantitative study with a cross sectional design using secondary data. This type of design was chosen as I examined youths who have different characteristics such as age, gender, and ethnicity, (see Cherry, 2017). This designs also allowed for correlational analysis, meaning this

does not show cause and effect; instead, it can be determined if variables correlate with particular outcomes (Cherry, 2017).

Methodology

Design

This study was a cross sectional design using secondary data. A cross section design was appropriate as this study was descriptive and the purpose was to describe the characteristics of leisure time computer usage of youth and not necessarily cause and effect (see Cherry, 2017). Additionally, using the YRBSS allowed the opportunity to study youths at a given point rather than over a period of time (see Cherry, 2017).

Population

The target population were youths in the United States. *Youths* are defined as children in high school and in Grades 9 through 12. According to ChildStats (2014) there are approximately 25 million youths in the United States. The 2015 YRBSS had a sample size of 15,624 (as cited in Kann et al., 2016). The YRBSS data have already been weighted for those states that did not participate, as well as for oversampling; therefore, it is representative of high school students in the United States (as cited in Kann et al., 2016).

Sampling Procedure

As mentioned previously, I used secondary data from the CDC's 2015 YRBSS. This secondary dataset was chosen because it was specific to the target population and included questions regarding BMI, perceived body weight, physical activity, dietary

habits, and social media usage as well as age, gender, and ethnicity. Additionally, because the YRBSS is conducted by the CDC, it is a reputable data source.

The YRBSS was established in 1991 and has been conducted biennially (Brener et al., 2013). Data for the YRBSS come from a variety of sources, including a CDC-conducted national school-based survey and school-district-based surveys conducted by education and health agencies (Brener et al., 2013). The surveys that are administered and used for the YRBSS reflect the experiences of a representative sample of students in the United States (Brener et al., 2013).

The sample size for the 2015 YRBSS was 15,624 youths (CDC, 2017). For this study, not all 15,624 participants were included; those who did not respond to the questions pertaining to the variables being studied were excluded from the dataset. A sample size of about 385 was necessary for a confidence interval of 95% and a 5% margin of error. This sample size was determined based on a sample size of 25,000,000, a *z*-score of 1.96, a margin of error of 5% (0.05), and a standard deviation of 0.5.

$$\text{Sample Size} =$$

$$= (1.96^2 \times 0.5(1-0.5)/0.5^2) / (1+(1.96^2 \times 0.5(1-0.5) /(0.05^2 \times 25{,}000{,}000))$$

$$= (3.8416 \times 0.5(0.5)/.0025)) / (1+(3.8416 \times 0.5(0.5))/.0025 \times 25{,}000{,}000))$$

$$= 384.16/1.0000153664$$

$$= 384.15$$

Inclusion criteria for the national YRBSS applied to high school students who participated in the national school-based survey and any school district survey. Exclusion criteria applied to students who did not participate in the study or whose state, city/town,

or tribe did not participate. Lastly, since this data set was from the CDC, it was easy to gain access since it was public information and available on the CDC's website. No formal permission was needed to access and use the data.

Instruments

As mentioned above, the only instrument used in this study was the 2015 YRBSS. The survey consisted of 89 questions, administered throughout high schools in the United States. Although the YRBSS consists of 89 questions, for the purposes of this study, only 23 questions were analyzed, and these questions can be found in Appendix B. The YRBSS monitored 118 health behaviors as well as overweight, obesity, and asthma (as cited in Kann et al., 2016). This survey was administered nationally as well as through state surveys and large urban school districts (Kann et al., 2016).

Operationalization

As mentioned above, the 2015 YRBSS survey was used as the secondary database for this research study. The YRBSS consisted of 89 survey questions regarding six types of health risk-behaviors for youth (CDC, 2016b). Of the 89 questions on the survey, I used data for 23 questions to address the research questions. The survey questions that were used identified basic demographics (age, gender, and ethnicity), BMI, perceived body weight, dietary habits, physical activity, and leisure time spent on a computer (CDC, 2016b). The specific questions can be found in Appendix B.

Data Analysis Plan

Data analysis for this study was conducted using SPSS software. Once downloaded into the SPSS software, irrelevant questions were deleted. I only included

the 23 questions mentioned above. Additionally, any respondents who did not answer any of the relevant questions were deleted, as it was important to assess students who answered all questions to determine any relationship among variables. Minor coding was necessary, but as a whole, the data were already coded and the code book was accessible.

As mentioned above, I planned to answer the following research questions:

Research Question 1: Does leisure time computer usage affect perceived body weight among youth?

Research Question 2: Does leisure time computer usage affect dietary habits and physical activity among youth?

In an effort to answer these research questions, a combination of various statistical approaches was used. A descriptive, cross-tabulation chi-square test for association and binary logistic regression was used to determine if there was any relationship between the variables. For all tests, 0.05 was the significance level with a 95% confidence interval.

Threats to Validity

It is important to consider possible threats to validity, both external and internal, as these could affect results and thus falsify conclusions (Cook & Campbell, 1979). Due to the large scale of the YRBSS that was used in this study, possible threats to external validity were a less pronounced concern, in that the results can be generalized to high school students across the United States (see Miller, 2017). However, due to the diverse regions of the country, if a smaller scale sample were obtained within a particular region, results might vary. This would be due in part to external factors that vary from place to

place. As mentioned above, though, these external validity concerns were not applicable due to the large scale of the survey.

Threats to internal validity may not have been of concern but are addressed. Due to the large scale of the survey, issues of bias and mishandling of data warranted consideration. It is my hope that the data collected were not tampered with in any way and that any data that have been tampered with have been eliminated. State, local, and tribal communities voluntarily administer the YRBSS; therefore, any other internal validity factors such as selection were not of concern. Because this was a one-time survey, attrition was also not a concern.

The survey data on a variety of healthy behaviors were self-reported; this brings up issues of validity. In 2013 Brener et al. conducted a study to determine any threats to validity. It was found that although the self-reporting of the various health behaviors can be affected by cognitive and situational factors, no true threats to validity existed (Brener et al., 2013). Lastly, recall bias is also considered a threat to internal validity (Hassan, 2005). Recall bias occurs when individuals either intentionally or unintentionally recall information and thus can skew results (Hassan, 2005). Although recall bias can be a concern, it is a normal occurrence, especially in self-reported data (Hassan, 2005).

Ethical Procedures

When conducting research, it is important to protect human subjects. Although I used quantitative data and a secondary database, it is critical that data are handled properly to protect all subjects. An application was submitted to and approved by the Walden University Institutional Review Board (IRB) prior to the handling of any data.

The Walden University IRB approval number is 04-27-18-0434957, which allows for the use of secondary data materials and data analysis. This approval ensures that data handling and analysis are conducted in a way that protects survey participants.

Because the YRBSS participants included human subjects under the age of 18 years, parental consent was obtained prior to any student participating in the survey (CDC, 2016b). Additionally, the survey was voluntary, and every student had the opportunity to decline participation (CDC, 2016b). Lastly, no identifiable information (e.g., name, address, zip code, or identification number) was collected, which kept responses anonymous and confidential.

Although the data are public information easily accessible on the CDC's website, the data were securely downloaded and kept my password-protected personal computer. Furthermore, I solely have access to the data, which will be erased from the computer once the dissertation study is complete. There were no conflicts of interest within this study.

Summary

In Section 2, I explained the design and data analysis plan for this quantitative research study. I explored the YRBSS in greater detail and examined the specific questions and variables that were used in this study. Additionally, in this section, I have addressed potential threats to validity and ethical concerns and explained how these were addressed. In the following section, I display the results of this study.

Section 3: Presentation of the Results and Findings

Introduction

In Section 1, I explained how screened computer usage has increased among youths and discussed how these media platforms could be used by public health professionals to help combat childhood obesity. Then, in Section 2, I described the research design and methodology for my study, explaining in detail the data analysis plan. In Section 3, I present the results of the secondary data that was introduced and analyzed in previous sections.

Data Collection of Secondary Data

Since secondary data were used, there was no need for formal data collection. The secondary data set used was the 2015 YRBSS from the CDC. These data are public information and available on the CDC's website (https://www.cdc.gov/healthyyouth/data/yrbs/data.htm). Once IRB approval was obtained, the data were downloaded onto my personal computer using SPSS.

The 2015 National High School YRBSS had a sample size of 15,624. The data were then cleaned of any questions that were not pertaining to the study along with any participants who did not answer relevant questions. Once the data were cleaned, there was a remaining sample size of 8,241. In many cases, the data were already coded, and each question had a corresponding dichotomous variable (CDC, 2016a). Furthermore, there were additional dichotomous variables based on the results or more than one question, for example, those questions pertaining to dietary habits and physical activity (CDC, 2016a).

Results

In this section, I present the results of the data analysis. Results include descriptive analysis (frequencies), crosstabulations including chi-square, and binary logistic regression analysis.

Descriptive Analysis

The first analysis that was conducted was descriptive analysis. Table 1 shows the general demographics of the youths in the 2015 YRBSS, including gender, age, grade, and race/ethnicity. As shown, there was about an equal number of males and females. Regarding age, the majority of youths were between the ages of 15 and 17 years old, which accounts for 75.54%. There was roughly an equal representation of all high school grades (9^{th} – 12^{th} grade) within the dataset, with just about 25% (or about 2,000 youths) or so for each grade. Lastly, the majority of youths were White, representing 56.21% of all youths; however all other ethnic groups were represented.

Table 1

Demographics of Youths in the 2015 YRBSS

Gender	Male	49.21%
	Female	50.79%
Age	13 years old or younger	>1%
	14 years old	9.03%
	15 years old	23.90%
	16 years old	25.66%
	17 years old	25.96%
	18 years old or older	15.30%
Grade	9th	24.58%
	10th	24.97%
	11th	25.11%
	12th	25.25%
Race/Ethnicity	White	56.21%
	Hispanic	21.91%
	Black or African American	9.93%
	Multiple Non-Hispanic	5.62%
	Asian	4.36%
	American Indian/Alaska Native	1.37%
	Native Hawaiian/other Pacific Islander	0.61%

Figure 2 depicts the percentage of youths who participate in leisure computer usage (does not include time spent doing school work). As seen, 58.72% of students, participate in leisure computer activities for 2 or more hours per day. The highest reported usage was 5 or more hours of leisure computer usage with 20.5% of students.

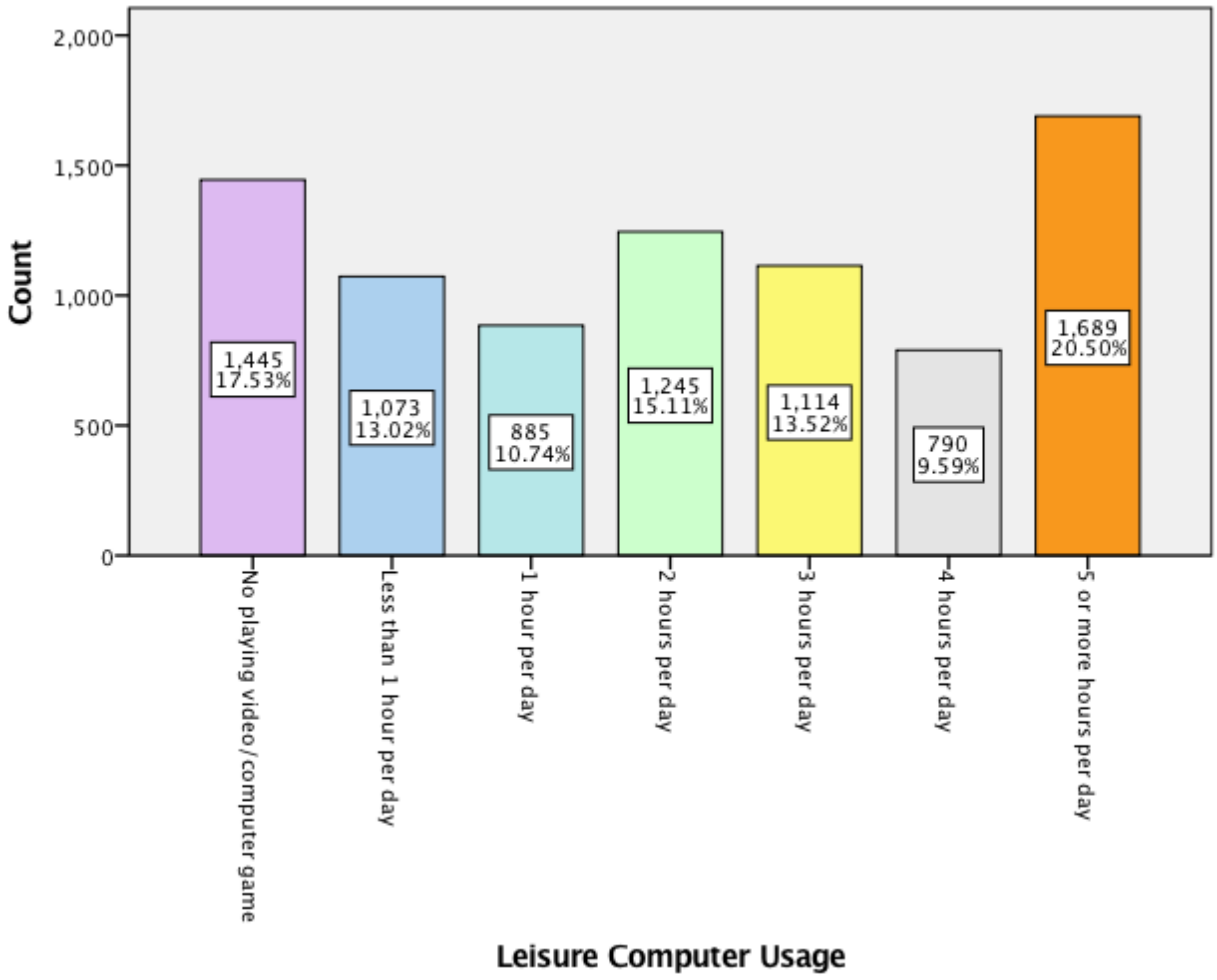

Figure 2. Leisure computer usage (does not include school work) of youths in the 2015 YRBSS.

BMI was calculated based on self-reported height and weight. Students were identified as overweight if their BMI percentile was > 85th percentile but < 95th percentile for BMI, based on sex and age specific reference data from the 2000 CDC growth chart. Sixteen point one percent of students identified as overweight or obese, with 14.5% of those students obese.

Table 3 shows perception of weight. As mentioned above, 30.6% of students were identified as having a BMI as either overweight or obese. Similarly, 32.1% indicated that they were slightly or very overweight.

Table 3

Perception of Weight of Youths in the 2015 YRBS

	Frequency	Percent	Valid percent	Cumulative percent
Very underweight	162	2.0	2.0	2.0
Slightly underweight	995	12.1	12.1	14.0
About the right weight	4439	53.9	53.9	67.9
Slightly overweight	2252	27.3	27.3	95.2
Very overweight	393	4.8	4.8	100.0
Total	8241	100.0	100.0	

Research Question 1

Research Question 1: Does leisure time computer usage affect perceived body weight among youth?

In order to answer this research question, a Crosstab Chi-Square Test for Association was completed. Leisure computer usage was compared at less than 1 hour, 1 2, 3, 4, and 5 hours or more per day and those who did not. This was done at each of these intervals to determine if there were any differences in the amount of leisure computer time usage and perceived body weight. Leisure computer usage and perceived body weight are both categorical variables, which is why this test was appropriate.

Table 3 below shows those who used screen time for leisure activities for less than 1 hour, 1, 2, 3, 4, and 5 hours per day. As the usage of screen time increased, the

percentage of students who viewed themselves as slightly/very overweight increased. Thirty point four percent of students who report leisure computer for two hours or more per day perceived themselves as slightly/very overweight. However, 38.4% of students who engaged in leisure computer usage for five hours or more per day viewed themselves as slightly/very overweight. The Pearson Chi-Square was less than .001, meaning there is a relationship between leisure computer usage and perceived body weight. Additionally, the Phi and Cramer's V's tests was less than .001 indicating there is a strong association between the variables.

Table 3

Relationship Between Leisure Computer Usage Per Day and Perceived Body Weight in the 2015 YRBSS

*Computer use * perception of weight crosstabulation*

			Perception of weight		
			Underweight or right weight	Slightly or very overweight	Total
Computer use	Less than 1 hour per day	Count	787	286	1073
		% within computer use	73.3%	26.7%	100.0%
		% within perception of weight	14.1%	10.8%	13.0%
	1 hour per day	Count	634	251	885
		% within computer use	71.6%	28.4%	100.0%
		% within perception of weight	11.3%	9.5%	10.7%
	2 hours per day	Count	866	379	1245
		% within computer use	69.6%	30.4%	100.0%
		% within perception of weight	15.5%	14.3%	15.1%
	3 hours per day	Count	759	355	1114
		% within computer use	68.1%	31.9%	100.0%
		% within perception of weight	13.6%	13.4%	13.5%
	4 hours per day	Count	507	283	790
		% within computer use	64.2%	35.8%	100.0%
		% within perception of weight	9.1%	10.7%	9.6%
	5 or more hours per day	Count	1041	648	1689
		% within computer use	61.6%	38.4%	100.0%
		% within perception of weight	18.6%	24.5%	20.5%
Total		Count	5596	2645	8241
		% within computer use	67.9%	32.1%	100.0%

% within perception of weight	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	58.704[a]	6	.000
Likelihood Ratio	58.340	6	.000
Linear-by-Linear Association	41.889	1	.000
N of Valid Cases	8241		

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 253.56.

Figure 3, like the table above, shows the hours of leisure computer usage and how they compare on slightly/very overweight perception. As the hours of leisure computer usage increases so does the perception of slightly/very overweight.

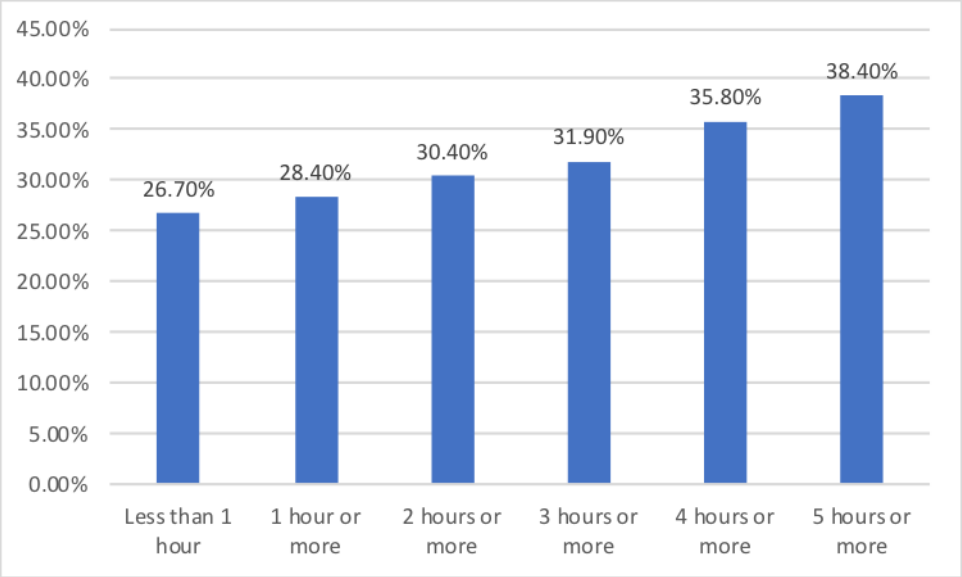

Figure 3. Leisure computer usage and perception of slightly/very overweight of youths in the 2015 YRBSS.

Binary logistic regression analysis was conducted in order to determine the relationship between perception of slight/very overweight and leisure computer usage of 2 hours or more, which are both dichotomous variables. In order to run this test, a dummy variable for perceived weight was computed (0 = Underweight or right weight; 1 = Slightly/Very Overweight). Two hours or more of leisure computer usage per day was the chosen metric because the American Academy of Pediatrics recommends that children and teens should not engage in leisure screen time for more than 2 hours per day (Ghose, 2013). Additionally, based on prior analysis, 58.72% of youths in the sample engage in leisure computer usage for two or more hours per day as shown in Figure 6. This indicates that using two hours or more of physical activity is a well-established variable to use.

Table 8 shows the output of the binary logistic regression model. Looking at the "Omnibus Test of Model Coefficients" table, we see that the Chi Square has a value of 29.106, a degree of freedom of 1, and is significant at a p value of less than .001. Unfortunately, between 0.4% and 0.5% of the variance in the dependent variable (leisure computer usage) is explained by the independent variable (perception of weight).

The percentage of accuracy classification (PAC) for this model is equal to 58.7%. This means that if one's perception of weight is slightly or very overweight, then it can be predicted that they are engaging in leisure computer usage for two or more hours per day and it would be correct 58.7% of the time. Lastly, there seems to be a relationship, or predictability, of one's perception of being slightly or very overweight and engaging in two or more hours of leisure computer usage per day as indicated by the significate value of less than .001 in the "Variables in the Equation" table. Additionally, if one perceives themselves as slightly or very overweight, they are .771 (CI .701, .848) times more likely to engage in leisure computer usage for two or more hours per day. Although this model has some predictability, the values are low.

Table 8

Relationship Between Perceived Body Weight and 2 Hours or More of Leisure Computer Usage Per Day of Youths in the 2015 YRBSS

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	29.106	1	.000
	Block	29.106	1	.000
	Model	29.106	1	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11144.191[a]	.004	.005

Note. a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			Two hours or more		
	Observed		No	Yes	Percentage correct
Step 1	Two hours or more	No	0	3403	.0
		Yes	0	4838	100.0
	Overall percentage				58.7

Note. a. The cut value is .500

Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Perception weight (1)	-.260	.048	28.859	1	.000	.771	.701	.848
	Constant	.530	.040	173.305	1	.000	1.699		

Note. a. Variable(s) entered on step 1: Perception Weight.

Research Question 2

Research Question 2: Does leisure time computer usage affect dietary habits and physical activity among youth?

Within the YRBSS there are multiple questions that pertain to one's dietary and physical activity habits among youth. Questions 71-79 help to answer questions relating to dietary habits, while questions 80, 81, 83, and 84 answer physical activity. In order to answer this research question, which included multiple questions, an overall dietary score was computed as well as an overall physical activity score based on the answers to those questions.

All responses were already coded with specific values. Typically, the higher the value, the better the habit. In two circumstances, questions 77 and 81 had to be recoded, so that the score represented the appropriate response. The higher the score, the better the habit. The highest score of dietary habits is 64 and the lowest 9, and for physical activity, the highest score is 25 and the lowest is 4.

Table 9 and 10 below show the descriptive analysis for overall dietary habits score as well as overall score for physical activity. As seen, the average score for dietary habits was 28.15 and for physical activity, 15.00.

Table 9

Overall Dietary Score of Youths in the 2015 YRBSS

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Dietary score	8241	9	64	28.15	7.530
Valid *N* (listwise)	8241				

Table 10

Overall Physical Activity Score of Youths in the 2015 YRBSS

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PA score	8241	4	25	15.01	4.563
Valid *N* (listwise)	8241				

In order to determine overall score differences, dummy variables of the overall scores were created based on the mean score. For dietary habits the variables were coded from 9-27 (below average) and 28-64 (above average) and for physical activity, 4-14 (below average) and 15-25 (above average). By creating these variables, it was easier to analyze any differences of score (dietary and physical activity habits) and leisure computer usage. For leisure computer usage, the comparison was based on less than two hours or more per day and more than two hours of more per day due to the general recommendations.

Table 11 and Figure 4 below show the relationship between leisure computer usage of two hours or more or less per day and dietary habits overall score. 54.0% of students who engaged in leisure computer usage for two hours or less per day scored

between a 28-64, considered to be higher, for their dietary habits overall score. However, this is compared to only 47.1% of students who participated in leisure computer activities for two hours or more per day. That group saw above average overall dietary habits score. Likewise, only 46.0% of students who had less than two hours of leisure computer usage scored between 9-27, below average, but 52.9% of students who reported two hours or more of leisure computer usage scored between a 9-27. This indicates that students who reported two hours or less of leisure computer usage generally had above average dietary habits overall score than students who reported two hours or more of leisure computer usage. Additionally, the Pearson Chi-Square was less than .001 meaning there is a relationship between leisure computer usage of greater than and less than 2 hours per day and overall dietary habits scores. Furthermore, the Phi and Cramer's V's tests was less than .001 indicating there is a strong association between the variables.

Table 11

Relationship Between Leisure Computer Usage for More or Less Than 2 Hours Per Day and Overall Dietary Habits Score in the 2015 YRBSS

*Leisure time computer usage more or less than two hours * overall dietary score crosstabulation*

			Overall dietary score		
			Score 9-27	Score 28-64	Total
Leisure time computer usage more or less than two hours	No	Count	1567	1836	3403
		% within leisure time computer usage more or less than two hours	46.0%	54.0%	100.0%
	Yes	Count	2558	2280	4838
		% within leisure time computer usage more or less than two hours	52.9%	47.1%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	37.228[a]	1	.000		
Continuity Correction[b]	36.956	1	.000		
Likelihood Ratio	37.259	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	37.224	1	.000		
N of Valid Cases	8241				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1699.64.

Note. b. Computed only for a 2x2 table

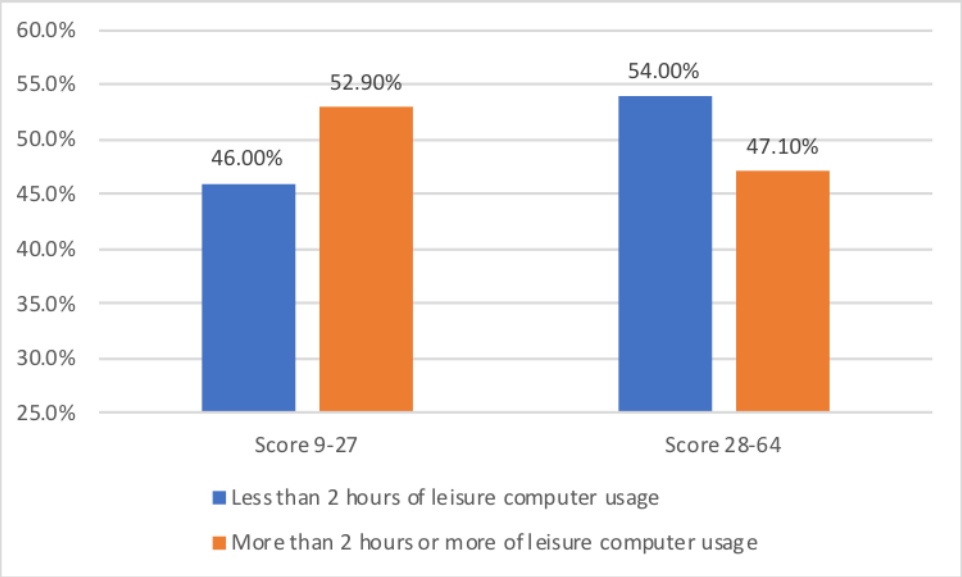

Figure 4. Leisure computer usage for more or less than 2 hours per day and overall dietary habits score in the 2015 YRBSS.

Similar to the tables above, Table 12 and Figure 5 show the relationship between leisure computer usage of two hours or more or less per day and physical activity overall score. 60.7% of students who engaged in leisure computer usage for two hours or less per day scored between a 15-25. This is above average for their physical activity overall score compared to only 49.9% of students who participated in leisure computer activities for two hours or more per day who had above average physical activity overall score. Likewise, only 39.3% of students who had less than two hours of leisure computer usage scored between 4-14. This is below average, but 50.1% of students who reported two hours or more of leisure computer usage scored between a 4-14. This indicates that students who reported two hours or less of leisure computer usage generally had above average physical activity overall score than students who reported two hours or more of leisure computer usage. Additionally, the Pearson Chi-Square was less than .001 meaning

there is a relationship between leisure computer usage more or less than two hours per day and overall physical activity score. Furthermore, the Phi and Cramer's V's tests was less than .001 indicating there is a strong association between the variables.

Table 12

Relationship Between Leisure Computer Usage for More or Less Than 2 Hours Per Day and Overall Physical Activity Score in the 2015 YRBSS

*Leisure time computer usage more or less than two hours * overall physical activity score crosstabulation*

			Overall physical activity score		
			Score 4-14	Score15-25	Total
Leisure time computer usage more or less than two hours	No	Count	1336	2067	3403
		% within leisure time computer usage more or less than two hours	39.3%	60.7%	100.0%
	Yes	Count	2425	2413	4838
		% within leisure time computer usage more or less than two hours	50.1%	49.9%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	95.049[a]	1	.000		
Continuity Correction[b]	94.612	1	.000		
Likelihood Ratio	95.476	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	95.038	1	.000		
N of Valid Cases	8241				

Note. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 1553.05.

Note. b. Computed only for a 2x2 table

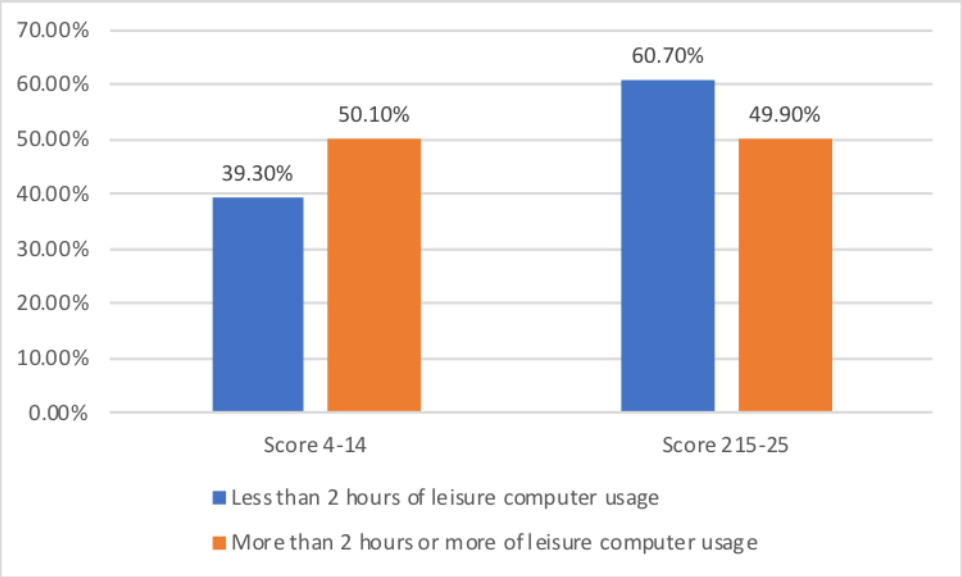

Figure 5. Leisure computer usage for more or less than 2 hours per day and overall physical activity score in the 2015 YRBSS

Like in the previous research question, binary logistic regression analysis was conducted in order to determine the relationship between dietary habits overall score (above and below average) and physical activity overall score (above and below average) and leisure computer usage of two hours or more. All of these variables were dichotomous variables which is why a binary logistic regression analysis was selected.

In order to run this test, dummy variables, which were already created for dietary habits overall score and physical activity overall score, were used. As mentioned above, a dietary habits overall score of 9-27 was considered below average and coded as 0 and a score between 28-64 was considered above average and coded as 1. Likewise, for physical activity overall score, scores between 4-14 or below average scores were coded as 0, and scores between 15-25 were above average scores and coded as 1.

As Tables 13 below show, the output of the binary logistic regression model. Looking at "Omnibus Test of Model Coefficients" table, we see that the Chi Square has a value of 114.311, a degree of freedom of 2, and is significant at a p value of less than .001. Unfortunately, only between 1.4% and 1.9% of the variance in the dependent variable (leisure computer usage) is explained by the independent variables (dietary habits overall score and physical activity overall score).

The PAC for this model is equal to 58.7%, which means if you know an individual's dietary habits and physical activity overall scores, you can be predict that they are engaging in leisure computer usage for two or more hours per day and we would be correct 58.7% of the time. According to this model, there does seem to be a relationship, or predictability. Looking at the "Variables in the Equation" table, dietary habits score (1) and physical activity score (1) are both significate with a p value of less than .001. Unfortunately the interpretation of this model does not support the hypothesis and the previous analysis that were completed. This model suggests that as dietary and physical activity overall scores increase so does the predictability or relationship of engaging in two hours or more of physical activity. This is the opposite of what was found in the previous analyses above. Fortunately, although this model has some predictability, the values are low.

Table 13

Relationship Between Dietary Habits and Physical Activity Overall Scores and 2 Hours or More of Leisure Computer Usage Per Day of Youths in the 2015 YRBSS

Omnibus Tests of Model Coefficients

		Chi-square	*df*	Sig.
Step 1	Step	114.311	2	.000
	Block	114.311	2	.000
	Model	114.311	2	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11058.987[a]	.014	.019

Note. a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			Two hours or more		
	Observed		No	Yes	Percentage correct
Step 1	Two hours or more	No	0	3403	.0
		Yes	0	4838	100.0
	Overall Percentage				58.7

Note. a. The cut value is .500

Variables in the Equation

							95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Dietary score (1)	.199	.046	18.830	1	.000	1.220	1.115	1.335
	PA score (1)	.404	.046	76.547	1	.000	1.498	1.368	1.640
	Constant	.073	.035	4.264	1	.039	1.076		

Note. a. Variable(s) entered on step 1: Dietary Score, PA Score.

Leisure Computer Usage Compared to Age, Gender, and Ethnicity

The following analysis was computed to determine difference of leisure computer usage and age, gender, and race/ethnicity. For leisure computer usage, two hours or more of leisure computer usage per day will be used. Again, this specific variable is used as it is recommended that youths not engage in leisure computer usage (screen time) for more than two hours or more per day (Ghose, 2013).

Figure 6 depicts the ages of the youths and whether or not they engage in leisure computer usage (screen time) for two or more hours per day. Among all groups ages 13 years old or older, there are more youths that participate in leisure computer usage for two hours or more per day than those who do not.

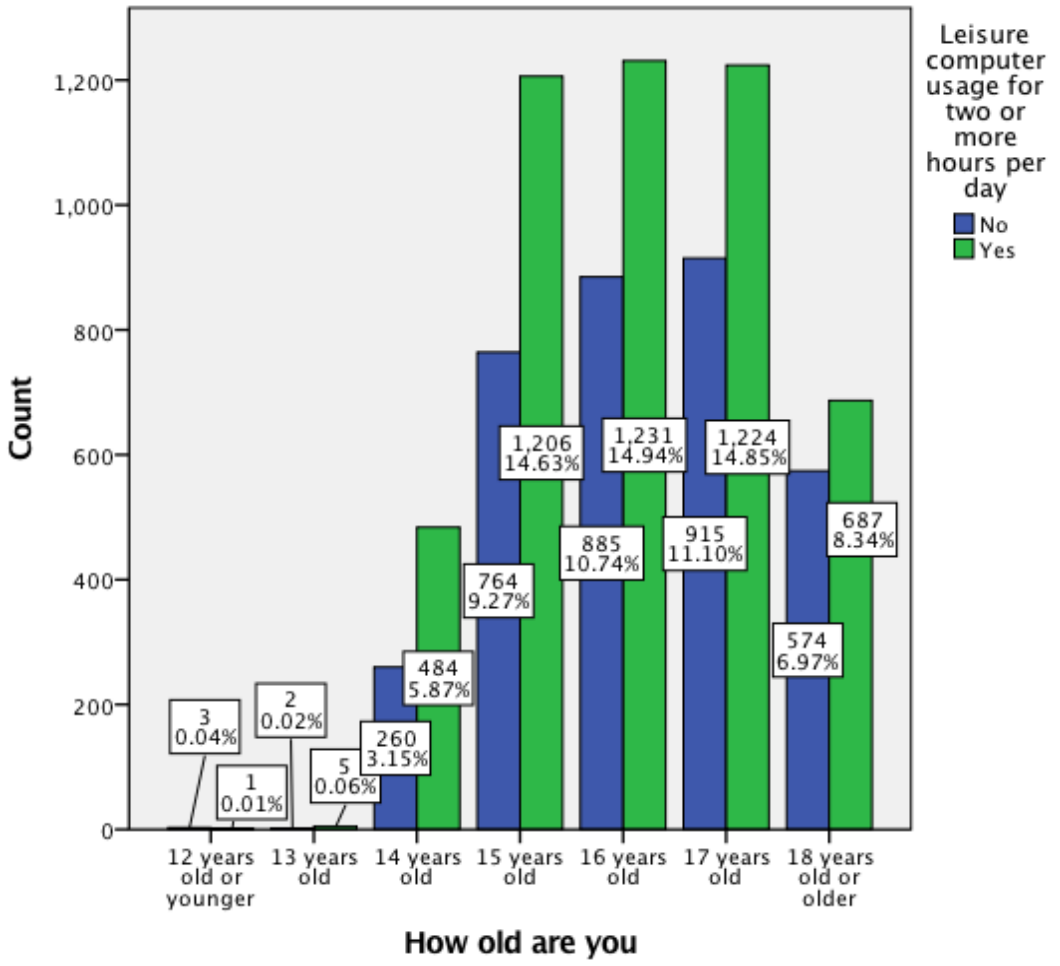

Figure 6. Age of youths who reported leisure computer usage for 2 hours or more per day in the 2015 YRBSS

Figure 7 below shows the gender differences between those who participate in leisure computer usage for two hours or more per day. Between both genders, more youths partake in leisure computer usage for two hours or more per day and this is about the same between genders.

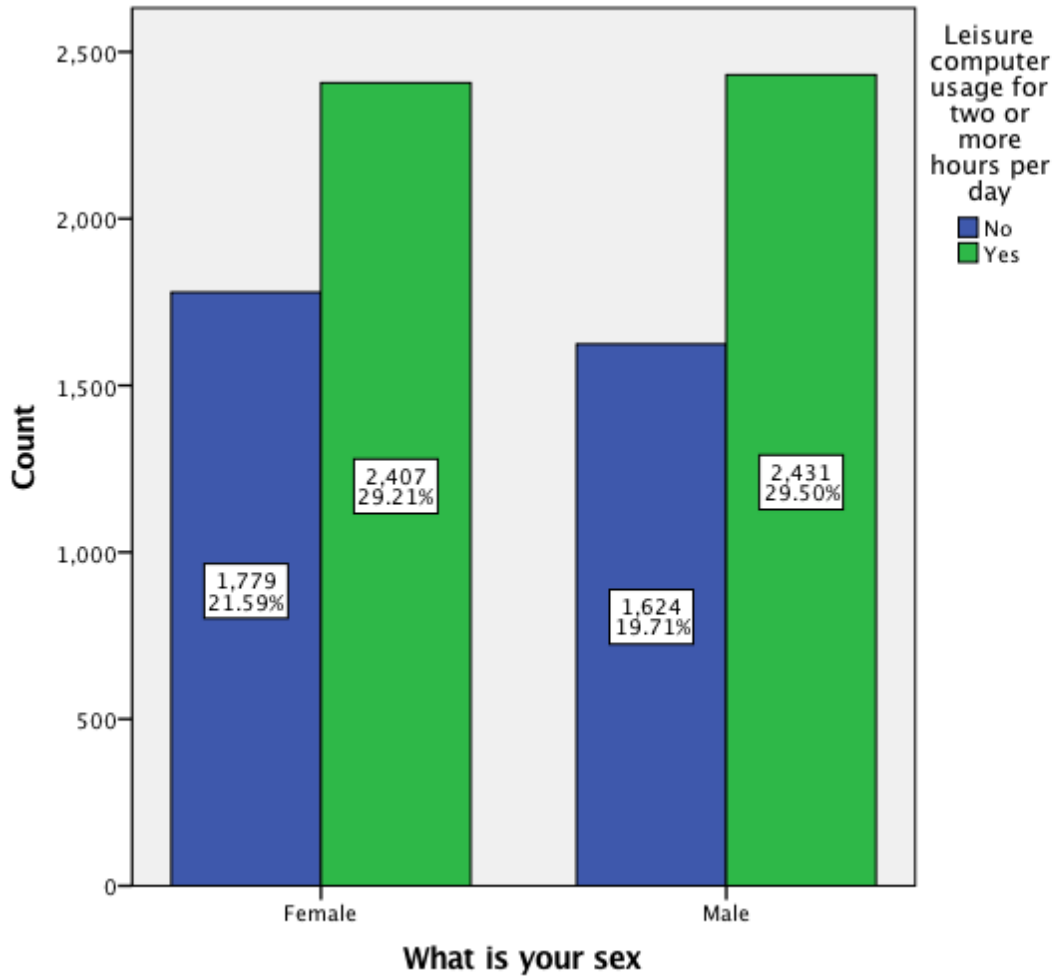

Figure 7. Gender of youths who reported leisure computer usage for 2 hours or more per day in the 2015 YRBSS

Lastly, Table 14 below depicts the race and ethnicity differences between those who used the computer for leisure activities for two or more hours per day and those who did not. Across all races and ethnicities, there are more youths who participate in leisure computer usage for two or more hours per day than there are those who do not.

Table 14

Race/Ethnicity of Youths Who Reported Leisure Computer Usage for 2 Hours or More per Day in the 2015 YRBSS

*Race * two hours or more crosstabulation*

			Two hours or more		
			No	Yes	Total
Race	Am Indian/Alaska Native	Count	54	59	113
		% within race	47.8%	52.2%	100.0%
	Asian	Count	126	233	359
		% within race	35.1%	64.9%	100.0%
	Black or African American	Count	326	492	818
		% within race	39.9%	60.1%	100.0%
	Native Hawaiian/Other PI	Count	18	32	50
		% within race	36.0%	64.0%	100.0%
	White	Count	1986	2646	4632
		% within race	42.9%	57.1%	100.0%
	Multiple - Hispanic	Count	709	1097	1806
		% within race	39.3%	60.7%	100.0%
	Multiple - Non Hispanic	Count	184	279	463
		% within race	39.7%	60.3%	100.0%

Based on the information above, a binary logistic regression analysis was conducted to better understand the relationship between two hours or more of leisure computer usage and age, gender, and race/ethnicity, as shown in Table 15 below.

Looking at Block 1, in the "Omnibus Test of Model Coefficients", we see that the Chi Square has a value of 54.511, a degree of freedom of 8, and is significant at a p value of less than .001. Unfortunately, only between 0.7% and 0.9% of the variance in the dependent variable (leisure computer usage) is explained by the independent variables (age, gender, and race/ethnicity).

The percentage of accuracy classification (PAC) for this model is equal to 58.8%. This means that if it is known, one's age, gender, and/or race/ethnicity can be used to predict that they are engaging in leisure computer usage for two or more hours per day and it would be correct 58.8% of the time. Lastly, there seems to be a relationship, or predictability, of 12 years or younger (age), 15 (age 3), 16 (age 4), and 17 year old's (age 5), males (gender 1), and American Indian/Alaska Native (race) and engaging in two or more hours of leisure computer usage per day as indicated by the significate values in the "Variables in the Equation" table. Youths who are 15, 16, or 17 years old are a little more than one time more likely to engage in leisure computer usage for two or more hours per day. Additionally, males are .892 (CI .816, .974) times more likely to engage in leisure computer usage for two or more hours per day. Although this model has some predictability, the values are low.

Table 15

Relationship Between Age, Gender, and Race/Ethnicity and 2 Hours or More of Leisure Computer Usage Per Day of Youths in the 2015 YRBSS

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	54.511	13	.000
	Block	54.511	13	.000
	Model	54.511	13	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	11118.786[a]	.007	.009

Note. a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			Two hours or more		
	Observed		No	Yes	Percentage correct
Step 1	Two hours or more	No	18	3385	.5
		Yes	14	4824	99.7
	Overall percentage				58.8

Note. a. The cut value is .500

Variables in the Equation

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	Age			31.555	6	.000			
	Age(1)	-1.318	1.161	1.289	1	.256	.268	.027	2.606
	Age(2)	.701	.839	.698	1	.403	2.016	.389	10.449
	Age(3)	.443	.096	21.317	1	.000	1.557	1.290	1.879
	Age(4)	.286	.073	15.252	1	.000	1.331	1.153	1.537
	Age(5)	.155	.072	4.656	1	.031	1.168	1.014	1.345

Age(6)	.113	.072	2.479	1	.115	1.119	.973	1.288
Gender(1)	-.114	.045	6.432	1	.011	.892	.816	.974
Race			16.349	6	.012			
Race(1)	-.329	.212	2.418	1	.120	.719	.475	1.090
Race(2)	.181	.146	1.530	1	.216	1.199	.900	1.597
Race(3)	.001	.119	.000	1	.991	1.001	.793	1.265
Race(4)	.116	.311	.140	1	.708	1.123	.611	2.064
Race(5)	-.128	.100	1.643	1	.200	.880	.724	1.070
Race(6)	.023	.107	.047	1	.829	1.023	.830	1.262
Constant	.298	.111	7.169	1	.007	1.347		

Note. a. Variable(s) entered on step 1: Age, Gender, Race.

Summary

In Section 3, I presented the results of this quantitative research study. This section provided great detail of the data analysis that were conducted to help answer the research questions. The following section will further explain the findings as well as how this can be applied to professional practice and implications for social change.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this study was to determine what role leisure time computer usage (social media) plays on youth's (ages 12-17 years) perceived body weight, dietary habits, and physical activity. By identifying these relationships, public health professionals may be able to use screened media platforms as public health campaigns to change behaviors among youths. In the previous section, Section 3, I presented the results of the analyses that were conducted. In this section, I interpret the findings, explain the limitations of this study, provide recommendations, and explain implications for professional practice and social change.

Interpretation of the Findings

As explained above, this study included a sample of 8,241 youths who completed the 2015 YRBSS. The sample was almost 50/50 male and female (slightly more female) and about equal representation (about 25%) from all high schools Grades 9, 10, 11, and 12. Additionally, the sample mainly included students between the ages of 14 years and 18+ years old and from diverse race and ethnic backgrounds. Overall, the sample was a satisfactory representation of youths in the United States.

Although it is recommended that youths do not engage in any extra screen time or leisure computer usage and limit it to less than 2 hours per day, Ghose (2013) found that 58.72% of youths in the sample do partake in 2 hours or more of leisure computer usage every day. Over 20% of youths reported leisure time computer usage for 5 hours or more

per day, more than double the recommended daily time for leisure computer usage (Ghose, 2013).

Based on reported height and weight, BMI was calculated to determine who was overweight and obese. Sixteen point one percent of youths were considered to be overweight or obese. Although 16.1% were considered to be overweight or obese, 32.1% considered themselves slightly or very overweight. This indicates that some youths who do not have a BMI categorized as overweight or obese still view themselves as slightly or very overweight.

In order to determine if leisure computer usage affected perceived body weight, an analysis was conducted and compared at less than 1 hour, 1 hour or more, 2 hours or more, 3 hours or more, 4 hours or more, and 5 hours or more to the perception of slightly/very overweight. As more time was spent on the computer leisurely, the percentage of youths who perceived themselves as slight/very overweight steadily increased. Thirty point four percent of youths who reported spending 2 or more hours per day for leisure screen time described themselves as slight/very overweight, but 38.4% of youths who reported spending 5 or more hours perceived themselves as slight/very overweight. It is important to note here that as mentioned above, only 16.1% of students were actually overweight or obese. This indicates that many more students who are not overweight or obese perceive themselves as slightly or very overweight.

Through binary logistic regression analysis, there seems to be some relationship between perception of weight status and leisure computer usage. Overall, although the numbers are values are small, there does seem to be an effect of hours spent on leisure

screen time and a youth's perception of their weight status. This indicates that the more time youths spend in front of screens for leisure activities, the more distorted their perception is of their weight status. This supports the hypothesis that leisure computer usage can affect one's perception of weight.

These results are similar to those found in literature pertaining to the effect screened media has on perceived bodyweight. Previous researchers have found that media platforms, especially social media, can have an ill effect on a youth's perception of weight (Perloff, 2014). Additionally, the more time that is spent on media sites, the more distorted their perception of weight actually is (Fardouly & Vartanian, 2015). Based on these previous findings, it is no surprise to find that the more time spent on screened media, the higher the percentage of youths who viewed themselves as slightly or very overweight. The length and the quality of information youths are exposed to while using screened media can be the driving force behind the negative perception of body weight (Meier & Gray, 2013). This is why it is important to promote limited screen time by recommending the 2 hours or less a day as well as ensuring that youths are exposed to more positive messages while on these platforms.

When comparing leisure time computer usage to dietary habits and physical activity, overall scores were given for the dietary habits and physical activity questions asked. Based on the average score, they were then grouped and either considered above or below average. The dietary habits overall score range was 9 to 64, with an average score of 28, so 9 to 27 was considered below average and 28 to 64 was considered above

average. Likewise, the physical activity overall score range was 4 to 25 with an average of 15, so 4 to 14 was below average and 15 to 25 was above average.

Youths who spent 2 hours or more per day had a higher percentage of overall below average scores for both dietary and physical activity when compared to students who engaged in leisure computer usage for less than 2 hours per day. Fifty-two point nine percent and 50.10% of youths who reported 2 hours or more per day of leisure computer usage scored below average for the dietary habits and physical activity overall score respectfully. This is compared to 46% and 39.3% of youths who reported less than 2 hours per day of leisure computer usage and scored below average for dietary habits and physical activity overall scores respectfully. These results show that youths who are engaging in 2 hours or more of leisure computer usage practice poor dietary and physical activity habits compared to youths who follow the recommendation of less than 2 hours of leisure computer usage (see Ghose, 2013).

Binary logistic regression analysis showed some relationship between dietary and physical activity overall scores and leisure computer usage. Overall, although the numbers are values are small, there does seem to be an effect of hours spent on leisure screen time and a youth's overall score for dietary and physical activity habits. These analyses support the hypothesis that leisure computer usage can affect dietary and physical activity habits.

These findings are consistent with previous researchers who found that youths were spending more than the recommended hours on media sites and thus were engaging in unhealthy dietary and physical activity habits (Iannotti & Wang, 2013). Because youth

are spending more time on screens, they are becoming more sedentary, which is a contributing factor for the rise in childhood obesity (Iannotti & Wang, 2013). As found in this study, youth who engaged in the recommended amount of screen time had better dietary and physical activity scores than those who engaged in more than the recommended amount of screen time. Although it is clear that more screen time can lead to unhealthy behaviors, many studies have promoted the usage of screened medias to promote healthy behaviors and have positive outcomes (Li et al., 2013; Williams et al., 2014).

Lastly, I found that regardless of age, gender, and race/ethnicity, among all groups, there were more youths who engaged in 2 hours or more of leisure computer usage per day than those who did not. Through binary logistic regression analysis, it was shown that there was a significant relationship between 2 hours or more per day of leisure computer usage and those 12 years and younger, those 15, 16, and 17 years, males, and American Indian/Alaska Natives. It is important to note that sample sizes were extremely low for those 12 years and younger and American Indian/Alaska Natives, so this may not represent an accurate significance for these groups. Through these analyses, I can conclude that regardless of age, gender, and race/ethnicity, most youths are spending 2 hours or more per day on the computer for leisure activities and especially those aged 15 to 17 years and males.

Overall, the analyses conducted provided a lot of information regarding leisure time computer usage among youths in the United States. Although overall the relationships and differences among groups were small, there seems to be an effect of

leisure computer usage, specifically 2 hours or more per day, and perceived body weight, dietary, and physical activity habits.

Limitations of the Study

As with any research study, there are limitations. The first limitation of this study is that secondary data was used. Using secondary data can be difficult as the data originally collected was not collected to address my particular research question (Cheng & Phillips, 2014). Therefore, any follow-up questions, or other potential variables, were not available for my analysis (Cheng & Phillips, 2014). Another limitation to using secondary data is lack of involvement in the original data collection process (Cheng & Phillips, 2014). Therefore, I am unaware of any potential problems or errors that occurred during the original data collection (Cheng & Phillips, 2014).

The inability to control for confounding variables is another limitation to this study. Confounding variables influence other variables and can result in the misinterpretation of results (Shuttleworth & Wilson, 2008). Confounding variables could have been controlled during the design of the study and data collection, however since secondary data was used this was not possible and thus a limitation of the study (Shuttleworth & Wilson, 2008). The design of this study was cross sectional, which is also another limitation as it cannot determine cause and effect (see Cherry, 2017). Only an estimation of behavior prevalence can be made (Sedgwick, 2014).

The YRBSS relies on students self-reporting which is another limitation to the study. Self-reported data rely on participants answering questions honestly; however that may not always be the case (Hoskin, 2012). Additionally, there is the possibility that

participants answer questions they did not fully understand or answer based on response bias (Hoskin, 2012). Recall bias, when participants intentionally or unintentionally remember information, is another common limitation of self-reported data (Hassan, 2005).

Since the YRBSS is voluntary and both parents and students can decide if they want to participant, self-selection bias can occur, which is a limitation to this study (see Lavrakas, 2008). This bias can then impact the sample and not fully represent the target population, resulting in bias results (Lavrakas, 2008). Lastly, another limitation to the study is the fact that screened media can be used for educational purposes (Ferriman, 2013). Many educators are using screened media platforms in the classroom (Ferriman, 2013). Although educational added screen time can be a limitation, the YRBSS does ask to estimate hours spent on medias "outside of school work;" this wording may help better evaluate leisure time usage.

Recommendations

Youths are spending much of their free time for leisure computer usage, including social media, as 58.72% spend at least 2 hours or more per day. While screens and screen time increases, the rates of childhood obesity are holding steady (CDC, 2015). Therefore, public health professionals need to use platforms that youths are already on and engaged in. Screened media, especially social media, is a great example of that. Screened media has the potential to engage youths and promote healthy behaviors and interventions (Li et al., 2013; Williams et al., 2014). Public health professionals could take advantage of these platforms and promote positive messages. This type of presence and messaging

could help change youths' perceptions of weight as well as their dietary and physical activity habits. This is just one strategy that can be used to help combat childhood obesity.

More research is needed to determine specific activities and platforms visited by youths to help public health professionals determine where and how messages can be received. Identifying specific usage and activity patterns can better ensure that positive messages are being communicated. However, it is important that any messages are generic and relatable to youths of all ages, genders, and race/ethnicities since all groups are using screened media during leisure time.

Implications for Professional Practice and Social Change

Almost all youths of all ages, gender, and race/ethnicity are spending many hours per day in front of screens for leisure activities. This provides public health professionals a great opportunity to take advantage of these platforms to change messages that youths may be receiving. These media sites can be used to promote public health campaigns that encourage positive behaviors like proper body image and dietary/physical activity habits.

Previous research has shown that there may be success in media public health campaigns (Li et al., 2013). The study concluded that almost 60% of youths are spending at least two hours or more per day in front of screen during their leisure time, indicating that the audience is there. It is now the responsibility of public health professionals to build those relationships with youths on these sites. As media sites and usage continues to grow, it is important for public health professionals to have a presence. Screened media

has an impact on the health of youths and it is important for public health professionals to be involved.

Conclusion

Screened media for leisure computer time activities has become increasingly popular (O'Keeffe & Clarke-Pearson, 2011). This study has found that leisure computer usage affects perception of weight as well as dietary and physical activity habits. Public health professional should build relationships on a variety of different media platforms to help promote positive messages and educate youths.

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Appendix A: Key Words and Combinations for Literature Review

This appendix includes a list all key words and combinations used in the literature review of this study.

Social media (usage), childhood obesity

Social media (usage), behavior change, youth

Difference, social media usage, demographics, youth

Difference, social media usage, age, youth

Difference, social media usage, gender, youth

Difference, social media usage, ethnicity, youth

Social media (usage), perceived body weight, youth

Social media (usage), body image, youth

Social media (usage), physical activity, youth

Social media (usage), dietary habits, youth

Social media, childhood obesity campaigns

Social media, obesity campaigns, youth

Appendix B: Questions From 2015 YRBSS Used

This appendix identifies the questions from the YRBSS that have been used in this research study.

The following questions are the variables that will be included for analysis in this study.

Questions 1-5 include will provide information for the variables: “age”, “gender”, and “ethnicity”.

Q1. How old are you?

A. 12 years old or younger

B. 13 years old

C. 14 years old

D. 15 years old

E. 16 years old

F. 17 years old

G. 18 years old or older

Q2. What is your sex?

A. Female

B. Male

Q3. In what grade are you?

A. 9th grade

B. 10th grade

C. 11th grade

D. 12th grade

E. Ungraded or other grade

Q5. What is your race?

A. American Indian or Alaska Native

B. Asian

C. Black or African American

D. Native Hawaiian or Other Pacific Islander

E. White

Questions 6-7 will provide information about a youths actual BMI. This information will aid in understanding their perceived body weight as compared to their actual weight.

Q6. How tall are you without your shoes on?

Q7. How much do you weigh without your shoes on?

Questions 69-70 will provide information on the variable “perceived body weight”.

Q69. How do you describe your weight?

A. Very underweight

B. Slightly underweight

C. About the right weight

D. Slightly overweight

E. Very overweight

Q70. Which of the following are you trying to do about your weight?

A. Lose weight

B. Gain weight

C. Stay the same weight

D. I am not trying to do anything about my weight

Questions 71 - 79 will provide information for the variable “dietary habits/behaviors”. These questions can aid in understanding sugar intake and consumption of fruits and vegetables, all of which are important factors for proper dietary habits.

Q71. During the past 7 days, how many times did you drink 100% fruit juices such as orange juice, apple juice, or grape juice? (Do not count punch, Kool-Aid, sports drinks, or other fruit-flavored drinks.)

A. I did not drink 100% fruit juice during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q72. During the past 7 days, how many times did you eat fruit? (Do not count fruit juice.)

A. I did not eat fruit during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q73. During the past 7 days, how many times did you eat green salad?

A. I did not eat green salad during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q74. During the past 7 days, how many times did you eat potatoes? (Do not count French fries, fried potatoes, or potato chips.)

A. I did not eat potatoes during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q75. During the past 7 days, how many times did you eat carrots?

A. I did not eat carrots during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q76. During the past 7 days, how many times did you eat other vegetables? (Do not count green salad, potatoes, or carrots.)

A. I did not eat other vegetables during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q77. During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not count diet soda or pop).

A. I did not drink soda or pop during the past 7 days

B. 1 to 3 times during the past 7 days

C. 4 to 6 times during the past 7 days

D. 1 time per day

E. 2 times per day

F. 3 times per day

G. 4 or more times per day

Q78. During the past 7 days, how many glasses of milk did you drink? (Count the milk you drank in a glass or cup, from a carton, or with cereal. Count the half pint of milk served at school as equal to one glass.)

A. I did not drink milk during the past 7 days

B. 1 to 3 glasses during the past 7 days

C. 4 to 6 glasses during the past 7 days

D. 1 glass per day

E. 2 glasses per day

F. 3 glasses per day

G. 4 or more glasses per day

Q79. During the past 7 days, on how many days did you eat breakfast?

A. 0 days

B. 1 day

C. 2 days

D. 3 days

E. 4 days

F. 5 days

G. 6 days

H. 7 days

Questions 80-84 will provide information regarding the variable “physical activity”. By understanding how active a youth was, it can be determined how active they actually were.

Q80. During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increased your heart rate and made you breathe hard some of the time.)

A. 0 days

B. 1 day

C. 2 days

D. 3 days

E. 4 days

F. 5 days

G. 6 days

H. 7 days

Q81. On an average school day, how many hours do you watch TV?

A. I do not watch TV on an average school day

B. Less than 1 hour per day

C. 1 hour per day

D. 2 hours per day

E. 3 hours per day

F. 4 hours per day

G. 5 or more hours per day

Q83. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

A. 0 days

B. 1 day

C. 2 days

D. 3 days

E. 4 days

F. 5 days

Q84. During the past 12 months, on how many sports teams did you play? (Count any teams run by your school or community groups.)

A. 0 teams

B. 1 team

C. 2 teams

D. 3 or more teams

Question 82 will provide information for the variable “social media” by understanding how much time spent on social networks a youth spends per day.

Q82. On an average school day, how many hours do you play video or computer games or use a computer for something that is not school work? (Count time spent on things such as Xbox, PlayStation, and iPod, and iPad or other tablet, a smartphone, YouTube, Facebook or other social networking tools, and the Internet.)

A. I do not play video or computer games or use a computer for something that is not school work

B. Less than 1 hour per day

C. 1 hour per day

D. 2 hours per day

E. 3 hours per day

F. 4 hours per day

G. 5 or more hours per day