EFFECT OF FAMILY MEALTIME PARTICIPATION ON SOCIAL WELL-BEING AND ACADEMIC PERFORMANCE IN NORTHEAST OHIO HIGH SCHOOL SOPHOMOR ES

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EFFECT OF FAMILY MEALTIME PARTICIPATION ON SOCIAL WELL-BEING AND ACADEMIC PERFORMANCE IN NORTHEAST OHIO HIGH SCHOOL STUDENTS (131 pp)

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The purpose of this study was to investigate the difference in social well-being and academic performance between those high school sophomores (n=105) who (1) frequently and (2) infrequently participated in family mealtimes. Another purpose of this study was to investigate the difference in academic performance and social well-being between those high school sophomores who (3) frequently, (4) neutral, and (5) infrequently engaged in television use, as well as those who were (6) frequently, (7) neutral, and (8) infrequently granted permission to engage in cell phone or computer use during family mealtimes. A quantitative, post-test only paper survey was administered to high school sophomores, between the ages of 15- and 17-years-old, enrolled in the 2017 health class, at Aurora High School in Aurora, Ohio. The survey contained nine sections with questions regarding family mealtime participation, family mealtime barriers, friends, parents, school environment, extracurricular activities, academic performance, and demographics.

There were significant differences in social well-being between frequent and infrequent family mealtime participants, but no significant differences were found for academic performance. Results also indicated significant barriers—conflicting
schedules, differing meal location preference, and permission to use cell phones and/or computers at the table—between frequent and infrequent family mealtime participants. No significant differences were found in social well-being or academic performance for frequent and infrequent television, cell phone, or computer users.
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CHAPTER I

INTRODUCTION

The social, emotional, mental, and physical health challenges facing today’s adolescents are varied and extensive. Waning healthful eating habits, physical inactivity, unfocused academic performance, and under-practiced verbal communication skills are the result of adolescents’ drive for autonomy paired with the ubiquitous presence of technological distractions. The desire to bolster peer relationships leads to lessened time spent fostering parental and familial relationships, as well as decreased exposure to adult relationships and interactions (Fulkerson, Kubik, Story, Lytly, & Arcan, 2009). As a result, during this tumultuous period of growth, adolescents are at an increased risk for a decline in overall health. With over one-third of the adolescent population overweight or obese, adolescents are at increased risk for participating in compensatory actions, such as risky weight loss behaviors, social withdrawal, and depression, leading to anti-social tendencies and impaired overall health (Fulkerson et al., 2009). These various anti-social behaviors can, in turn, instigate a drop in academic performance and social well-being.

Research indicates that continued participation in parental and familial relationships throughout adolescence can provide a protective effect against adolescent unhealthful behaviors (Ruhl, Dolan, & Buhrmester, 2015). However, the incidence of family time has decreased by an average of 25 minutes per day over the last 30 years (Mestdag & Vandeweyer, 2005). One simple, low-cost method proposed by researchers as a means of combating the deterioration of adolescent health is the routine
implementation of family mealtimes. The family mealtime—an American pastime
loosely defined as “occasions when food is eaten simultaneously in the same location by
more than one family member” “at least [five] or [six] times per week”—has, over the
last three decades, decreased to a rate of less than one time per day (Barlow & Expert
Committee, 2007; Martin-Biggers et al., 2014). However, the incidence of family
mealtime participation has recently seen a resurgence due to its proposed effectiveness in
promoting adolescent overall health (Barlow & Expert Committee, 2007; Martin-Biggers
et al., 2014; Mestdag & Vandeweyer, 2005).

Though the definition of family mealtime is currently under debate, the positive
impacts are abundant. Participation in family mealtimes has resulted in social benefits,
heightened intellectual and academic development, increased emotional stability and
prosocial tendencies, enhanced healthful dietary patterns, improved weight control, and
decreased participation in risky behaviors (Eisenberg, Olson, Neumark-Sztainer, Story, &
Bearinger, 2004; Fruh, Fulkerson, Mulekar, Kendrick, & Clanton, 2001; Fulkerson,
Story, Neumark-Sztainer, & Rydell, 2008; Fulkerson et al., 2009). The benefits observed
through participation in family mealtimes have indicated a preliminary positive
relationship to the school social and academic climates (Eisenberg et al., 2004;
Fulkerson, Strauss, Neumark-Sztainer, Story, & Boutelle, 2007; Harrison et al., 2015;
Horning, Fulkerson, Friend, & Neumark-Sztainer, 2016; Miller, Waldfogel, & Han,
2012; Rothon, Goodwin, & Stansfeld, 2012; The National Center on Addiction and
Substance Abuse at Columbia University, 2012; Utter et al., 2013; Welsh, French, &
Wall, 2011). Increased participation in family mealtimes results in improved social well-
being and academic performance within the school environment, resulting in improved grades, increased participation in extracurricular activities, and decreased incidence of bullying perpetration and victimization (Eisenberg et al., 2004; Lester & Mander, 2015).

**Statement of the Problem**

Adolescence, a period of multi-faceted growth and development, often results in changing parental and familial relationships, evolving peer relationships, and diminishing healthful habits. The deterioration of adolescent overall health has been further impacted by the slow decline in the duration and frequency of family mealtimes (Mestdag & Vandeweyer, 2005). Reduced frequencies of family mealtime participation have been shown to increase the incidence of poor dietary choices, weight gain, eating disorders and other risky behaviors; impair academic performance; and compromise social functionality (Eisenberg et al., 2004; Fulkerson et al., 2006; Fulkerson et al., 2008; Fulkerson et al., 2009). As a result, family mealtimes have been identified as an integral component in the promotion of healthful dietary, academic, and social habits through consistent, daily familial interactions over the dinner table.

In a climate wrought with declining social functionality and academic achievement, social well-being and academic performance in adolescents have been recognized as imperative characteristics in their effective functioning within the school environment. As a result, social and academic health promotion through participation in family mealtimes has been researched as a potential and valuable protective measure for adolescent health (Eisenberg et al., 2004; Lester & Mander, 2015). Nevertheless, data regarding the ideal frequency of family mealtime participation to achieve maximum
benefit for improved social well-being and academic performance are ambiguous and lacking in repeated measures. The relationships between family mealtime participation and these outcomes continue to be understudied topics with limited data for high school-aged adolescents. Sparse existing studies serve as preliminary indicators of positive relationships and few studies correlating family mealtime participation and academic performance have been repeated to the point of confirmation. Additionally, many social well-being studies utilize indirect measures, such as self-esteem and communication skills, as opposed to assessing tangible peer relationships, incidence of bullying, and participation in extracurricular activities (Eisenberg et al., 2004; Fulkerson et al., 2007; Martin-Biggers et al., 2014). More direct measures may provide less ambiguous correlational data between participation in family mealtimes and social well-being (Eisenberg et al., 2004; Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014).

Additional research is warranted to assess for both social well-being and academic achievement while controlling for each variable separately. Many of the protective benefits of family mealtime participation can be attributed to a multitude of family processes. Thus, it is necessary to disentangle variables—barriers to family mealtimes, parent-child relationships, and participation in extracurricular activities—in an attempt to ascertain significance and provide more concrete data as a means of increasing participation in family mealtimes. Current research points to technology as a common barrier to family mealtimes for the adolescent population. However, the major shift in electronic device use in the current generation may demonstrate differences in the
impact that these barriers have on family mealtime, social well-being, and academic performance. By identifying the regularity of family mealtimes in the current study, as well as the common barriers that affect participation in family mealtimes, the influence of family mealtime participation on adolescent social well-being and academic performance outcomes can be further examined to identify trends between frequent and infrequent participants.

**Purpose Statement**

The purpose of this study was to investigate the difference in social well-being and academic performance between those high school sophomores who frequently participated in family mealtimes and those who infrequently participated in family mealtimes at a Northeast Ohio public high school.

Another purpose of this study was to investigate the difference in social well-being and academic performance between those high school sophomores who frequently engaged in television use during family mealtimes, those who were neutral, and those who infrequently engaged in television use during family mealtimes, as well as between those who were frequently granted permission to engage in cell phone or computer use during family mealtimes, those who were neutral, and those who were infrequently granted permission to engage in cell phone or computer use during family mealtimes.
Hypothetic hypotheses

H1: There will be a difference in social well-being between high school sophomores who frequently participated in family mealtimes and those who infrequently participated in family mealtimes.

H2: There will be a difference in academic performance between high school sophomores who frequently participated in family mealtimes and those who infrequently participated in family mealtimes.

H3: There will be a difference in social well-being between high school sophomores who frequently engaged in television use during family mealtimes, those who were neutral, and those who infrequently engaged in television use during family mealtimes.

H4: There will be a difference in academic performance between high school sophomores who frequently engaged in television use during family mealtimes, those who were neutral, and those who infrequently engaged in television use during family mealtimes.

H5: There will be a difference in social well-being between high school sophomores who were frequently granted permission to engage in cell phone or computer use during family mealtimes, those who were neutral, and those who were infrequently granted permission to engage in cell phone or computer use during family mealtimes.

H6: There will be a difference in academic performance between high school sophomores who were frequently granted permission to engage in cell phone or computer use during family mealtimes, those who were neutral, and those who were infrequently granted permission to engage in cell phone or computer use during family mealtimes.
Operational Definitions

1. Family mealtime participation: the act of eating at least one meal per day with at least one family member who lives in the home, at a table, with or without electronic devices (i.e. television, computer, cell phone). Two groups were created using a 5-point Likert-style scale ranging from All of the time to Never for Questions 2 and 3: (1) those who frequently participated in family mealtimes (All of the time/Most of the time) and (2) those who infrequently participated in family mealtimes (Sometimes/Almost never/Never). Responses of All of the time/Most of the time for Question 2 and/or 3 were placed in the frequent family mealtime participant group, whereas responses of Sometimes/Almost never/Never for one or both questions were placed in the infrequent family mealtime participation group.

2. Social well-being: a sense of social belonging and self-acceptance as measured by (1) descriptive data assessing perceptions of parent-child relationships using a 5-point Likert-style scale ranging from All of the time to Never, (2) descriptive data regarding participation in extracurricular activities using a 6-point Likert-style scale ranging from Daily to Never, and (3) social well-being scales assessing perceptions of peer relationships (Friend Scale: Questions 13 through 16) and school environment (School Environment Scale: Questions 17 through 19) using a 5-point Likert-style scale ranging from Agree to Disagree. Summative Friend Scale responses ranged from four to 20, where a score of greater than or equal to 16 indicated a positive response. Summative School
Environment Scale responses ranged from three to 15, where a score of greater than or equal to 12 indicated a positive response.

3. Academic performance: self-reported letter grade in health class (Question 24) and current high school GPA (Question 25). Health class grades ranged from zero to five, where a score of greater than or equal to three indicated a positive response. GPA responses ranged from zero to four, where a score of greater than or equal to three indicated a positive response.

4. Barriers to family mealtime: identified as conflicting schedules (Question 6), conflicting meal location preferences (Question 7), television use (Question 8), and permission to engage in cell phone or computer use (Question 9). Responses to each question were based on a 5-point Likert-style scale ranging from Agree to Disagree for the purpose of completing chi-square analyses. Additionally, six electronic device use groups were created using a 5-point Likert-style scale ranging from Agree to Disagree for Questions 8 and 9 for the purpose of completing analyses of variance (ANOVA) tests. Responses to Question 8 were used to categorize television use groups: (1) those who frequently engaged in television use during family mealtimes (Agree/Somewhat Agree), (2) those who were neutral (Neutral), and (3) those who infrequently engaged in television use during family mealtimes (Somewhat Disagree/Disagree). Responses to Question 9 were used to categorize permission to engage in cell phone or computer use groups: (1) those who were frequently granted permission to engage in cell phone or computer use during family
mealtimes (Agree/Somewhat Agree), (2) those who were neutral (Neutral), and (3) those who were infrequently granted permission to engage in cell phone or computer use during family mealtimes (Somewhat Disagree/Disagree).

5. High school sophomores: students in tenth grade, between the ages of 15- and 17-years-old.
CHAPTER II

LITERATURE REVIEW

Family Mealtime Defined

The impact of family mealtime on children’s social, emotional, mental, and physical health has long been studied; however, sociocultural evolution of the role of family, career, and school has warranted the development of a standardized and relevant definition of family mealtime (McCullough, Robson, & Stark, 2016). Current studies suffer from a lack of consistency and specificity regarding the definition of family mealtime, as well as a limited collection of data based solely on the frequency of family mealtime participation (Horning et al., 2016; McCullough et al., 2016). Existing definitions include “occasions when food is eaten simultaneously in the same location by more than one family member” (Martin-Biggers et al., 2014). The vague and constrained data collection process limits the cohesiveness among individual data sets, allowing little opportunity for cross-study comparison and interpretation, as well as restricting data relevancy within the larger scope of the topic (McCullogh et al., 2016).

The American Academy of Pediatrics defines family mealtime as “eating family meals at least [five] or [six] times per week” and utilizes this definition as a component of their recommendations to prevent childhood overweight or obesity (Barlow & Expert Committee, 2007). However, this current definition only includes frequency measures and fails to include other characteristics that may further bolster the potential benefits of
family mealtime. Without a succinct definition, a wide variety of family mealtime measures are employed, including, but not limited to, number and age of family members present, meal type and time, length of mealtime, frequency, location (within or outside of the home), type of food and amount consumed, participants in meal preparation, present distractions, activities or communication held during mealtime, and perception of healthfulness of meal consumed (Horning et al., 2016; McCullough et al., 2016).

A systematic review of 33 studies conducted by McCullough et al. (2016), isolated necessary components of a standard definition of family mealtime from the wide array of the aforementioned characteristics available for study. The study concluded that family mealtime definitions should include specifications on environmental components—length of meals, location of meals, frequency of meals, and family members present for meals—and meals components—amount consumed, type of food, and family communication. Unfortunately, no studies assessed in this review included all family mealtime characteristics identified, greatly reducing each study’s relevancy. The combined characteristics identified have shown to be beneficial and provide a protective effect on children’s eating behavior and overall health, and should be incorporated when developing a standard definition of family mealtime (McCullough et al., 2016).

To further complicate the potential for a standardized definition of family mealtime, Boutelle, Lytle, Murray, Birnbaum, and Story (2001) indicate that parent and child perceptions of family mealtime characteristics differ significantly and, hence, may impact data collection. A disconnect occurs between parent and child reporting of family mealtime environment, participation, behaviors, and eating patterns. Parents
predominantly express a more positive view of family mealtime frequency, while children convey more positive views of their own mealtime behavior and participation. Differences may exist due to social acceptability, differences in memory, and cognitive levels of children (Boutelle et al., 2001).

**Prevalence of Family Mealtime Participation**

The concept of family time and, consequently, how that time is spent has held a position of importance since the early 1850s. Family mealtime has played an integral role in fulfilling the largest portion of that allotted family time (Mestdag & Vandeweyer, 2005). While many parents and children express a positive view towards, acknowledge the importance of, and obtain enjoyment from family mealtimes, the prevalence of family mealtimes have declined in frequency and length over the past several decades (Cason, 2006; Neumark-Sztainer, Story, Ackard, More, & Perry, 2000).

Two time-budget studies conducted in Belgium by Mestdag and Vandeweyer (2005) have drawn conclusions corresponding to family mealtime habits indicative of Western countries, including the United States of America. Comparing time use in 1966 and 1999, researchers concluded that during the week family time decreased by an average of 25 minutes, the number of family meals decreased to less than one per day, and the duration of family meals decreased by an average of 22 minutes resulting in an overall reduction of time allotted for family meals from one-third of the day in 1966 to one-quarter in 1999. The time previously dedicated to family mealtime has been replaced with more solitary activities, such as eating with technology, eating alone, or eating on-
the-go (Mestdag & Vandeweyer, 2005). Additional studies had similar conclusions, indicating an overall decline in the rate and duration of family mealtime over the past decade, specifically in populations with lower socioeconomic status, middle school and high school aged children, female children, and certain ethnicities, resulting in greater risk for populations already vulnerable to poor dietary habits and the associated risks (Neumark-Sztainer et al., 2000; Neumark-Sztainer, Wall, Fulkerson, & Larson, 2013).

Declines in the prevalence of family mealtime can be attributed to changing family dynamics, as well as evolving economic demands. The shift from stay-at-home-moms to dual-earner families, increased unemployment, food insecurity, time constraints, and conflicting job and school schedules decrease the probability that at least one parent will be present during a mealtime, with over half of parents indicating scheduling conflicts as an inhibitor to family mealtime (Mestdag & Vandeweyer, 2005; Neumark-Sztainer et al., 2000; Neumark-Sztainer et al., 2013).

**Benefits of Family Mealtime Participation**

Family mealtime holds historical importance; however, researchers are now realizing that “the magic that happens at family dinners isn’t [due only to] the food on the table, but the conversations and family engagement around the table” (The National Center on Addiction and Substance Abuse at Columbia University, 2012). Family mealtime provides beneficial, yet diminishing, time to interact and engage with one’s family, and the benefits of such are endless. Several cross-sectional and longitudinal studies have identified that many social, emotional, mental, and physical health benefits
can be derived from family mealtime frequencies of three to four meals per week, and increasing exponentially at a frequency of five to seven meals per week (Utter et al., 2013).

Social benefits propagate as a result of increased communication between family members. Conversations about the day, the exchanging of ideas, and the opportunity to engage in problem-solving result in improved language, vocabulary, and intellectual development, as well as improved reading skills (Fruh et al., 2011; Fulkerson et al., 2008; McCullough et al., 2016; Neumark-Sztainer, Larson, Fulkerson, Eisenberg, & Story, 2010). Thus, fostered intellectual development and familial support result in higher GPA and standardized testing performance (Eisenberg et al., 2004).

Enrichment of children’s emotional health results from increased interactions with family members in the enjoyable, relaxing, and non-threatening mealtime setting. Higher frequencies of family mealtime increase feelings of family togetherness, closeness, and connectedness; personal well-being; emotional stability; improved family trust and relationships; and heightened positive perceptions of parents by children (Eisenberg et al., 2004; Fruh et al., 2011; Fulkerson et al., 2008; McCullough et al., 2016; Neumark-Sztainer et al., 2010; The National Center on Addiction and Substance Abuse at Columbia University, 2012; Utter et al., 2013). Improved parent-child communication facilitates non-invasive parental monitoring and feelings of reassurance for both parties when discussing sensitive and emotional topics (McCullough et al., 2016). The openness and security afforded by family mealtime further leads to decreased levels of stress and
feelings of isolation, while the structure and support fosters overall well-being (The National Center on Addiction and Substance Abuse at Columbia University, 2012).

A renewed emphasis on the promotion of family mealtime has intensified over the last decade as a means of promoting increased frequency and duration to obtain maximum health benefits (Neumark-Sztainer et al., 2013). Higher frequency of family mealtime affect improvements in mental and physical health and promote improved dietary intake, weight control, and decreased participation in risky behaviors, while protecting from chronic disease and death (Fruh et al., 2011). While family mealtime for all populations should be promoted, the revitalization of family mealtime within the adolescent population should be highlighted as a critical point of intervention to minimize social, emotional, mental, and physical health risks (McCullough et al., 2016).

**Improved dietary intake.** The frequency of family mealtime, specifically dinner, suggests a positive relationship with healthy dietary patterns. Increased frequency of family mealtimes results in an increased consumption of homemade, nutritious, and balanced meals (Fulkerson et al., 2008; Lee al., 2014). Adolescents report that parent presence during mealtimes promotes positive food choices, with 95% indicating a variety of foods and 96% indicating healthy foods available during these times (Prior & Limbert, 2012). In female respondents, frequent family mealtimes have resulted in higher rates of breakfast consumption; desirable mealtime behaviors, such as conversation; and healthy snack and food choices outside of family mealtimes (Lee et al., 2014; Prior & Limbert, 2012).
Qualitative and quantitative studies assessing dietary patterns in adolescents have indicated a positive relationship between frequent family meals at least five times per week and meeting dietary guideline recommendations (Andaya, Arrendondo, Alcaraz, Lindsey, & Elder, 2011; Gillman et al., 2000; Lee et al., 2014; Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003). Parental modeling and influence at family mealtimes results in a significant increase in the consumption of whole grains, lean proteins, vegetables, fruits, low-fat dairy products, calcium-rich foods, and multivitamin use (Andaya et al., 2011; Gillman et al., 2000; Lee et al., 2014; Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003). Fifty-eight percent of Welsh adolescents consume vegetables at each family mealtime and, of those respondents, 40% consumed three or more types of vegetables with each meal (Prior & Limbert, 2012). Increased levels of micronutrient consumption also positively correlate with higher frequency of family mealtimes. Folate, calcium, iron, vitamin B₆, vitamin B₁₂, vitamin C, vitamin E, vitamin A, and fiber intake indicated a significant positive relationship when associated with frequent family mealtimes (Gillman et al., 2000; Neumark-Sztainer et al., 2003).

Frequency of family mealtimes can also be negatively associated with certain undesirable dietary patterns. Gillman et al. (2000) found a decreased consumption of soft drinks, trans fat, saturated fat, full fat dairy, snack foods, red and processed meats, and fried food at home and away from home. The removal of these detrimental dietary habits resulted in lower glycemic loads and, ultimately, a decreased risk of developing Type II Diabetes Mellitus and other chronic diseases (Gillman et al., 2000). Additional studies corroborated these findings, indicating a relationship between family mealtimes and
decreased consumption of chips and soft drinks (Andaya et al., 2011; Neumark-Sztainer et al., 2003). However, Lee et al. (2014) found no significant difference in the consumption of fatty foods, sweets, soft drinks, spicy and salty foods, processed or instant foods, and late-night snacks between households with frequent family mealtimes and those with infrequent family mealtimes.

**Healthy weight management.** According to Fulkerson et al. (2009), over one-third of the adolescent population is overweight or obese, resulting in a demand for innovative methods to improve weight status and control to combat the rising rates. The frequency of family mealtimes commonly associated with improved dietary intake can also be positively correlated with improved weight management methods, lowered body mass index (BMI), and decreased obesity, indicated by a BMI falling greater than or equal to the 85th percentile on a growth chart. This two-fold relationship operates under the assumption that improved dietary intake will influence weight status due to increased healthful food intake, while the frequency of family meals also directly plays a protective role resulting in lowered BMI and healthy weight management practices (Fulkerson et al., 2009).

Fulkerson et al. (2009) noted in a family mealtime frequency study of adolescents, participants eating family dinners five to seven times per week were three times less likely to be overweight than those who did not participate in family dinners. Children experienced 23-25% lowered risk of obesity when incorporating family mealtimes, specifically the act of sitting and eating, into their daily routines; however, adults did not experience any protective effects from commensal mealtimes (Anderson & Whitaker,
Healthy weight management practices were also strongly associated with frequent family mealtimes, resulting in decreased incidence of unhealthy weight management practices, such as excessive exercise, calorie restriction, extreme fasting, purging, and diet supplement use without physician approval (Fulkerson et al., 2009).

Unfortunately, the positive effects of family mealtime frequency on weight status and control were limited to cross-sectional results of early adolescent, white females; excluding males, other ethnicities, and older age groups (Fulkerson et al., 2009; Fulkerson et al., 2014; Martin-Biggers at al., 2014). Despite the significant benefits present for white, adolescent females, alternative methods for weight status and control for different subgroups are warranted. However, family mealtimes should not be discredited as an effective method for promoting a healthy weight status and healthy weight management practices in the appropriate population (Fulkerson et al., 2014).

**Decreased participation in risky behaviors.** The protective effects of frequent family mealtimes further extend to encompass an overall decrease in the involvement of adolescents in risky behaviors. These can be described as activities such as alcohol, tobacco, marijuana, and illicit drug use; unsafe sexual intercourse; anti-social tendencies, such as theft, vandalism, and violence; unhealthy weight loss behaviors associated with eating disorders; and depressive tendencies, such as suicide ideation or suicide attempts (Fulkerson et al., 2006; Fulkerson et al., 2009; The National Center on Addiction and Substance Abuse at Columbia University, 2012). These activities are often associated
with a lack of support and positive role models that can be found within the family unit (Fulkerson et al., 2006).

According to Utter et al. (2013), participation in risky behaviors decreases incrementally as the number of family meals increase, with an initial significant relationship resulting from a frequency of three to four meals per week and peaking at seven or more meals per week. Consequently, adolescents of families with frequent family mealtimes are two times less likely to undertake risky behaviors, 45% less likely to develop an eating disorder, and two times more likely to have a well-developed self-esteem, sense of purpose, and optimistic outlook for the future (Fulkerson et al., 2009; Martin-Biggers et al., 2014).

Despite the positive effects of family mealtime on the incidence of risky behaviors, gender differences exist, hindering the impact on certain adolescent groups. Since the premise of family mealtime relies largely on the positive effects of family dynamics, male adolescents’ risky behavior response is less than that of females, resulting in a greater deterrence from risky behaviors for females than males (Harrison et al., 2015; Skeer & Ballard, 2013). Females respond specifically to the protective effects against suicide ideation and attempts, while males’ partial immunity to family mealtimes may be due, in part, to their innate tendencies toward risk-taking (Eisenberg et al., 2004).

Although gender differences may dampen the effect of family mealtime frequency on the participation in risky behaviors, positive relationships between these two variables remain significant even after controlling for family connectedness (Fulkerson et al.,
Regardless of family closeness or connectedness, adolescents continue to benefit from frequent family meals (Eisenberg et al., 2004). As a result, family mealtime remains an important, effective, and financially efficient means for adolescent health promotion (Utter et al., 2013). By fostering family togetherness through dedicated family mealtime, the beneficial effects of quality parent-child interactions can provide protection from a multitude of challenges that may obstruct safe and healthy growth and development in adolescents. (Fulkerson et al., 2006).

**Barriers to Family Mealtime Participation**

Despite the many observed benefits of frequent family mealtime participation, several common deterrents hinder the development of the potential positive outcomes. Research indicates that the most common barriers to family mealtime participation include television and other electronic media, such as talking on the phone, texting, playing videogames, or accessing social media; parental conflicts, such as work schedules, work-life stress levels, fatigue levels, and inability to meet the food preferences for all family members; and adolescent activities, such as work, homework, reading, sports or extracurricular activities, and peer engagements (Lee et al., 2014; Neumark-Sztainer et al., 2000; Neumark-Sztainer et al., 2010; Prior & Lambert, 2013; The National Center on Addiction and Substance Abuse at Columbia University, 2012). Additionally, an increased desire for autonomy may lead adolescents to seek meals on their own or with peers to assert their independence, further decreasing the incidence of family mealtime (Neumark-Sztainer et al., 2010). To date, minimal research is available
regarding the prevalence and impact of cell phone use during family mealtimes (Fulkerson et al., 2014).

The practice of watching television during family mealtimes is one of the most impactful barriers to frequent and beneficial meals. According to time-budget studies, television use has increased by up to 53 minutes per day, and, for much of this time, family members are partaking alone (Mestdag & Vandeweyer, 2005). Of participating families, 50% report watching television during dinnertime four or more times per week—with 11% eating while watching television every day—as a family or in separate rooms (Boutelle et al., 2001; Neumark-Sztainer et al., 2000; Neumark-Sztainer et al., 2010; Prior & Limbert, 2013). A habit resulting in lessened family conversation and interaction, decreased incidence of healthy food choices, and lowered awareness of, and ability to, self-regulate intake (Boutelle et al., 2001; Neumark-Sztainer et al., 2000; Roos et al., 2016).

Ubiquitous television commercials provide a continuous barrage of appealing advertisements for calorie-dense foods resulting in the increased consumption of soda and chips. Families who often or always watch television during meals indulge in soda and chips five or more times per week compared to families who rarely or never watch television and consume soda and chips zero to two times per week (Andaya et al., 2011). Frequent family mealtime participation is positively associated with increased consumption of fruits, vegetables, and milk, while the addition of television results in an inverse relationship with fruit and vegetable consumption, thereby negating the positive effects of family mealtime participation. However, these effects vary significantly by
race, ethnicity, and parental education level (FitzPatrick, Edmunds, & Dennison, 2007). The increase in poor dietary choices combined with family mealtime television viewing results in increased risk for overweight or obesity (Fulkerson et al., 2008; Roos et al., 2016). On the other hand, a reduction in television viewing during family mealtimes can result in a protective effect against overweight or obesity via stimulated family conversations and healthy behavior modeling, increased awareness of type and amount of intake, and decreased exposure to persuasive calorie-dense food commercials (Fulkerson et al., 2008).

Parental employment, particularly the growing demographic of fully employed mothers, poses an additional barrier to the participation in family mealtimes. Maternal employment effects the frequency of family meals, the quality of meals and snacks available within the home, the availability of parental support, and the modeling of healthy food behaviors (Bauer, Hearst, Escoto, Berge, & Neumark-Sztainer, 2012). According to Bauer et al. (2012), mothers employed full-time rely more heavily on processed convenience foods and fast foods due to a lack of preparation time, coordinate fewer family mealtimes per week, consume fewer fruits and vegetables per day, and, as a result, provide less healthy-eating modeling and reinforcement. Furthermore, the heightened work-life stress levels that accompany full-time employment results in similar conditions, including fewer family mealtimes per week, decreased consumption of fruit and vegetables per day, and increased fast food intake. Characteristics significant for fully employed fathers include decreased breakfast consumption and lowered healthy-eating modeling and reinforcement (Bauer et al., 2012). To combat many of these
unavoidable consequences of employment, parents can enlist children’s help with meal planning and preparation, resulting in increased family togetherness, harmonious meal choices, and vested interest in family mealtime (Prior & Lambert, 2013).

**Social Well-being Defined**

Bravi (2016) defines the abstract concept of social well-being within the larger framework of subjective well-being. Subjective well-being results from an overall state of happiness and satisfaction in life, which is ultimately influenced by a robust and fulfilling lifestyle. The influential factors for subjective well-being can be subdivided into groups, including individual, economic, and social. Individual factors, those impacting social well-being, include demographic characteristics, relationships, and livelihood, whereas economic and social factors include global influences, such as employment and economic growth (Bravi, 2016). The individual relationship factor that impacts subjective well-being can be more aptly described as social capital, from which social well-being can develop (Rothon et al., 2012).

Social capital is best depicted as the currency of social well-being. Whereas retail industries deal in legal tender, social well-being deals in its analogous equivalent—social capital (Rothon et al., 2012). Social capital encompasses the varying degrees of social relationships between people and groups, as well as the social connections within the larger community, which often result in benefits for all parties involved (Li, Yang, Ding, & Kong, 2015; Rothon et al., 2012). The possession of greater amounts of social capital and higher quality social capital, allow adolescents to view themselves based on their
relationships with others and the availability and quality of their social support system (Li et al., 2015). Acceptance to and affirmation within healthy social relationships ultimately results in increased valuation of adolescents’ social capital. Consequently, these social unions, and the value of such, drive the development of social well-being (Li et al., 2015; Rothon et al., 2012).

Rothon et al. (2012) posits that the quality of social capital and, thus, the extent of social well-being in adolescents can be dictated by peer and parental behavior within relationships, the amount of time spent fostering child-parent relationships through positive attention and physical presence, the amount of time spent without parental presence, as well as the involvement in activities outside the home. These factors dictate the extent to which adolescents perceive the quantity of their social capital and quality of their social well-being. Adolescents who maintain positive parental relationships, operate under a certain degree of parental surveillance, and engage in family meals at least three times per week experience good mental health and, ultimately, higher social well-being (Rothon et al., 2012).

Social well-being—within the context of parent-child relationships; peer relationships, including bullying; and involvement in extracurricular activities—can be assessed directly through multiple survey tools. Survey methods rely on participants’ introspective evaluation of their social relationships and social support systems. The Social Well-being Scale (SWBS) was developed to assist participants in defining their social well-being using five main principles—social integration, social acceptance, social contribution, social actualization, and social coherence. Social integration aids in
defining the extent to which participants engage in social relationships, while social acceptance delves into the perceptions of others. Social contribution assesses the impact of participants on social groups or communities, consequently, impacting social actualization or the achievement of group’s or community’s goals. Lastly, social coherence functions as the oversight, evaluating the overarching perceptions of the social domain (Li et al., 2015). The constructs utilized by the SWBS rely heavily on the contributions that can be made to the society at large, while minimizing the benefits that can be experienced by the individual.

An alternative, and more applicable, individual assessment method for social well-being is the Physical, Mental and Social Well-being Scale for Adults (PMSW-21) or the Physical, Mental and Social Well-being Scale for Adolescents (PMSW18-ad). The various adaptations of the PMSW were developed to evaluate social well-being based on participants’ sense of security (security), inability or discomfort when communicating with others (communicability), perceptions of familial protection and support (protection), feelings of loneliness (loneliness), impression of rejection within social settings (rejection), interest in socializing with others (sociability), and awareness of appreciation by others (appreciation). The PMSW exhibits high reliability, as measured by the Cronbach α coefficient for internal consistency; high sensitivity; and confirmed construct validity, and should be used as the preferred method when assessing individuals’ social well-being due to its examination of individuals’ social preferences, comfort, and acceptance of and within social relationships (Supranowicz & Paź, 2014).
Parent-Child Relationships

Parent-child relationships, a component commonly associated with social well-being, are tested, reexamined, and, often, renewed during adolescence to meet the demands of other evolving relationships—both peer and romantic—as well as the characteristic individuation from parents. As a result, parent-child relationships can become strained, ultimately impacting familial and non-familial social relationships. Consequently, it is important to recognize the physical, mental, social, and emotional changes that occur during adolescence, their connection to parent-child relationships, and the overall impact these have on social well-being, including their ability to safeguard against the deterioration of parent-child relationships (Ruhl et al., 2015).

Positive parent-child relationships, evidenced by relationship satisfaction with parents, parental approval and acceptance, parental companionship, and parental support, often result in a sense of security for children within parent-child relationships. Relationship security, an influential factor for social well-being, results from the knowledge that caregivers are consistent sources for support and care, ultimately, reinforcing the value of parent-child relationships. However, adolescents’ sense of security is often jeopardized as peer and romantic relationships, as well as the need for autonomy, become more prevalent. Thus, the role of parent-child relationships must evolve to “help adolescents realize that parents are available for support and comfort, even if [they] are scaffolding independence by withholding immediate assistance with every day stressors” (Ruhl et al., 2015). By providing consistent social support, non-oppressive parental surveillance of adolescent peer relationships and activities, and warm
paternal and maternal relationships, adolescents are presented with better mental health, increased sense of security, and higher social well-being (Brown & Bakken, 2011; Rothon et al., 2012; Ruhl et al., 2015).

On the other hand, unsupportive parenting can have detrimental effects on adolescents’ social well-being, often driving them to seek support and connection elsewhere. For example, maternal criticism results in increased relationship anxiety in female adolescents, often caused by unpredictable or unreliable parenting, whereas paternal pressure produces relationship avoidance in males, causing them to declare autonomy through delinquent peer relationships and behavior (Brown & Bakken, 2011; Ruhl et al., 2015).

Maternal influences, assuming a particularly significant role, continue to impact social well-being through the attenuation of healthy peer relationship influences. Lack of maternal support can impact social self-concept despite the presence and quality of “best friend” peer relationships. Poor maternal relationships can also instigate the withdrawal of adolescents from peer relationships, as well as impede their ability to react appropriately in social situations (Brown & Bakken, 2011; Granot & Mayseless, 2012). On the other hand, healthy maternal relationships facilitate adolescents’ ability to process social-information within the peer realm through appropriate responses or the development of response alternatives to problematic social situations (Granot & Mayseless, 2012). Evidently, positive parent-child relationships with evidence of strong family cohesion result in improved adolescent relationships and increased social well-being (Brown & Bakken, 2011).
Family cohesion, as assessed by the Family Adaptability and Cohesion Evaluation Scale-III (FACES-III), can provide further nourishment to adolescents’ social well-being through participation in family mealtimes. Measured by the amount of support and connectedness within the family, family cohesion is a positive predictor of social well-being and can result from positive family mealtime experiences (Welsh et al., 2011). Adolescents who participate in at least three family meals a week experience a 25% lower risk of experiencing social and mental health problems, resulting from the increased incidence of positive interactions (Rothon et al., 2012). Parent-child relationships, in the form of interaction at family mealtimes, teaches social skills, responsibility, and social norms, while reinforcing the value of the familial support system on social well-being (Martin-Biggers et al., 2014).

Peer Relationships

During adolescence, peer relationships become the dominant influential factor of social well-being. Parent-child relationships remain a consistent and important part of adolescents’ social support systems; however, peer relationships assume the forefront as adolescents attempt to gain autonomy by becoming less reliant on parents and more reliant on peers for support. However, the quantity and quality of peer relationships are invariably connected to the quality of parent-child relationships throughout childhood (Brown & Bakken, 2011; Granot & Mayseless, 2012). Instead of replacing characteristics influenced by parent-child relationships, peer relationships play an important role in moderating parental influences, the development of sense of self, and
the inclination towards positive social-information processing (Brown & Bakken, 2011; Galliher & Kerpelman, 2012; Granot & Mayseless, 2012).

The ability for parents to instill relationship security in children through meaningful parent-child relationships, provides a benchmark for continued evolution of adolescents’ social well-being in the setting of peer relationships. The social relationship and expectation schemas developed throughout childhood facilitates the transition to adolescence and the ability to maintain positive peer relationships (Granot & Mayseless, 2012). These relationships contribute to the development of sense of self and social adjustment, through which relationships with delinquent peers are decreased, resulting in enhanced healthy interpersonal interactions and social well-being (Brown & Bakken, 2011; Galliher & Kerpelman, 2012).

The schema instilled through parent-child relationships results in sincere, accommodating, and resilient peer relationships. Furthermore, the expectations and attitudes developed during childhood can be carried forward to apply to the practice of social-information processing. Adolescents who enjoy both positive parent-child and peer relationships can comprehend, evaluate, and respond to various types of social stimuli through non-defensive and prosocial tactics. The ability to positively respond to problematic social situations decreases antisocial and aggressive behavior, thus, safeguarding social well-being (Granot & Mayseless, 2012).

Furthermore, it is important to note, that not only do healthy peer relationships encourage social well-being, but they also positively impact school engagement and, as a
result, academic performance. School engagement can be assessed through two facets—behavioral and emotional. Behavioral engagement, defined as participation in school and non-school activities, appropriate conduct, and avoidance of deviant behaviors, can be impacted by peer relationships. Positive behavioral engagement actions decrease as relationships with peers who engage in deviant behaviors increase. On the other hand, emotional engagement, defined as the reactions to school, teachers, and peers, increases as a result of high levels of peer support. Consequently, the presence of a healthy peer support system, avoidance of delinquent peers, and resiliency to bullying involvement impact attitudes and behaviors within the school setting and, ultimately, social well-being (Li, Lynch, Kalvin, Liu, & Lerner, 2011).

**Bullying Involvement**

Bullying is defined as “the use of one’s strength or popularity to injure, threaten, or embarrass another person” through “physical, verbal, or social” means. However, “it is not bullying when two students of about the same strength argue or fight” (Cornell, 2011). Although the frequency of bullying differs amongst geographic regions, age groups, genders, ethnicities, and socioeconomic levels, studies indicate that approximately 16% of children are frequently bullied and 14% of children are frequent perpetrators of bullying (Lester & Mander, 2015). Recently, the concept of bullying has been expanded to include both traditional bullying and cyberbullying. Cyberbullying, as a recognized method of perpetrating bullying, has arisen due to the overwhelming usage of technology within the adolescent population. It can be defined as bullying through electronic means including, but not limited to, social media, text messaging, and e-mail,
and has been shown to coincide with the incidence of traditional bullying, as well as the associated impacts. However, traditional bullying persists as the predominant predictor of negative mental and social health outcomes (Hase, Goldberg, Smith, Stuck, & Campain, 2015).

As a predictor of poor social well-being, victimization and perpetration of bullying can be viewed as outcomes of negative peer relationships. Both victims and perpetrators are at increased risk for negative social outcomes that impact the quality of peer relationships and academic outcomes that impact the behavioral and emotional engagement within school (Lester & Mander, 2015; Li et al., 2011). Perpetration of bullying is a common consequence of associations with delinquent or problematic peers, as well as strict parenting behaviors and can result in increased delinquent behaviors and referrals, lower academic achievement, inconsistent school attendance, greater adjustment difficulties when transitioning to high school, increased incidence of aggressive attitudes and behaviors, lower willingness to seek help, and heightened sense of feeling unsafe (Baly, Cornell, & Lovergrove, 2014; Centers for Disease Control, 2016; Feldman et al., 2014). Perpetration of bullying is also inversely related to the presence of a social support system. Adolescents are 33% more likely to perpetrate bullying when experiencing feelings of loneliness (Lester & Mander, 2015).

Perpetration of bullying can be decreased via supportive school-family-community partnerships. These social support systems help bolster adolescents’ prosocial tendencies, pro-victim attitudes, peer support systems, and sense of safety and school connectedness, ultimately resulting in decreased need for perpetration (Lester &
Mander, 2015). Additionally, bullying perpetration is inversely associated with engagement in extracurricular activities. Adolescents who engage in sport or non-sport extracurricular activities or a combination of both are two times less likely to engage in bullying than those who do not participate in any extracurricular activities. The protective effect experienced may result from the structured activity time that extracurricular activities provide. Increased positive interaction with peers and adults results in the development of social skills and teamwork capabilities; however, this does not extend to non-white or non-Hispanic adolescents of low socioeconomic status. Despite indicated drawbacks, positive results reinforce the use of extracurricular activities as an effective method for the reduction of bullying perpetration (Riese, Gjelsvik, & Ranney, 2015).

On the same note, victims of bullying experience similar, yet extended, negative social and mental health consequences. Victimization is significantly associated with lower academic achievement, decreased feelings of self-worth, and low social adjustment (Baly et al., 2014). Those who experience a heightened sense of feeling unsafe and feelings of loneliness are greater than three times more likely to become a victim of bullying (Lester & Mander, 2015). Despite negative consequences of victimization, victims of bullying are more likely to be more behaviorally and emotionally engaged in school than perpetrators (Li et al., 2011).

The susceptibility of adolescents to become victims of bullying can be reduced, as with perpetrators, through supportive school-family-community partnerships. Peer support, school connectedness, safety, and a sense of belongingness play in integral role
in determining adolescents’ adaptability and resiliency to bullying, ultimately improving social well-being (Lester & Mander, 2015).

**Participation in Extracurricular Activities**

The involvement of adolescents in extracurricular activities, currently defined as “academic or non-academic activities that are conducted under the auspices of the school but occur outside of normal classroom time and are not part of the curriculum…not involving grade or academic credit”, strongly correlates with the development of social well-being (Bartkus, Nemelka, B., Nemelka, M., & Gardner, 2012). Non-academic extracurricular activities include varsity, junior varsity, intramural, recreational, and for-pleasure athletic activities, while academic extracurricular activities include student government, leadership and service organizations, and clubs, such as journalism and math (Turner, 2010). Customarily, these activities are optional for adolescents and, although not indicated in the current working definition, can also include activities outside the school setting, such as volunteering for community or religious organizations (Bartkus et al., 2012; Zaff, Moore, Papillo, & Williams, 2003).

Participation in extracurricular activities has numerous benefits, including emotional, academic, and social advancements, ultimately resulting in the comprehensive development of the adolescent (Bakoban & Aljarallah, 2015). Social maturity results largely from the increased opportunities for interaction, discussion, and relationship development with peers and adults (Bakoban & Aljarallah, 2015; Riese et al., 2015). These can result in enhanced competency in important external social skills, such as
leadership, sportsmanship, conflict management and resolution, ability to effectively communicate and negotiate, and appreciation for similarities and differences within relationships. Enhanced internal social skills include improved self-worth, personal values, critical thinking, self-confidence, autonomy, time management, and intellectual ability (Bakoban & Aljarallah, 2015; Turner, 2010).

Social well-being development through school-facilitated extracurricular activities results in enhanced development of interpersonal competence. Interpersonal competence relies heavily on the augmentation of positive peer relationships leading to prosocial behaviors, increased aptitude for academic and career endeavors, and ability to plan and attain goals. Through consistent extracurricular activities and the associated dedication and discipline required to achieve success in these venues, adolescents develop interpersonal skills, as well as academic aspirations, that can be achieved through the employment of the many unique characteristics acquired (Mahoney, Cairns, & Farmer, 2003).

Extracurricular activities outside of the school setting can further enhance social well-being in a community and global sense. School-related extracurricular activities generally involve peer relationships and academic outcomes; however, non-school-related extracurricular activities assume a more socially responsible role. Adolescents who consistently participate in extracurricular activities have a greater likelihood of voting and volunteering. Adolescents who participate in extracurricular activities long-term—eighth grade through twelfth grade—are two times more likely to vote and volunteer for community or religious organizations than adolescents who do not
participate in any extracurricular activities. Additionally, positive peer and parental influences increase these likelihoods by approximately 30% when compared to adolescents with poor or negative relationship influences (Zaff et al., 2003). As a result, extracurricular activities—school, non-school, academic, and non-academic—remain a strong predictor of prosocial behaviors and, ultimately, social well-being.

**Academic Performance Defined**

Academic performance is measured using a complex grading system which evolved from early European origins—becoming commonplace in the United States by the end of the Civil War—and was largely standardized by the mid-twentieth century. As a result, grades are primarily used for standardized ranking and quantification of student achievement, allowing for direct comparison of students throughout the country. Measurement of student academic outcomes serves internal and external communication purposes by internally conveying instructional concerns and providing fodder for motivation and competition, and externally by imparting attainment of learning outcomes for intra- and inter-system ranking, parental updates, and admission or employment purposes (Schneider & Hutt, 2014).

Three common measurement scales are employed within the United States educational system—grade point average (GPA, 0.0-4.0), letter grades (A-F), and percent scales (0-100%). Letter grades and percent scales are reserved predominantly for the assessment and communication of academic performance within individual courses,
while GPA is used as a comprehensive measure of overall academic performance throughout the year (Schneider & Hutt, 2014).

In Ohio, GPA is calculated in a two-part process. Initially, credit-points must be calculated for each course by multiplying the number of credit hours by the grade point achieved—relating course letter grade to a number on a scale from 0.0 to 4.0. Credit-points for each class are totaled and divided by the total number of credit hours. As a result, students receive an aggregate assessment of their academic performance for the year based on a scale from 0.0 to 4.0 (Ohio Department of Education, 2007). These values are used as one component of the numerous graduation requirements in Ohio. Requirements also include a minimum number of credit hours within the central subject areas, including health and one of the following: a minimum grade on standardized state exams, a minimum grade on industry or workforce readiness exams, or a minimum grade on ACT or SAT tests based on college or university acceptance standards (Ohio Department of Education, 2016).

Furthermore, state-mandated courses, such as health class, must meet curriculum requirements set by the Ohio Department of Education (Ohio Department of Education “Requirements”, n.d.). One-half unit of health class is required for graduation and must include “instruction in nutrition and the benefits of nutritious foods and physical activity for overall health” (Ohio Department of Education “Requirements”, n.d.). Furthermore, the health education curriculum includes lessons regarding the “nutritive value of foods,” the “harmful effects of and legal restrictions against the use of drugs of abuse, alcoholic beverages, and tobacco,” personal safety, dating violence, and venereal diseases (Ohio
Department of Education “Prescribed”, n.d.). Such topics can be adapted based on age of the audience and the needs of the students and community (Ohio Department of Education “9-12 Health”, n.d.).

**Determinants of Academic Performance**

Academic performance, which encompasses student engagement and achievement, can be determined based on a series of student and school attributes. Student academic outcomes are most commonly assessed through test scores, transfer rates, dropout rates, and graduation rates, and are impacted by a series of influential features at both the student and school level (Rumberger & Palardy, 2005). At the school level, academic performance can be influenced by structural features, such as the location, type, and size of the institution, and instructional features, including the curriculum, teachers, resources, policies and practices, and overall academic climate, including the availability of extracurricular activities and parent-teacher associations (McNair & Johnson, 2009; Mullis, R., Rathge, & Mullis, A., 2003; Rumberger & Palardy, 2005).

Additionally, academic performance is, to a certain extent, predetermined based on student profile. Family demographics, ethnicity, socioeconomic status, and family structure and relationship, including participation in family mealtimes, predispose adolescents to a certain degree of academic achievement. Adolescents are further influenced by their gender, personality traits, previous academic achievement,
perceptions of school, participation in school- or non-school-based extracurricular activities, and the social climate within the school (Rumberger & Palardy, 2005).

Supportive family structures and healthy parent-child relationships are positively correlated with high academic achievement, successful social functioning within the school environment, and resiliency when facing school-related problems (Forehand, Long, Brody, & Fauber, 1986). This correlation is bolstered as parent-child interaction time, parent education level, household income, and household materials and possessions increase (Mullis et al., 2003; McNair & Johnson, 2009). Ample interaction time enables parents to act as role models while conveying academic values and expectations, as well as social norms, thus, resulting in adolescents’ favorable perception of school quality, school importance, and the value of good grades (Heaven & Newbury, 2004; McNair & Johnson, 2009).

Adolescents’ positive perceptions of school correlate strongly with their feelings of school importance and their interest in academics which, in turn, enhance academic performance (McNair & Johnson, 2009). Moreover, adolescents’ attitudes toward school and academic performance can be influenced by certain personality traits. Heaven and Newbury (2004) indicate five personality traits that can positively or negatively impact academic achievement—extraversion, psychoticism, neuroticism, agreeableness, and conscientiousness. Optimistic traits, such as extraversion, agreeableness, and conscientiousness, result in improved academic performance due to adolescents’ possession of hope, development of self-esteem, and ability to externalize problems (Heaven & Newbury, 2004; Leeson, Ciarrochi, & Heaven, 2008). However,
psychoticism and neuroticism can become barriers to positive school perceptions and performance, but can be moderated by augmenting other modifiable factors, such as increased parent-child interaction time, to support academic performance (Heaven & Newbury, 2004).

**Current Research on Family Mealtime Participation and Social Well-being**

Social well-being, as previously stated, is a measure of one’s communicability, sociability, sense of security, presence of support systems, sense of loneliness, acceptance in social settings, and presence of reciprocal appreciation for relationships (Supranowicz & Paź, 2014). More succinctly, social well-being is the development, promotion, and maintenance of a wide variety of relationships and the communication skills, sense of belonging, and support systems that arise from such beneficial connections. Beginning at birth, social well-being is fostered through parent-child interactions and family relationships, and can result in beneficial advancements to children’s social well-being. As a result, the interactions of families, particularly during family mealtimes, have been a topic of research during the past decade. Numerous studies have investigated the connection between the participation of children in family mealtimes and the social benefits incurred, specifically that of increased family connectedness and improved family relationships (Eisenberg et al., 2004; Fulkerson et al., 2007; Fulkerson et al., 2008; Horning et al., 2016; Utter et al., 2013). Whether measured as family cohesion, the emotional bonding between family members, or family connectedness, the quality and strength of family relationships, increased family support, and presence through participation in family mealtimes are significant predictors of good mental health and
social well-being (Fulkerson et al., 2007; Horning et al., 2016; Rothon et al., 2012; Utter et al., 2013; Welsh et al., 2011).

Additionally, enhanced social well-being through positive parent-child or family interactions has been associated with improved self-perception, relationships outside of the home, resiliency, and communication skills (Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014). Enhanced self-perception develops from the positive relationship that exists between frequent participation in family mealtimes, family relationships, and self-esteem, commonly arising from a positive meal atmosphere where adolescents can openly discuss their problems (Eisenberg et al., 2004; Fulkerson et al., 2007; Harrison et al., 2015; Prior & Limbert, 2012; Utter et al., 2013). By opening the lines of communication, family mealtimes provide daily opportunities for parents to provide behavior modeling and expectations, and for adolescents to practice and improve communication and conversation skills, decision-making skills, and goal-setting abilities. These skills result in improved peer relationships, the development of resiliency to avoid delinquent behaviors, enhanced views of personal future, and a bolstered sense of purpose, resulting in an increase in social well-being (Fulkerson et al., 2006; Fulkerson et al., 2008; Martin-Biggers et al., 2014; Meier & Musick, 2014).

Conversely, according to Meier and Musick (2014), social well-being can be negatively impacted by poor quality parent-child relationships. Despite the numerous benefits of frequent participation in family mealtimes on social well-being, family meals may be counterproductive when family or parent-child relationship quality is poor.
Consequently, the participation in family mealtimes may only be protective if the family members present exhibit positive influences on the adolescent (Meier & Musick, 2014).

**Current Research on Family Mealtime Participation and Academic Performance**

The relationship between family mealtime participation and academic performance is currently understudied, with only a handful of research studies investigating the variables specific to academic performance. Within these studies, academic performance is directly assessed using letter grades (A-F) on report cards, standardized test scores, and grade point average (GPA), and indirectly assessed using predictors of academic achievement, such as school habits, language skills, and perceptions of school (Eisenberg et al., 2004; Fruh et al., 2001; Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014; Miller et al., 2012; The National Center on Addiction and Substance Abuse at Columbia University, 2012).

Positive relationships between the frequency of family mealtime participation and academic achievement have been found in several studies using direct academic performance assessment methods. Frequent participation in family mealtimes results in higher GPA values, as well as increased standardized test scores (Eisenberg et al., 2004; Harrison et al., 2015). Specifically, family breakfast consumption is associated with improved reading, math, and science standardized test scores, while the consumption of family dinners is not (Miller et al., 2012). According to Miller et al. (2012), family dinner participation is associated with an inverse or null effect on reading and math standardized test scores when controlling for confounding variables. However, child
participation in family dinnertimes seven or more times per week results in a 40% greater likelihood that they will receive mostly As and Bs on their report card, compared to those who only participate in family mealtimes two or fewer times per week (The National Center on Addiction and Substance Abuse at Columbia University, 2012). Apart from the inverse or null effect of dinner participation on standardized test scores in the study by Miller et al. (2012), the relationship between family mealtime and academic performance remain significant despite controlling for family connectedness (Eisenberg et al., 2004).

Indirect assessment methods utilize predictors of academic achievement to examine relationships between participation in family mealtimes and academic achievement. Commonly used predictors include the development of effective school habits, language skills, and positive perceptions of school. Effective school habits that result from frequent family mealtime participation and lead to improved academic achievement include a commitment to learning, elevated levels of school engagement, and frequent completion of homework, defined as one or more hours per day (Fulkerson et al., 2006; Harrison, et al., 2015). Frequency of family mealtimes is also significantly related to the development of language skills including vocabulary, reading, intellectual, and verbal skills. This enhanced level of cognitive development is commonly associated with higher levels of academic achievement (Fruh et al., 2011; Martin-Biggers et al., 2014). Lastly, positive perceptions of school and high levels of motivation to achieve positively correlate with frequent family mealtime participation and academic performance (Fulkerson et al., 2006).
Participation in family mealtimes as a norm is a custom of the past; however, in light of recent research and promotion efforts, families are attempting a resurgence in these cohesive daily routines. Studies indicate numerous social, emotional, mental, and physical health outcomes from family mealtime interactions; however, additional research is needed to control for confounding variables and evaluate the impact family mealtime participation has on promoting adolescent success in the school environment, including both social and academic variables.
CHAPTER III

METHODOLOGY

Study Design

The purpose of this study was to investigate the effect of family meal participation and mealtime electronic device use on social well-being and academic performance in high school sophomores at a Northeast Ohio public high school. This was a quantitative, non-experimental study utilizing a post-test only paper survey, administered to a convenience sample of Northeast Ohio high school students. The survey provided insight into adolescents’ current participation in family mealtimes, electronic device use during family mealtimes, perceptions of social well-being within the school environment, and performance in academics. The independent variables of this study were family mealtime participation and the dependent variables were social well-being, academic performance, and family mealtime barriers.

Participants

The survey was administered to a convenience sample of high school students from Aurora High School. Participants were current sophomores, typically between the ages of 15- and 17-years-old, registered in the mandatory Spring 2017 health class. Approximately 140 students enrolled in the Spring 2017 health class were eligible to participate in the survey. Each of the five classes, with approximately 25 students per class, had the opportunity to join the study.
Setting

The study was conducted at Aurora High School. Aurora High School is one of five public schools within the Aurora City School District located in Aurora, Ohio. The Aurora City School District serves all residents of Aurora, Ohio and a portion of the residents of Reminderville, Ohio (Aurora City School District, n.d.). Aurora, Ohio maintains a median household income of $81,887 and a poverty rate of 3.0% compared to a median household income of $52,552 and a poverty rate of 13.6% for the larger population of Portage County. Furthermore, of the adult residents over the age of 25, 95% hold a high school diploma and 48% hold an advanced degree, whereas Portage County maintains a rate of 91.5% and 26.0%, respectively (United States Census Bureau, 2015).

Aurora High School houses grades nine through twelve and has approximately 1,025 students out of the greater district total of 2,961 students (Aurora City School District, n.d.). The student body is comprised of 90% Caucasian students, five percent African American students, two percent Asian students, one percent Hispanic students, and two percent of students indicating two or more races. Seven percent of the student body is eligible for free lunches and one percent of the student body is eligible for reduced lunches (Public School Review, 2016). The high school is currently in excellent standing due to their current state report card grades of As and Bs (Ohio Department of Education “Report card”, 2016). The survey was administered to students registered for the Spring 2017 health class. Health class is a mandatory course for all sophomores, and
is necessary for meeting Ohio graduation requirements (Ohio Department of Education “Requirements”, n.d.).

Survey

The Family Mealtime Participation Questionnaire was adapted with permission from the “Family Dinner Frequency Measures” assessment by Horning et al. (2016), in addition to questions written by the researcher. The survey (Appendix A) contained four sections: (1) family mealtime, with subsections—family mealtime participation and family mealtime barriers; (2) social well-being, with subsections—parents/caregivers/legal guardians, friends, school environment, and extracurricular activities; (3) academic performance; and (4) demographics. The survey consisted of 25 questions and five demographic inquiries, as well as pertinent definitions necessary for the accurate completion of the survey. The data collected from the two social well-being scales—friends and school environment—and academic performance measures—health class grade and grade point average—were analyzed in conjunction with family mealtime frequency and electronic device use groups to identify differences between groups. All remaining data were used for descriptive purposes.

Survey Components

The survey consists of four sections containing questions pertaining to family mealtime habits, social well-being, academic performance, and participant demographics.
Section 1: Family mealtime. The first section of the survey consists of two subsections containing questions pertaining to family mealtime participation and family mealtime barriers.

Family mealtime participation. The family mealtime participation subsection contained five questions and six sub-questions and investigated the various aspects of family mealtime participation using a Likert-style scale. Based on the defined concept of family mealtime participation, survey questions explored the frequency with which participants engaged in family mealtimes, the types of family members present at meals, the types of meals most frequently eaten together, and the total number of family meals eaten over the past seven days. The first question was utilized for descriptive data, while the second and third questions were used to create the frequent and infrequent family mealtime participation study groups. The last two questions explored the frequency of family meals with and without electronic devices over a span of seven days. These questions were eliminated from the data analysis due to inconsistencies in participant answers.

Family mealtime barriers. Within the family mealtime barriers subsection, each of the four questions provided data regarding identified barriers to family mealtimes based on a 5-point Likert-style scale. Survey questions explored the difficulties with schedule and meal location preferences, as well as the prevalence of television, cell phone, or computer use during meals. All four questions were used for chi-square analyses to determine if differences in barriers existed between family mealtime frequency groups. In addition, the second two questions were used to create secondary
study groups indicating the frequency, neutrality, or infrequency of use or permission to use electronic devices during family mealtimes.

**Section 2: Social well-being.** The second section of the survey consists of four subsections containing questions pertaining to parents, friends, school environment and extracurricular activities.

**Parents.** The parents subsection of the survey consisted of three questions and five sub-questions based on a 5-point Likert-style scale investigating participants’ relationships with their parents, as a descriptive component of social well-being. Survey questions explored participants’ preferences regarding spending time with parents and their ability to discuss personal issues with parents.

**Friends.** The friends subsection consisted of four questions based on a 5-point Likert-style scale investigating participants’ feelings toward and perceptions of the possession of friends or groups of friends within the school setting. Survey questions explored whether participants felt they had a close friend or group of friends, if they felt comfortable within the school environment, and if they ever felt lonely. Responses were assigned numerical values, averaged, and placed on a continuum designated as the Friend Scale. These values were indicative of participants’ positive or negative perceptions of friends and were utilized as an indicator of overall social well-being.

**School environment.** The three questions in the school environment subsection based on a 5-point Likert-style scale investigated participants’ perceptions of school. Survey questions explored participants’ like or dislike of school, perceived importance of
attending school, and ability to approach teachers regarding personal issues. Responses were assigned numerical values, averaged, and placed on a continuum designated as the School Environment Scale. These values were indicative of participants’ positive or negative perceptions of the school environment and were utilized as an indicator of overall social well-being.

**Extracurricular activities.** The extracurricular activities subsection investigated participants’ current involvement in extracurricular activities in a series of four 6-point Likert-style questions that provided descriptive data. Extracurricular activity questions were divided into categories: (1) participation on a sports team, (2) participation in a musical group, (3) membership in a school or community club, and (4) volunteering for a school or community cause.

**Section 3: Academic performance.** The third section of the survey consists of questions pertaining to academic performance.

**Academic performance.** The academic performance section requested self-reported measures of academic performance in two questions. Academic performance was assessed using student-reported health class grade and overall grade point average (GPA). Health class grades were assigned numerical values. The values of both health class grade and GPA were placed on two separate continuums and were used as indicators of participants’ positive or negative academic performance.

**Section 4: Demographics.** The fourth section of the survey consists of questions pertaining to participant demographics.
**Demographics.** The demographic section consisted of five questions regarding participants’ personal and family demographics. Descriptive demographic data of interest included age, gender, number of adults living in the home, and number of children living in the home.

**Procedure**

The Family Mealtime Participation Questionnaire was developed, with permission, using preexisting questions from the “Family Dinner Frequency Measures” assessment by Horning et al. (2016), in addition to questions written by the researcher. Once the study received approval from the KSU Institutional Review Board (IRB), local schools were contacted requesting permission to offer the survey as supplemental material for all health classes. A documented agreement to participate was provided by the Aurora High School principal. All Aurora High School students registered for the Spring 2017 health class were offered the opportunity to complete the survey. An informational parent letter (Appendix B) was sent home with students two weeks prior to survey administration informing parents of the opportunity for their child to participate in the survey, the procedure to follow if they or their child wished to decline participation in the survey, and the steps taken to ensure the anonymity and confidentiality of their child’s responses.

Participating health teachers were provided informational teacher letters (Appendix C), discussing the procedure for survey administration, along with additional
survey materials, including verbal assent script (Appendix D) and informational student letter (Appendix E).

Survey administration was conducted over a 15-minute timeframe by the health teacher. Administration consisted of a verbal reading of the verbal assent script, informing students that the survey was voluntary and confidential; the distribution of the informational student letter; and the circulation and collection of the survey. Each student received an informational student letter and a survey and was instructed to complete or abstain from participation, as desired. Students were given the opportunity to read the informational letter and ask questions privately throughout the survey administration process. Students were provided ample time to complete the paper survey during health class. Upon completion, an unmarked envelope was circulated throughout the classroom and students were instructed to submit their survey regardless of completion status. The envelope was then sealed and delivered directly to the principal for storage until collected by the researcher. The survey administration process was completed for each of the four additional health classes in this manner.

Upon receipt by the researcher, envelopes were labeled one through five to classify individual health classes and surveys were allotted sequential number codes in the order in which they were placed in the envelope. Codes were designed to indicate the class number followed by the survey number to ensure organization and confidentiality. Survey data were then reviewed and entered into an Excel spreadsheet for data analysis.
Following survey administration, participants were organized into primary groups according to their frequency of family mealtime participation and secondary groups corresponding to their frequency of electronic device use during family mealtimes. The data collected enabled an investigation of the differences in social well-being and academic performance between those who frequently and infrequently participated in family mealtimes; as well as those who frequently, neutral, or infrequently (1) engaged in television use and (2) were permitted to engage in cell phone or computer use during family mealtimes.

Family mealtime participation groups were developed using each participant’s responses to a 5-point Likert-style scale ranging from All of the time to Never for the following questions: (1) “Did you eat a meal with at least one of your parents, caregivers, or legal guardians?” and (2) “Did other family members eat with you?” Participants were placed into one of two groups for family mealtime participation—frequent or infrequent. Responses of All of the time/Most of the time for one or both questions were placed in the frequent family mealtime participant group, whereas responses of Sometimes/Almost never/Never for one or both questions were placed in the infrequent family mealtime participation group.

Social well-being was identified using two scales—Friend Scale and School Environment Scale. The Friend Scale was developed based on an average of each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “I feel part of a close group of friends,” (2) “I feel that I have a best friend,” (3) “I feel comfortable talking to other student throughout the school day,”
and (4) “I feel lonely at school.” Similarly, the School Environment Scale was developed based on an average of each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “I like school,” (2) “I feel it is important to do well in school,” and (3) “I feel comfortable talking to the teachers and staff in my school.” Summative Friend Scale responses ranged from four to 20, where a score of greater than or equal to 16 indicated a positive response. Summative School Environment Scale responses ranged from three to 15, where a score of greater than or equal to 12 indicated a positive response.

Academic performance was identified using self-reported letter grades in health class and current high school GPA. Responses were placed on a continuum and used in this manner for data analysis. Health class grades ranged from zero to five, where a score of greater than or equal to three indicated a positive response. GPA responses ranged from zero to four, where a score of greater than or equal to three indicated a positive response.

Barriers to family mealtimes were assessed using four questions investigating common barriers: (1) conflicting schedules, (2) differing meal location preferences, (3) television use during family mealtimes, and (4) permission to engage in cell phone or computer use during family mealtimes. Four separate chi-square analyses were run using family mealtime participation as a factor to determine whether there was a difference in the proportion of family mealtime barrier occurrence between the frequent and infrequent family mealtime participation groups. Responses to questions regarding barriers to family mealtimes, placed on a 5-point Likert-style scale ranging from Agree to Disagree,
were divided into one of three groups: (1) those who agreed that the barrier existed (Agree/Somewhat Agree), (2) those who were neutral (Neutral), and (3) those who disagreed that the barrier existed (Somewhat Disagree/Disagree).

Lastly, electronic device use groups were developed from questions regarding potential barriers to family mealtime. Electronic device use groups were developed using each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “The television is usually on during mealtimes” and (2) “My family members and I are allowed to use our cell phones or computers at the table.” Participants were placed into one of three groups for both television use and permission to engage in cell phone or computer use—frequent, neutral, or infrequent. Responses to each question were used to categorize television use and cell phone or computer use groups, respectively: (1) those who frequently engaged in television/cell phone or computer use during family mealtimes (Agree/Somewhat Agree), (2) those who were neutral (Neutral), and (3) those who infrequently engaged in television/cell phone or computer use during family mealtimes (Somewhat Disagree/Disagree).

**Data Analysis**

To evaluate the differences between family mealtime frequency and electronic device use groups and the two dependent variables—social well-being and academic performance—the data were entered into the Statistical Package for Social Sciences (SPSS) version 24.0. Frequencies, means, and standard deviations of direct measures of social well-being and academic performance were analyzed using T-tests and one-way
analyses of variance (ANOVA) to assess for interactions within and between each variable. Each of the groups—(1) frequent participation in family mealtimes, (2) infrequent participation in family mealtimes, (3) frequent use of television during family mealtimes, (4) neutral use of television during family mealtimes, (5) infrequent use of television during family mealtimes, (6) frequent permission to engage in cell phone or computer use during family mealtimes, (7) neutral permission to engage in cell phone or computer use during family mealtimes, and (8) infrequent permission to engage in cell phone or computer use during family mealtimes—was analyzed to ascertain if differences were found in the Friend Scale, School Environment Scale, health class grade, and GPA responses between groups. A significance level of P≤0.05 was set.

Hypotheses stating that there would be a difference in social well-being and academic performance between frequent and infrequent family mealtime groups were analyzed using independent T-tests. Family mealtime participation groups—frequent and infrequent—were created using questions assessing the extent of family mealtime participation as described in the Procedure section. Social well-being measures were based on reported Friend and School Environment Scale values and academic performance measures were based on reported health class grade and GPA values. These values were each ranked on a continuum as described in the Procedure section. Independent T-tests were then used to assess whether differences existed in social well-being and academic performance measures between frequent and infrequent family mealtime groups.
Hypotheses stating that there would be a difference in social well-being and academic performance between electronic device use groups—those with frequent, neutral, or infrequent (1) family mealtime television use and (2) permission to engage in family mealtime cell phone or computer use were analyzed using ANOVA tests. Social well-being measures were based on reported Friend and School Environment Scale values and academic performance measures were based on reported health class grade and GPA values. These values were each ranked on a continuum as described in the Procedure section. Electronic device use groups—frequent, neutral, or infrequent—were created using questions assessing the frequency with which participants engage or are permitted to engage in television and cell phone or computer use during family mealtimes as described in the Procedure section. ANOVA tests were used to assess whether differences existed in social well-being and academic performance between frequent, neutral, or infrequent electronic device use groups. Additionally, Tukey HSD post-hoc tests were used to identify where significant differences occurred between variables in the ANOVA tests.

Lastly, chi-square analyses were used to provide supportive data regarding the prevalence of barriers in frequent and infrequent family mealtime participation groups. Family mealtime barriers were assessed using questions exploring the frequency of common barriers—conflicting schedules, differing meal location preferences, television use during family mealtime, and permission to engage in cell phone or computer use during family mealtimes as described in the Procedure section. Chi-square analyses were completed for each barrier to assess the impact of family mealtime barriers on family
mealtime participation and determine if differences existed between frequent and infrequent family mealtime groups.
CHAPTER IV

JOURNAL ARTICLE

Introduction

The period of adolescence is wrought with social, emotional, mental, and physical health challenges, including disruptions to healthful eating habits, physical activity, academic performance, and interpersonal communication skills. These disruptions are due to common developmental milestones as adolescents seek autonomy from parents, as well as from the ubiquitous presence of and reliance on technology, such as television, cell phones, or computers. The decreased time spent fostering parental and familial relationships, as well as the lessened exposure to adult relationships and interactions, results in an increased risk for a decline in overall health (Fulkerson, Kubik, Story, Lytly, & Arcan, 2009). The lack of parental interaction and, by extension, guidance and support, can lead to an increased risk for weight gain, anti-social tendencies, impaired academic performance, and diminished social well-being (Fulkerson et al., 2009).

Continued participation in parental and familial relationships throughout adolescence—in the form of routine participation in family mealtimes, for example—can provide a protective effect against adolescent unhealthful behaviors (Ruhl, Dolan, & Buhrmester, 2015). Family mealtime—loosely defined as “occasions when food is eaten simultaneously in the same location by more than one family member” “at least [five] or [six] times per week”—has, over the last three decades, decreased to a rate of less than
one time per day (Barlow & Expert Committee, 2007; Martin-Biggers et al., 2014). However, the incidence of family mealtime participation has recently seen a resurgence due to its proposed effectiveness in promoting adolescent overall health (Barlow & Expert Committee, 2007; Martin-Biggers et al., 2014; Mestdag & Vandeweyer, 2005). Research involving the benefits of frequent participation in family mealtimes indicates social benefits, heightened intellectual and academic development, increased emotional stability and prosocial tendencies, enhanced healthful dietary patterns, improved weight control, and decreased participation in risky behaviors, as well as preliminary positive relationships to social and academic climates within the school environment (Eisenberg et al., 2004; Eisenberg, Olson, Neumark-Sztainer, Story, & Bearinger, 2004; Fruh, Fulkerson, Mulekar, Kendrick, & Clanton, 2001; Fulkerson et al., 2009; Fulkerson, Story, Neumark-Sztainer, & Rydell, 2008; Fulkerson, Strauss, Neumark-Sztainer, Story, & Boutelle, 2007; Harrison et al., 2015; Horning, Fulkerson, Friend, & Neumark-Sztainer, 2016; Miller, Waldfogel, & Han, 2012; Rothon, Goodwin, & Stansfeld, 2012; The National Center on Addiction and Substance Abuse at Columbia University, 2012; Utter et al., 2013; Welsh, French, & Wall, 2011).

Routine participation in family mealtimes is a promising means of improving the overall health of adolescents, as it has been identified as an integral component in the promotion of healthful dietary, social, and academic habits. Nevertheless, data regarding the ideal frequency of family mealtime participation to achieve maximum benefit have been ambiguous and lacking in repeated measures for the current population (Eisenberg et al., 2004; Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014). To
provide the most effective guidance for families seeking alternative methods for improving the social well-being, academic performance, and overall health of their adolescent child, additional research is warranted. Further research is warranted to assess for both social well-being and academic achievement while controlling for each variable separately. Many of the protective benefits of family mealtime participation can be attributed to a multitude of family processes. Thus, it is necessary to disentangle variables—barriers to family mealtimes, parent-child relationships, and participation in extracurricular activities—in an attempt to ascertain significance and provide more concrete data as a means of increasing participation in family mealtimes. Current research points to technology as a common barrier for family mealtimes for the adolescent population. However, the major shift in electronic device use in the current generation may demonstrate differences in the impact that these barriers have on family mealtime, social well-being, and academic performance. By identifying the regularity of family mealtimes in the current study, as well as the common barriers that affect participation in family mealtimes, the impact of family mealtime participation on adolescent social well-being and academic performance outcomes can be further examined to identify trends between frequent and infrequent participants.

As a result, the purpose of this study was to investigate the difference in social well-being and academic performance between those high school sophomores who frequently participated in family mealtimes and those who infrequently participated in family mealtimes at a Northeast Ohio public high school. Another purpose of this study was to investigate the difference in social well-being and academic performance between
those high school sophomores who frequently engaged in television use during family mealtimes, those who were neutral, and those who infrequently engaged in television use during family mealtimes, as well as between those who were frequently granted permission to engage in cell phone or computer use during family mealtimes, those who were neutral, and those who were infrequently granted permission to engage in cell phone or computer use during family mealtimes.

Methodology

Study Design

The quantitative, non-experimental study was designed to investigate the effect of family meal participation and mealtime electronic device use on academic performance and social well-being in high school sophomores at a Northeast Ohio public high school. Participants were organized into primary groups according to their frequency of family mealtime participation and secondary groups corresponding to their frequency of electronic device use during family mealtimes. The survey provided insight into adolescents’ current participation in family mealtimes, electronic device use during family mealtimes, perceptions of social well-being within the school environment, and performance in academics.

Participants and Setting

The study was conducted at Aurora High School within the Aurora City School District located in Aurora, Ohio. Aurora High School houses grades nine through twelve and has approximately 1,025 students (Aurora City School District, n.d.). The survey
was administered to a convenience sample of high school sophomores, ages 15- to 17-years old, registered in the mandatory Spring 2017 health class. Approximately 140 students enrolled in the Spring 2017 health class were eligible to participate in the survey. Each of the five classes, with approximately 25 students per class, had the opportunity to join the study.

Survey

The survey was adapted with permission from the “Family Dinner Frequency Measures” assessment by Horning et al. (2016), in addition to questions written by the researcher. The survey (Appendix A) contained four sections: (1) family mealtime, with subsections—family mealtime participation and family mealtime barriers; (2) social well-being, with subsections—parents/caregivers/legal guardians, friends, school environment, and extracurricular activities; (3) academic performance; and (4) demographics.

Section 1: Family mealtime. The first section of the survey consists of two subsections containing questions pertaining to family mealtime participation and family mealtime barriers.

Family mealtime participation. The family mealtime participation subsection contained five questions and six sub-questions and investigated the various aspects of family mealtime participation using a Likert-style scale. Based on the defined concept of family mealtime participation, survey questions explored the frequency with which participants engaged in family mealtimes, the types of family members present at meals, the types of meals most frequently eaten together, and the total number of family meals
eaten over the past seven days. The first question was utilized for descriptive data, while the second and third questions were used to create the frequent and infrequent family mealtime participation study groups. The last two questions explored the frequency of family meals with and without electronic devices over a span of seven days. These questions were eliminated from the data analysis due to inconsistencies in participant answers.

**Family mealtime barriers.** Within the family mealtime barriers subsection, each of the four questions provided data regarding identified barriers to family mealtimes based on a 5-point Likert-style scale. Survey questions explored the difficulties with schedule and meal location preferences, as well as the prevalence of television, cell phone, or computer use during meals. All four questions were used for chi-square analyses to determine if differences in barriers existed between family mealtime frequency groups. In addition, the second two questions were used to create secondary study groups indicating the frequency, neutrality, or infrequency of use or permission to use electronic devices during family mealtimes used in ANOVA tests.

**Section 2: Social well-being.** The second section of the survey consists of four subsections containing questions pertaining to parents, friends, school environment and extracurricular activities.

**Parents.** The parents subsection of the survey consisted of three questions and five sub-questions based on a 5-point Likert-style scale investigating participants’ relationships with their parents, as a descriptive component of social well-being. Survey
questions explored participants’ preferences regarding spending time with parents and their ability to discuss personal issues with parents.

**Friends.** The friends subsection consisted of four questions based on a 5-point Likert-style scale investigating participants’ feelings toward and perceptions of the possession of friends or groups of friends within the school setting. Survey questions explored whether participants felt they had a close friend or group of friends, if they felt comfortable within the school environment, and if they ever felt lonely. Responses were assigned numerical values, averaged, and placed on a continuum designated as the Friend Scale. These values were indicative of participants’ positive or negative perceptions of friends and were utilized as an indicator of overall social well-being.

**School environment.** The three questions in the school environment subsection based on a 5-point Likert-style scale investigated participants’ perceptions of school. Survey questions explored participants’ like or dislike of school, perceived importance of attending school, and ability to approach teachers regarding personal issues. Responses were assigned numerical values, averaged, and placed on a continuum designated as the School Environment Scale. These values were indicative of participants’ positive or negative perceptions of the school environment and were utilized as an indicator of overall social well-being.

**Extracurricular activities.** The extracurricular activities subsection investigated participants’ current involvement in extracurricular activities in a series of four 6-point Likert-style questions that provided descriptive data. Extracurricular activity questions
were divided into categories: (1) participation on a sports team, (2) participation in a musical group, (3) membership in a school or community club, and (4) volunteering for a school or community cause.

**Section 3: Academic performance.** The third section of the survey consists of questions pertaining to academic performance.

*Academic performance.* The academic performance section requested self-reported measures of academic performance in two questions. Academic performance was assessed using student-reported health class grade and overall grade point average (GPA). Health class grades were assigned numerical values. The values of both health class grade and GPA were placed on two separate continuums and were used as indicators of participants’ positive or negative academic performance.

**Section 4: Demographics.** The fourth section of the survey consists of questions pertaining to participant demographics.

*Demographics.* The demographic section consisted of five questions regarding participants’ personal and family demographics. Descriptive demographic data of interest included age, gender, number of adults living in the home, and number of children living in the home.

**Procedure**

The Family Mealtime Participation Questionnaire was developed, with permission, using preexisting questions from the “Family Dinner Frequency Measures” assessment by Horning et al. (2016), in addition to questions written by the researcher.
Once the study received approval from the KSU Institutional Review Board (IRB), local schools were contacted requesting permission to offer the survey as supplemental material for all health classes. A documented agreement to participate was provided by the Aurora High School principal. All Aurora High School students registered for the Spring 2017 health class were offered the opportunity to complete the survey. An informational parent letter (Appendix B) was sent home two weeks prior to survey administration which informed parents and students of the opportunity for participation, procedures for declining participation, and steps taken by researcher to ensure anonymity and confidentiality of survey responses.

Participating health teachers were provided with informational teacher letters (Appendix C), discussing the procedure for survey administration, along with additional survey materials, including verbal assent script (Appendix D) and informational student letter (Appendix E).

Survey administration was conducted in each of the five health classes over a 15-minute timeframe by the health teacher. Administration consisted of a verbal reading of the verbal assent script, distribution of the informational student letter, and circulation and collection of the survey. Each student received an informational student letter and a survey and was instructed to complete or abstain from participation, as desired. Students were provided ample time to complete the paper survey during health class. Upon completion, an unmarked envelope was circulated throughout the classroom and students were instructed to submit their survey regardless of completion status. The envelope was
then sealed and delivered directly to the principal for storage until collected by the researcher.

Class envelopes were labeled one through five to classify each individual health class and surveys were allotted sequential number codes in the order in which they were placed in the envelope. Codes were designed to indicate the class number followed by the survey number to ensure organization and confidentiality. Survey data were then reviewed and entered into an Excel spreadsheet for data analysis.

Following survey administration, participants were organized into primary groups according to their frequency of family mealtime participation and secondary groups corresponding to their frequency of electronic device use during family mealtimes. The data collected enabled an investigation of the differences in social well-being and academic performance between those who frequently and infrequently participated in family mealtimes; as well as those who frequently, neutral, or infrequently (1) engaged in television use and (2) were permitted to engage in cell phone or computer use during family mealtimes.

Family mealtime participation groups were developed using each participant’s responses to a 5-point Likert-style scale ranging from All of the time to Never for the following questions: (1) “Did you eat a meal with at least one of your parents, caregivers, or legal guardians?” and (2) “Did other family members eat with you?” Participants were placed into one of two groups for family mealtime participation—frequent or infrequent. Responses of All of the time/Most of the time for one or both questions were placed in
the frequent family mealtime participant group, whereas responses of Sometimes/Almost never/Never for one or both questions were placed in the infrequent family mealtime participation group.

Social well-being was identified using two scales—Friend Scale and School Environment Scale. The Friend Scale was developed based on an average of each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “I feel part of a close group of friends,” (2) “I feel that I have a best friend,” (3) “I feel comfortable talking to other student throughout the school day,” and (4) “I feel lonely at school.” Similarly, the School Environment Scale was developed based on an average of each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “I like school,” (2) “I feel it is important to do well in school,” and (3) “I feel comfortable talking to the teachers and staff in my school.” Summative Friend Scale responses ranged from four to 20, where a score of greater than or equal to 16 indicated a positive response. Summative School Environment Scale responses ranged from three to 15, where a score of greater than or equal to 12 indicated a positive response.

Academic performance was identified using self-reported letter grades in health class and current high school GPA. Responses were placed on a continuum and used in this manner for data analysis. Health class grades ranged from zero to five, where a score of greater than or equal to three indicated a positive response. GPA responses ranged from zero to four, where a score of greater than or equal to three indicated a positive response.
Barriers to family mealtimes were assessed using four questions investigating common barriers: (1) conflicting schedules, (2) differing meal location preferences, (3) television use during family mealtimes, and (4) permission to engage in cell phone or computer use during family mealtimes. Four separate chi-square analyses were run using family mealtime participation as a factor to determine whether there was a difference in the proportion of family mealtime barrier occurrence between the frequent and infrequent family mealtime participation groups. Responses to questions regarding barriers to family mealtimes, placed on a 5-point Likert-style scale ranging from Agree to Disagree, were divided into one of three groups—agree, neutral, or disagree.

Lastly, electronic device use groups were developed from questions regarding potential barriers to family mealtime. Electronic device use groups were developed using each participant’s responses to a 5-point Likert-style scale ranging from Agree to Disagree for the following questions: (1) “The television is usually on during mealtimes” and (2) “My family members and I are allowed to use our cell phones or computers at the table.” Participants were placed into one of three groups for both television use and permission to engage in cell phone or computer use—frequent, neutral, or infrequent. Responses to each question were used to categorize television use and cell phone or computer use groups, respectively: (1) those who frequently engaged in television/cell phone or computer use during family mealtimes (Agree/Somewhat Agree), (2) those who were neutral (Neutral), and (3) those who infrequently engaged in television/cell phone or computer use during family mealtimes (Somewhat Disagree/Disagree).
Data Analysis

To evaluate the differences between family mealtime frequency and electronic device use groups and the two dependent variables—social well-being and academic performance—the data were entered into the Statistical Package for Social Sciences (SPSS) version 24.0. Frequencies, means, and standard deviations of direct measures of social well-being and academic performance were analyzed using independent T-tests and one-way analyses of variance (ANOVA) to assess for interactions within and between each variable. Each of the groups—(1) frequent participation in family mealtimes, (2) infrequent participation in family mealtimes, (3) frequent use of television during family mealtimes, (4) neutral use of television during family mealtimes, (5) infrequent use of television during family mealtimes, (6) frequent permission to engage in cell phone or computer use during family mealtimes, (7) neutral permission to engage in cell phone or computer use during family mealtimes, and (8) infrequent permission to engage in cell phone or computer use during family mealtimes—was analyzed to ascertain if differences occurred in health class grade, GPA, Friend Scale, and School Environment Scale data. A significance level of $P \leq 0.05$ was set.

Independent T-tests were used to test hypotheses stating that there would be differences in social well-being and academic performance between frequent and infrequent family mealtime participation groups by comparing frequency of family mealtime participation to social well-being (Friend Scale and School Environment Scale) and academic performance (current health class grade and GPA).
ANOVA tests were completed to test the remaining hypotheses that stated there would be differences in social well-being and academic performance between frequent, neutral, and infrequent electronic device use groups by comparing frequency of television use and permission to engage in cell phone or computer use during family mealtimes to the dependent variables. Tukey HSD post-hoc tests were used to identify where significant differences occurred between variables assessed in the ANOVA tests. Finally, chi-square analyses were used to assess the impact of family mealt ime barriers on the frequency of family mealt ime participation between frequent and infrequent family mealt ime participants.

**Results**

One-hundred and five high school sophomores from Aurora High School participated in the study by completing an in-class survey. Participants answered questions regarding demographics, family mealtimes, social well-being, and academic performance. Responses were used to form groups as identified in the Procedure and Data Analysis sections above and were used to assess for differences between and within groups.

**Participant Demographics**

The demographics of the participants can be observed in Table 1. Of the 105 participants, the majority of participants were Caucasian (74.35%) males (51%) with a mean age of 15.83 ± 0.49. Household demographics indicated most households included two adults over the age of 18 and 1 child under the age of 18.
Frequency of Family Mealtime Participation

Participants were asked about their frequency of participation in regularly scheduled mealtimes using a 5-point Likert-style scale. Descriptive data indicated that 37.1% of participants reported participating in regularly scheduled mealtimes Most of the time. Of the remaining participants, 25.7% reported participating in regularly scheduled mealtimes Sometimes, while 23.8% reported participating All of the time. A small percentage of participants reported participating Almost never (7.6%) and Never (5.7%). Overall, family mealtime participation is a common practice among the majority of survey participants

Table 1
Demographics of High School Sophomore Participants Surveyed About Family Mealtime Participation (n=105)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Response</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>50 (48.1)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>53 (51.0)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Age</td>
<td>15</td>
<td>23 (21.9)</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>77 (73.3)</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>5 (4.8)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>African American</td>
<td>6 (5.9)</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>5 (5.0)</td>
</tr>
<tr>
<td></td>
<td>Caucasian</td>
<td>75 (74.3)</td>
</tr>
<tr>
<td></td>
<td>Hispanic/ Latino</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td></td>
<td>Middle Eastern</td>
<td>11 (10.9)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>11 (10.9)</td>
</tr>
<tr>
<td>Adults in Home (&gt;18 years old)</td>
<td>1</td>
<td>9 (8.6)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>64 (61.0)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>21 (20.0)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>8 (7.6)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2 (1.9)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Children in Home (&lt;18 years old, includes participant)</td>
<td>1</td>
<td>38 (36.2)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>36 (34.3)</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>24 (22.9)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5 (4.8)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2 (1.9)</td>
</tr>
</tbody>
</table>
Frequency of family mealtime participation groups were developed and assessed by combining questions regarding mealtimes with at least one parent and dining with other family members in the past seven days. Responses are reported in Table 2. The majority of participants reported eating with at least one parent All of the time and Most of the time (62.8%), as well as eating with other family members All of the time and Most of the time (61.0%). These participants were placed in the frequent family mealtime participation group. The remaining participants were placed in the infrequent family mealtime participation group.

Questions assessing frequency of family mealtimes (breakfast, lunch, and dinner) with and without electronic devices were excluded from data analysis due to question misinterpretation and incongruous answers by survey participants.

Table 2

<table>
<thead>
<tr>
<th>Statement</th>
<th>Response</th>
<th>n (%)</th>
<th>( \bar{x} \pm SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the past 7 days…Did you eat a meal with at least one of your parents, caregivers, or legal guardians? (^a)</td>
<td>Total</td>
<td>3.84 ± 1.02</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All of the time</td>
<td>33 (31.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Most of the time</td>
<td>33 (31.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>31 (29.5%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Almost never</td>
<td>5 (4.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>3 (2.9%)</td>
<td></td>
</tr>
</tbody>
</table>

| During the past 7 days…Did other family members eat with you? \(^a\) | Total | 3.78 ± 1.07 |
|                                                               | All of the time | 32 (30.5%) |
|                                                               | Most of the time | 32 (30.5%) |
|                                                               | Sometimes       | 31 (25.9%) |
|                                                               | Almost never    | 6 (5.7%) |
|                                                               | Never           | 4 (3.8%) |

\(^a\)The frequencies were calculated from responses to a 5-point Likert-style scale where five equals “All of the time” and one equals “Never.”
Social Well-being Scale

The social well-being scale was developed using questions indicative of perception of peer relationships within the school setting and perception of the school environment. Participant responses are reported in Table 3. Based on the questions used to develop the Friend Scale, the largest percentage of participants Agreed (54.3%) to being part of a close group of friends, followed closely by those who Somewhat Agreed (28.6%). A large proportion of participants also Agreed that they had a best friend (64.8%) and felt comfortable talking to other students throughout the school day (66.7%). Furthermore, over half of participants Disagreed that they felt lonely at school (55.2%). Overall, the majority of participants responded positively to the questions on the summative Friend Scale with an average response of approximately 17 out of a possible score of 25 (\(\bar{x}=17.31, \text{SD}=2.85\)).

Based on the questions used to develop the School Environment scale, the largest percentage of participants Somewhat Agreed (30.5%) to liking school, followed closely by those who felt Neutral about school (28.6%). A large proportion of participants Agreed that it is important to do well in school (73.3%). Lastly, the largest percentage of participants Agreed (37.1%) that they felt comfortable talking to the teachers and staff at school, followed closely by those who Somewhat Agreed (28.6%), and those who were Neutral (23.8%). Overall, the majority of participants responded positively to the questions on the summative School Environment Scale with an average response of approximately 12 out of a possible score of 15 (\(\bar{x}=11.57, \text{SD}=2.45\)). When combining the Friend and School Environment Scales to create a collective Social Well-being
Scales, the majority of participants responded positively with a cumulative score of approximately 29 out of a possible score of 40 ($\bar{x}=28.91$, SD=4.37).

**Academic Performance Scale**

The Academic Performance Scale was developed using questions about current health class grade and GPA. Responses are reported in Appendix F. Health class grades included 70.5% A, 21.9% B, 2.9% C, and 4.8% reported as “I don’t know.” Reported grade point averages ranged from 4.20 to 1.70 with the most frequently reported GPA of 4.0 (11.2%). The subsequent most prevalent GPAs reported were 3.80, 3.50, 3.40, and 3.00, each representing 10.1% of the participants, respectively. Overall, the majority of participants responded positively to both Academic Performance Scale questions with an average health class grade response of approximately 4 out of a possible score of 5 ($\bar{x}=3.71$, SD=0.52) and an average GPA response of approximately 3 out of a possible score of 4 ($\bar{x}=3.36$, SD=0.52).

**Frequency of Family Mealtime Participation and Social Well-being**

Using family mealtime participation as a factor, participants were divided into two groups—frequent and infrequent family mealtime participants—and analyzed against the Friend and School Environment Scales using independent T-tests. Means are reported in Table 4. Those who frequently participated in family mealtimes had a significantly greater Friend Scale, thus, a more positive perception of social relationships with friends ($P=0.003$), as well as a greater School Environment Scale ($P=0.01$),
indicating a more positive perception of their school environment, than those who infrequently participated in family mealtimes.

Table 3

| Means and Frequencies of Responses Regarding Social Well-being Indicators--Friend Scale and School Environment Scale--for High School Sophomore Survey Participants (n=105) (x̅=Mean, SD=Standard Deviation) |
|---|---|---|---|---|---|
| **Friend Scale** | Agree | Somewhat Agree | Neutral | Somewhat Disagree | Disagree | x̅ ± SD |
| I feel part of a close group of friends. | 57 (54.3%) | 30 (28.6%) | 12 (11.4%) | 4 (3.8%) | 2 (1.9%) | 4.30 ± 0.95 |
| I feel that I have a best friend. | 68 (64.8%) | 19 (18.1%) | 11 (10.5%) | 4 (3.8%) | 3 (2.9%) | 4.38 ± 1.01 |
| I feel comfortable talking to other students throughout the school day. | 70 (66.7%) | 24 (22.9%) | 8 (7.6%) | 2 (1.9%) | 1 (1.0%) | 4.52 ± 1.12 |
| I feel lonely at school. | 5 (4.8%) | 8 (7.6%) | 15 (14.3%) | 19 (18.1%) | 58 (55.2%) | 1.89 ± 1.20 |

| **School Environment Scale** | Agree | Somewhat Agree | Neutral | Somewhat Disagree | Disagree | x̅ ± SD |
| I like school. | 13 (12.4%) | 32 (30.5%) | 30 (28.6%) | 13 (12.4%) | 17 (16.2%) | 3.10 ± 1.26 |
| I feel it is important to do well in school. | 77 (73.3%) | 16 (15.2%) | 10 (9.5%) | 1 (1.0%) | 1 (1.0%) | 4.59 ± 0.78 |
| I feel comfortable talking to the teachers and staff in my school. | 39 (37.1%) | 30 (28.6%) | 25 (23.8%) | 6 (5.7%) | 5 (4.8%) | 3.88 ± 1.12 |

The mean was calculated from data from a 5-point Likert-style scale where five equals “Agree” and one equals “Disagree.”

The mean was calculated from data from a 5-point Likert-style scale where five equals “Disagree” and one equals “Agree.”

**Frequency of Family Mealtime Participation and Academic Performance**

Family mealtime participation was again used as a factor for an independent T-test to analyze differences in academic performance between frequent and infrequent family mealtime participant groups. Means are reported in Table 4. Health class grade was analyzed against family mealtime frequency and no statistically significant difference was found in academic performance between the two groups (P=0.20).
Additionally, current GPA was analyzed against family mealtime. Similarly, no statistically significant differences were found between the two groups (P=0.13). Family mealtime participation did not significantly affect academic performance in the current study population.

**Barriers to Family Mealtime**

Several barriers to family mealtime were identified and assessed, including conflicting schedules, meal location preference, television use, and cell phone or computer use.

**Table 4**

*Means for Social Well-being Indicators--Friend Scale and School Environment Scale--and Academic Performance Indicators--Health Grade and GPA--for Frequent and Infrequent Mealtime Participation Groups (Mean, SD=Standard Deviation)*

<table>
<thead>
<tr>
<th></th>
<th>Frequent</th>
<th>Infrequent</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend*</td>
<td>17.84 ± 2.53 (n=74)</td>
<td>16.06 ± 3.19 (n=31)</td>
<td>0.003*</td>
</tr>
<tr>
<td>School Environmentb</td>
<td>11.99 ± 2.21 (n=74)</td>
<td>10.58 ± 2.73 (n=31)</td>
<td>0.01*</td>
</tr>
<tr>
<td>Health Gradec</td>
<td>3.67 ± 0.56 (n=70)</td>
<td>3.80 ± 0.41 (n=30)</td>
<td>0.20</td>
</tr>
<tr>
<td>GPAd</td>
<td>3.4195 ± 0.49 (n=62)</td>
<td>3.2378 ± 0.58 (n=27)</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*The mean was calculated from a summation of responses to four questions on a 5-point Likert-style scale ranging from 4 to 20 where a score of ≥16 indicates a positive response.

bThe mean was calculated from a summation of responses to three questions on a 5-point Likert-style scale ranging from 3 to 15 where a score of ≥12 indicates a positive response.

cThe mean was calculated from responses to one question ranging from 0 to 5 where a score of ≥3 indicates a positive response.

dThe mean was calculated from responses to one open-ended, free-response question ranging from 0 to 4.0 where ≥3.0 indicates a positive response.

An independent T-test was used for statistical analysis purposes.
*Denotes statistical significance, significance levels were set at P≤0.05.

**Family mealtime participation and conflicting schedules.** Participants were asked whether conflicting schedules hindered their family from participating in family mealtimes. Responses are reported in Table 5. The largest percentage of total participants Somewhat Agreed (39.0%) that conflicting schedules were a barrier to family mealtime participation, followed closely by 24.8% who Agreed that this was a barrier. While both family mealtime participation groups Agreed or Somewhat Agreed that
conflicting schedules was a barrier, the difference between groups was statistically significant (P=0.04) and indicates a significant barrier to the infrequent family mealtime participant population.

**Family mealtime participation and meal location preference.** When asked whether participants’ families preferred to eat in different rooms, the largest percentage of total participants Disagreed (67.3%) that meal location preference was a barrier to family mealtimes. Responses are reported in Table 6. However, of the participants who were part of the infrequent family mealtime participation group, 33.3% Agreed/Somewhat Agreed that their family was not able to participate because they preferred to eat meals in different locations. The difference between groups was statistically significant for both the Agree and Somewhat Agree responses (P<0.001), indicating that differing meal location preferences was a statistically significant barrier to family mealtime participation for this population.

**Table 5**

*Percentages of Responses Regarding Conflicting Schedules as a Potential Barrier to Family Mealtime Participation for Frequent and Infrequent Mealtime Participation Groups*

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Frequent (n=74)</th>
<th>Infrequent (n=31)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>11.4%</td>
<td>13.5%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>11.4%</td>
<td>10.8%</td>
<td>12.9%</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>13.3%</td>
<td>17.6%</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>39.0%</td>
<td>40.5%</td>
<td>35.5%</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>24.8%</td>
<td>17.6%</td>
<td>41.9%</td>
<td>0.04*</td>
</tr>
</tbody>
</table>

*The percentages were calculated from responses to a 5-point Likert-style scale where five equals “Disagree” and one equals “Agree.”
*Denotes statistical significance using chi-square analysis, significance levels were set at P≤0.05.

**Family mealtime participation and television use.** Responses regarding television use during mealtimes are reported in Table 7. Many of the total participants
Disagreed (25.0%) that television was used during family mealtimes, followed closely by those who were Neutral to the statement (22.1%), and those who Agreed (22.1%). Although a higher percentage of infrequent family mealtime participants Agreed (30.0%) than frequent family mealtime participants (18.9%) that the television was on during meals, no statistically significant difference was found between frequent and infrequent family mealtime participants (P=0.72). Television use was not a significant determining factor in family mealtime participation.

Table 6
Percentages of Responses Regarding Meal Location Preference as a Potential Barrier to Family Mealtime Participation for Frequent and Infrequent Mealtime Participation Groups

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Frequent (n=74)</th>
<th>Infrequent (n=30)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>67.3%</td>
<td>77.0%</td>
<td>43.3%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>11.5%</td>
<td>10.8%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>9.6%</td>
<td>9.5%</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>7.7%</td>
<td>2.7%</td>
<td>20.0%</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>3.8%</td>
<td>0.0%</td>
<td>13.3%</td>
<td></td>
</tr>
</tbody>
</table>

<0.001*

*The percentages were calculated from responses to a 5-point Likert-style scale where five equals “Disagree” and one equals “Agree.”

*Denotes statistical significance using chi-square analysis, significance levels were set at P≤0.05.

Table 7
Percentages of Responses Regarding Television Use as a Potential Barrier to Family Mealtime Participation for Frequent and Infrequent Mealtime Participation Groups

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Frequent (n=74)</th>
<th>Infrequent (n=30)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>25.0%</td>
<td>27.0%</td>
<td>20.0%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>16.3%</td>
<td>17.6%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>22.1%</td>
<td>23.0%</td>
<td>20.0%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>14.4%</td>
<td>13.5%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>22.1%</td>
<td>18.9%</td>
<td>30.0%</td>
<td></td>
</tr>
</tbody>
</table>

0.72

*The percentages were calculated from responses to a 5-point Likert-style scale where five equals “Disagree” and one equals “Agree.”

*Denotes statistical significance using chi-square analysis, significance levels were set at P≤0.05.
Family mealtime participation and cell phone or computer use. Responses regarding permission to engage in cell phone or computer use during mealtimes are reported in Table 8. The largest percentage of total participants Disagreed (28.8%) that they were given permission to engage in cell phone or computer use, while 23.1% Agreed with the statement.

Those participants who infrequently participated in family mealtimes commonly Agreed (43.3%) that cell phone or computer use was allowed during family mealtimes, whereas those who frequently participated in family mealtimes Disagreed (32.4%). The difference between groups was statistically significant (P=0.01) indicating that cell phone or computer use was a significant barrier to family mealtime participation for the infrequent family mealtime participant population.

Table 8
Percentages of Responses Regarding Permission to Engage in Cell Phone or Computer Use as a Potential Barrier to Family Mealtime Participation for Frequent and Infrequent Mealtime Participation Groups

<table>
<thead>
<tr>
<th>Disagree</th>
<th>Total</th>
<th>Frequent (n=74)</th>
<th>Infrequent (n=30)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28.8%</td>
<td>32.4%</td>
<td>20.0%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Disagree</td>
<td>18.3%</td>
<td>18.9%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>19.2%</td>
<td>24.3%</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Somewhat Agree</td>
<td>10.6%</td>
<td>9.5%</td>
<td>13.3%</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>23.1%</td>
<td>14.9%</td>
<td>43.3%</td>
<td>0.01*</td>
</tr>
</tbody>
</table>

*The percentages were calculated from responses to a 5-point Likert-style scale where five equals “Disagree” and one equals “Agree.”
*Denotes statistical significance using chi-square analysis, significance levels were set at P≤0.05.

Television Use During Family Mealtimes and Social Well-being and Academic Performance

A statistically significant difference was found between frequent and infrequent participation in family mealtimes and television use during family mealtimes, indicating a
greater tendency for television use by infrequent family mealtime participants. An ANOVA test was used to assess whether television use during family mealtimes was a significant factor for determining social well-being. Means are reported in Table 9. The difference between the three groups—frequent, neutral, and infrequent television use—was not statistically significant for either factor (Friend $P=0.29$, School Environment $P=0.70$) when assessed for television use at family mealtimes.

An additional ANOVA test was completed using the same three groups as previously indicated to assess whether television use during family mealtimes was a significant factor for determining academic performance. Means are reported in Table 9. No significant differences were found when assessing academic performance and family mealtime television use. Neither frequent participation in family mealtimes nor frequency of television use during family mealtimes results in significant differences in academic performance (health class grade $P=0.23$, GPA $P=1.0$).

Table 9

<table>
<thead>
<tr>
<th></th>
<th>Frequent</th>
<th>Neutral</th>
<th>Infrequent</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend$^a$</td>
<td>$16.76 \pm 3.26$ (n=38)</td>
<td>$17.39 \pm 2.79$ (n=23)</td>
<td>$17.75 \pm 2.45$ (n=44)</td>
<td>0.29</td>
</tr>
<tr>
<td>School Environment$^b$</td>
<td>$11.45 \pm 2.57$ (n=38)</td>
<td>$11.96 \pm 2.10$ (n=23)</td>
<td>$11.48 \pm 2.54$ (n=44)</td>
<td>0.70</td>
</tr>
<tr>
<td>Health Grade$^c$</td>
<td>$3.67 \pm 0.54$ (n=36)</td>
<td>$3.59 \pm 0.59$ (n=22)</td>
<td>$3.81 \pm 0.46$ (n=42)</td>
<td>0.23</td>
</tr>
<tr>
<td>GPA$^d$</td>
<td>$3.37 \pm 0.56$ (n=34)</td>
<td>$3.36 \pm 0.52$ (n=19)</td>
<td>$3.36 \pm 0.51$ (n=36)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

$^a$The mean was calculated from a summation of responses to four questions on a 5-point Likert-style scale ranging from 4 to 20 where a score of $\geq 16$ indicates a positive response.

$^b$The mean was calculated from a summation of responses to three questions on a 5-point Likert-style scale ranging from 3 to 15 where a score of $\geq 12$ indicates a positive response.

$^c$The mean was calculated from responses to one question ranging from 0 to 5 where a score of $\geq 3$ indicates a positive response.

$^d$The mean was calculated from responses to one open-ended, free-response question ranging from 0 to 4.0 where $\geq 3.0$ indicates a positive response.

$^e$An ANOVA test was used for statistical analysis purposes.
The mean was calculated from a summation of responses to four questions on a 5-point Likert-style scale ranging from 4 to 20 where a score of ≥16 indicates a positive response.

The mean was calculated from a summation of responses to three questions on a 5-point Likert-style scale ranging from 3 to 15 where a score of ≥12 indicates a positive response.

The mean was calculated from responses to one question ranging from 0 to 5 where a score of ≥3 indicates a positive response.

The mean was calculated from responses to one open-ended, free-response question ranging from 0 to 4.0 where ≥3.0 indicates a positive response.

An ANOVA test was used for statistical analysis purposes.

**Cell Phone or Computer Use During Family Mealtimes and Social Well-Being and Academic Performance**

No significant differences were found between frequent and infrequent participation in family mealtimes and permission to engage in cell phone or computer use during family mealtimes, despite a greater tendency for frequent permission to engage in cell phone or computer use in the infrequent family mealtime participation group. An ANOVA test was used to assess whether frequent, neutral, or infrequent permission to engage in cell phone or computer use during family mealtimes was a significant factor for determining social well-being. Means are reported in Table 10.

An additional ANOVA test was completed using the same three groups as previously indicated to assess whether permission to engage in cell phone or computer use during family mealtimes was a significant factor for determining academic performance. Means are reported in Table 10. No significant differences in social well-

---

**Table 10**

<table>
<thead>
<tr>
<th></th>
<th>Frequent</th>
<th>Neutral</th>
<th>Infrequent</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Friend</strong></td>
<td>16.94 ± 2.35</td>
<td>17.90 ± 2.65</td>
<td>17.34 ± 3.22</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>School Environment</strong></td>
<td>11.54 ± 2.55</td>
<td>11.75 ± 2.12</td>
<td>11.52 ± 2.53</td>
<td>0.94</td>
</tr>
<tr>
<td><strong>Health Grade</strong></td>
<td>3.61 ± 0.57</td>
<td>3.68 ± 0.48</td>
<td>3.79 ± 0.50</td>
<td>0.28</td>
</tr>
<tr>
<td><strong>GPA</strong></td>
<td>3.21 ± 0.62</td>
<td>3.45 ± 0.45</td>
<td>3.45 ± 0.44</td>
<td>0.10</td>
</tr>
</tbody>
</table>

*The mean was calculated from a summation of responses to four questions on a 5-point Likert-style scale ranging from 4 to 20 where a score of ≥16 indicates a positive response.

*The mean was calculated from a summation of responses to three questions on a 5-point Likert-style scale ranging from 3 to 15 where a score of ≥12 indicates a positive response.

*The mean was calculated from responses to one question ranging from 0 to 5 where a score of ≥3 indicates a positive response.

*The mean was calculated from responses to one open-ended, free-response question ranging from 0 to 4.0 where ≥3.0 indicates a positive response.

*An ANOVA test was used for statistical analysis purposes.
being and academic performance were found between the frequent, neutral, and infrequent permission to engage in cell phone or computer use groups.

**Additional Indicators of Social Well-being**

Social well-being can be further assessed using descriptive data regarding participant relationship and comfort level with parents/caregivers/legal guardians, as well as frequency of participation in extracurricular activities.

Table 11

*Frequencies of Responses Regarding Perceptions of Parental Relationships for High School Sophomore Survey Participants (n=105) (x̅=Mean, SD=Standard Deviation)*

<table>
<thead>
<tr>
<th>Do you like to spend time with your parents/caregivers/legal guardians?</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Almost never</th>
<th>Never</th>
<th>x̅ ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 (24.8%)</td>
<td>45 (45.7%)</td>
<td>23 (21.9%)</td>
<td>5 (4.8%)</td>
<td>3 (2.9%)</td>
<td>3.85 ± 0.95</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you find time to spend time with your parents/caregivers/legal guardians?</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Almost never</th>
<th>Never</th>
<th>x̅ ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 (17.1%)</td>
<td>33 (31.4%)</td>
<td>43 (41.0%)</td>
<td>8 (7.6%)</td>
<td>3 (2.9%)</td>
<td>3.52 ± 0.96</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would you go to your parents/caregivers/legal guardians for advice about:</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Almost never</th>
<th>Never</th>
<th>x̅ ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>School issues</td>
<td>33 (31.4%)</td>
<td>29 (27.6%)</td>
<td>24 (22.9%)</td>
<td>14 (13.3%)</td>
<td>5 (4.8%)</td>
<td>3.68 ± 1.19</td>
</tr>
<tr>
<td>Friends</td>
<td>26 (24.8%)</td>
<td>19 (18.1%)</td>
<td>27 (25.7%)</td>
<td>16 (15.2%)</td>
<td>17 (16.2%)</td>
<td>3.20 ± 1.40</td>
</tr>
<tr>
<td>Boyfriends/girlfriends</td>
<td>12 (11.7%)</td>
<td>14 (13.6%)</td>
<td>21 (20.4%)</td>
<td>28 (27.2%)</td>
<td>28 (27.2%)</td>
<td>2.55 ± 1.33</td>
</tr>
<tr>
<td>Smoking/alcohol/drug use</td>
<td>16 (15.7%)</td>
<td>12 (11.8%)</td>
<td>26 (25.5%)</td>
<td>17 (16.7%)</td>
<td>31 (30.4%)</td>
<td>2.66 ± 1.43</td>
</tr>
<tr>
<td>Sexual intercourse</td>
<td>10 (9.9%)</td>
<td>8 (7.9%)</td>
<td>12 (11.9%)</td>
<td>26 (25.7%)</td>
<td>45 (44.6%)</td>
<td>2.13 ± 1.33</td>
</tr>
</tbody>
</table>

*The frequencies were calculated from responses to a 5-point Likert-style scale where five equals “All of the time” and one equals “Never.”*
**Parental relationships.** Responses to questions regarding participants’ perceptions of relationships with parents/caregivers/legal guardians were assessed on a 5-point Likert-style scale with responses ranging from Never to All of the time and are reported in Table 11. The largest percentage of participants reported that they like to spend time with their parents/caregivers/legal guardians Most of the time (45.7%) and find time to spend with their parents/caregivers/legal guardians Sometimes (41.0%). The largest percentage of participants reported seeking advice from parents/caregivers/legal guardians about: school issues All of the time (31.4%), friends Sometimes (25.7%), boyfriends/girlfriends Never (27.2%), smoking/alcohol/drug use Never (30.4%), and sexual intercourse Never (44.6%). Overall, there was a prevalence for advice-seeking regarding less controversial topics, such as school and friends. Conversely, more intimate topics, like boyfriend/girlfriends, smoking/alcohol/drug use, and sexual intercourse, were not commonly discussed with parents.

**Extracurricular activities.** Social well-being in the context of extracurricular activities was assessed using frequency of participation in sports teams, musical groups, school or community clubs, and volunteer activities for school or community causes based on a 6-point Likert-style scale with responses ranging from Never to Daily. The largest percentage of participants reported participation on a sports team Daily (36.2%), followed closely by Never (29.5%). Responses regarding participation in a musical group were prominently Never (65.7%) and Daily (25.7%). Participation in a school or community club and/or volunteer activity was equally as infrequent with most participants reporting Never (62.5% and 49.0%, respectively). Additionally, participation
in school or community clubs was reported at Once a month (10.6%) and Once a week (10.6%) and volunteer activities at Once a month (16.3%) and Less than once a month (15.4%). Overall, extracurricular activities occurred most frequently in the form of participation on a sports team followed by a musical group. Participation in school or community clubs or volunteer activities were very infrequent, with the majority of participants reporting never having participated in such activities.

Discussion

The application of family mealtime as a means of improving adolescent health is a topic of current scrutiny. While the impact of family mealtime participation on young children’s social, emotional, mental, and physical health has substantial evidence touting the health benefits of frequent family mealtimes, broadening the scope of research to adolescents is necessary to ascertain to what extent these benefits have an impact. Consequently, the purpose of this study was to investigate the differences in social well-being and academic performance in adolescents who frequently and infrequently participated in family mealtimes, as well as the extent to which electronic devices acted as barriers to family mealtime participation. Additionally, another purpose of this study was to investigate the difference in social well-being and academic performance in adolescents who frequently and infrequently engaged in television, cell phone, or computer use during family mealtimes.

It was hypothesized that there would be a difference in social well-being and academic performance between family mealtime frequency groups, as well as among
electronic device use groups. This study analyzed the results of 105 high school sophomore student respondents. Overall, this study found that the majority of participants were frequent family mealtime participants, who exhibited positive social well-being and academic performance behaviors.

**Prevalence of Family Mealtime Participation**

A major finding of this study pertained to the prevalence of family mealtime participation. Results indicated a trend toward more frequent participation in family mealtimes with the majority of participants reporting that they frequently ate with at least one parent and/or at least one other family member.

The results of this study are unique when compared to previous research that reported family mealtime frequency had diminished and had been replaced by more solitary activities, such as eating with technology, eating alone, or eating on-the-go (Mestdag & Vandeweyer, 2005). The divergent data may be attributed to the current study population’s overall socioeconomic status as other studies have indicated an increased frequency of family mealtime participation in higher socioeconomic status families (Neumark-Sztainer, Hannan, Story, Croll, & Perry, 2003). Higher socioeconomic status environments, commonly associated with larger proportions of stay-at-home parents, more convenient work hours, and increased resources for meal preparation, vary from lower socioeconomic groups due to distinct differences in needs, priorities, parenting styles, and approaches to technology use. As a result, adolescents living in higher socioeconomic status environments may experience greater opportunities
for frequent family mealtimes and overall increased parental involvement due to lack of
time and monetary constraints. However, the effects of socioeconomic status on family
mealtime frequency, and the associated advantages of higher socioeconomic status
environments, were not analyzed in the current study and remain a confounding variable.

**Impact of Barriers on Family Mealtime Participation**

Barriers to family mealtimes, as defined in previous research, indicates that the
most common barriers to family mealtime participation include television and other
electronic media; scheduling conflicts; meal preparation difficulties; and adolescent
activity conflicts, such as work, homework, reading, sports or extracurricular activities,
and peer engagements (Lee et al., 2014; Neumark-Stzainer et al., 2000; Neumark-
Sztainer et al., 2010; Prior & Lambert, 2013; The National Center on Addiction and
Substance Abuse at Columbia University, 2012). For this study, barriers were defined as
conflicting schedules, differing meal location preferences, television use during family
mealtimes, and permission to engage in cell phone or computer use at the table. The
most common barrier reported in the current study was conflicting schedules,
experienced by both frequent and infrequent family mealtime participants, whereas other
studies reported mealtime television use as the greatest hindrance to quality family
mealtimes (Boutelle et al., 2001; Neumark-Sztainer et al., 2000; Roos et al., 2016).
Within this study, similar proportions of students reported frequent, neutral, and
infrequent television use and permission to engage in cell phone or computer use during
family mealtimes indicating a continuing prevalence of electronic device use during
mealtimes, which is significant for decreased incidence of quality family interaction and
positive influences (Boutelle et al., 2001). Previously, minimal data was available regarding the prevalence of cell phone use during family mealtimes (Fulkerson et al., 2014).

Unsurprisingly, those who reported infrequent participation in family mealtimes reported a significantly higher prevalence of barriers, including conflicting schedules, differing meal location preferences, and permission to engage in cell phone or computer use during family mealtimes. Television use was not unique to either frequent or infrequent family mealtime participation groups and may no longer be a viable barrier for the adolescent population. Television use, in its pervasiveness may have become background noise that no longer hinders interaction or, more positively, a point of discussion to increase interaction at family mealtimes.

The statistically significant differences between frequent and infrequent family mealtime participants were representative of the impact barriers play on adolescents’ ability to consistently participate in family mealtimes. Specifically, barriers hindering the physical presence of family members at mealtimes, such as conflicting schedules and differing meal location preferences, remain a concern, whereas electronic device use has become less of a family mealtime deterrent. The proliferation of, and resulting mundane attitude regarding, electronic device use within the study population may be due to a generational shift as children grow in this age of commonplace technology, resulting in a diminished effect of electronic device use as a barrier to family meals.
While the frequent family mealtime participants were not without barriers, the presence of such barriers may have been attenuated by other unassessed factors, such as socioeconomic status, which continued to allow family mealtimes to occur. Additional research regarding these extenuating factors should be investigated as a means of thwarting family mealtime barriers and guiding interventions aimed at promoting increased family mealtime participation.

**Impact of Factors on Social Well-being**

Family mealtime participation and electronic device use at family mealtimes have been identified as factors affecting social well-being, whether positively or negatively. Frequent family mealtime participation, a possible medium for promoting positive parent-child or family interactions, can be an effective means of improving self-perception, peer relationships, and communication skills in the school setting for adolescents (Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014). In general, the majority of participants in the current study—frequent and infrequent family mealtime participants—reported having positive Friend Scale and School Environment Scale regardless of their family mealtime frequency, translating directly to having positive social well-being in the context of this study. Despite an overall trend toward positive social well-being, additional analyses showed significantly greater Friend Scale and School Environment Scale for those who frequently participated in family mealtimes than for those who infrequently participated in family mealtimes. These results are consistent with previous studies reporting improved relationships and communication with others outside of the home associated with increased frequency of family mealtime
participation (Fulkerson et al., 2006; Harrison et al., 2015; Martin-Biggers et al., 2014). These findings may also be a result of the protective factors commonly associated with increased socioeconomic status. Therefore, the hypothesis stating that there would be a difference in social well-being between those who frequently and infrequently participated in family mealtimes was supported. Thus, this study reaffirms that frequent participation in family mealtimes continues to promote the development of social well-being in adolescents as evidenced in previous studies (Fulkerson et al., 2006; Fulkerson et al., 2008; Martin-Biggers et al., 2014; Meier & Musick, 2014).

Conversely, no significant differences in social well-being between frequent and infrequent family mealtime participants were found for those with frequent, neutral, and infrequent television and cell phone or computer use. Despite the potential for enhanced social well-being due to technological connectedness with peers, no significant improvement in social well-being was witnessed. The healthy peer support system provided via technological connectedness with peers, potentially resulting in positive school behaviors and school-related social well-being, was not witnessed in the current study as was previously reported (Li et al., 2011). No significant hindrance to social well-being was observed with frequent electronic device use during family mealtimes either as was previously reported (Boutelle et al., 2001). These findings are, likely, a result of the everyday and unexceptional use of electronic devices that may no longer pose a threat to family mealtimes. Therefore, the hypotheses stating that there would be a difference in social well-being between those who are frequently and infrequently (1) engage in television use and (2) have permission to engage in cell phone or computer use
during family mealtimes was not supported. The use of electronics did not prove to be a significant barrier to positive social well-being in the school setting, presenting the possibility that additional variables might be identified through continued research.

**Impact of Factors on Academic Performance**

Family mealtime participation and electronic device use during family mealtimes have previously been identified as factors that impact academic performance. Overall, the current study reported positive health grade and GPA for the majority of participants, regardless of family mealtime participation status, whereas historically, frequent participation in family mealtimes resulted in higher grade point averages and subject-specific grades (Eisenberg et al., 2004; Harrison et al., 2015). The results of this study were inconsistent with previous research and indicated no significant impact of family mealtime frequency on academic performance, likely, a result of the overall positive academic performance of the study population regardless of family mealtime frequency (The National Center on Addiction and Substance Abuse at Columbia University, 2012). As a result, the hypothesis stating that there would be a difference in academic performance between the frequent and infrequent family mealtime participants was not supported. Despite positive results from previous studies, the current population’s academic performance was not impacted by family mealtime frequency and continued research is necessary to further assess this connection.

Previously, the use of electronic devices was viewed as a barrier to optimum academic performance; however, in this study, no significant differences were found for
academic performance in frequent, neutral, and infrequent television, cell phone, or computer users. Despite the potential for hindered academic performance due to the distractions of pervasive use of electronic devices, no significant detriment was reported in frequent electronic device users. Again, these findings are, likely, a result of the everyday and unexceptional use of electronic devices that may no longer pose a threat to family mealtimes. Consequently, the hypotheses stating that there would be a difference in academic performance between frequent, neutral, and infrequent electronic device users were not supported. Additional insight might be gained by future research regarding the potential benefits of frequent electronic device use, in association with family mealtime, on academic performance.

**Limitations**

There are several limitations that exist within this study. Primarily, this study was limited by the sample. A convenience sample was used and did not represent the adolescent population nationwide. The sample consisted of a very limited group of adolescents, the majority of whom identified themselves as 17-year-old Caucasian males, living in households with two adults within a socioeconomically advantaged school system. Thus, the findings were not generalizable to other age groups, socioeconomic groups, and non-traditional families. Furthermore, the sample was limited in scope and size, offering data specific to the current study population only. Future studies should endeavor to investigate the practices and perceptions of participants from a larger sample size, including diverse demographic groups.
Additional limitations include the validity of the questionnaire and the method of survey administration. The questionnaire, adapted from a preexisting survey and containing additional questions developed by the researcher, was validated using face validity and contained points of confusion and questionable accuracy. Questions assessing frequency of family mealtimes (breakfast, lunch, and dinner) with and without electronic devices were excluded from data analysis due to question misinterpretation and incongruous answers by survey participants. No usable numerical data regarding frequency of family mealtime participation were collected, hence the need for future research to validate a survey that accurately collects data on frequency of family mealtime participation and attempts to eliminate any confounding variables, such as family connectedness and parental involvement away from the dinner table.

The questions assessing academic performance required participants to self-report their current health class grade and GPA, creating completion and accuracy complications. Participants who did not know their grade were given the option to indicate “I don’t know” on the questionnaire. GPA, a free-response question, only received 89 responses with an additional four participants indicating “I don’t know,” and the remaining 12 students providing no response. Methods for obtaining current or retrospective grades and GPA from the participating school would ensure more accurate data collection in the future.

Lastly, the methods of recruitment and survey administration should also be considered limitations to the study. Participants were gathered from the Spring 2017 health classes and were given the opportunity to refrain from participation; however,
participants may have been motivated to participate when witnessing other peers participating in the survey. Furthermore, survey administration was completed by the participants’ health teachers and may have prompted participation by some students. While steps were taken to avoid any persuasion to participate by eliminating the ability for teachers and peers to distinguish who participated and who refrained, the environment was not fully controlled and non-participants were not removed from the survey area. Future researchers should attempt to fully control the survey environment to eliminate the potential for persuasion.

**Applications**

The current study provides information regarding the frequency of family mealtime participation, barriers affecting participation in family mealtimes, prevalence of electronic device use during family mealtimes, perceptions of social well-being, and current academic performance in high school sophomores. The results of this study, in the context of adolescent health, can be witnessed in the positive impact of frequent family mealtime participation on social well-being in the school setting, as well as the prevalence of barriers and their effect on the frequency of family mealtime participation.

Nutrition professionals, with the goal of impacting adolescent social well-being through shared family mealtimes, should consider promoting frequent family mealtime participation in an effort to improve peer and teacher relationships within the school setting. Despite the overall prevalence of frequent family mealtime participation in the current study group, all families may benefit from continued education regarding the
positive influence of frequent family mealtime participation on adolescent health. However, the picture of a successful family mealtime may manifest differently in unique populations, depending, largely, on the socioeconomic status and primary needs of the family. Family mealtime education should be tailored to fit the needs of the population, while reinforcing the need to form healthy family mealtime habits. Such habits may include making family mealtimes a priority, serving a variety of foods to accommodate all family members, and being flexible when establishing a family mealtime schedule and location. By providing encouragement to initiate or continue frequent family mealtimes, as well as strategies for healthy family mealtime habits that attract all family members to the table, professionals can facilitate routine family mealtimes.

Additionally, the identification of common barriers to family mealtimes—conflicting schedules, differing meal location preferences, and cell phone or computer use—allows professionals to modify generic recommendations to best provide individualized alternatives to traditional family mealtimes. Professionals should continue to support and encourage this practice by providing suggestions for overcoming family mealtime participation barriers, specifically conflicting family schedules. Suggestions for developing non-traditional family mealtimes include scheduling family mealtimes before or after conflicts, preparing or purchasing quick and healthy alternatives that can be eaten together at extracurricular activities, building skills and providing tools for quick and easy meal preparation, and empowering all family members to participate in meal planning and preparation.
Lastly, the goals and quality of family mealtimes must also be considered. The many benefits of family mealtimes include improved dietary intake, healthy weight management, decreased participation in risky behaviors, improved social well-being, and enhanced academic performance. These benefits can be classified into two categories—nutrition and behavior—and, despite an overarching goal of comprehensive adolescent health, these categories often conflict when interventions are implemented. Oftentimes, the need for positive family interactions in the setting of healthful meals is not feasible and one objective may be sacrificed for the benefit of the other depending on the needs of the family. As a result, nutrition professionals must first ascertain the needs and goals of the population before crafting appropriate interventions.

In the context of the current study, the quality of the family interactions and the behavioral outcomes—social well-being and academic performance—were emphasized. Consequently, the nutrition professional must endorse opportunities for uninterrupted, positive family interactions. Family mealtimes are the traditional venue for such interactions. Quality interactions in this setting can be facilitated by the promotion of myriad websites and products pertaining to stimulating quality family mealtime interactions. On the other hand, certain populations may require a de-emphasis on family mealtimes and an emphasis on quality family interactions in other contexts, such as pizza, game, or movie nights; trips to the mall or grocery store; or routine car drives between extracurricular activities.

Furthermore, the lack of evidence regarding the detrimental effects of electronic device use on social well-being and academic performance, demonstrated in the current
study, provides support for its use as an effective facilitator of positive interaction when quality conversation is generated. Educational television shows or movies; electronic, multi-person games; and family-friendly websites can be valuable instruments for encouraging family participation and interaction. Thus, through the provision of educational materials supported by past and current research that facilitate the planning, preparation, and execution of family mealtimes, as well as the promotion of quality family interactions, professionals can be advocates for adolescent health through incremental, long-term changes in a multifaceted manner—socially, emotionally, mentally, and physically.

**Conclusion**

While the current study provided beneficial insights into the habits and perceptions of the study population, the results indicated an overall lack of impact of family mealtime participation and electronic device use on adolescent academic performance. Despite previous research supporting the various benefits of family mealtime participation and its protective role for adolescent health, this study lacked many of the positive outcomes previously obtained, indicating that additional research is necessary to assess the impact of family mealtime participation on academic performance in this population.

Frequent family mealtime participation, an overall lack of barriers, as well as positive social well-being and academic performance results were reported for the majority of participants, indicating a culmination of protective factors. However,
significant differences between frequent and infrequent family mealtime participants were singularly identified for the impact of family mealtime participation on social well-being. Data also provided additional support that conflicting schedules, meal location preference, and permission to engage in cell phone or computer use hindered participation in family mealtimes. While promoting the use of family mealtimes can be used to preliminarily improve social well-being, the task of identifying methods employed by frequent family mealtime participants to overcome barriers and the goal of using family mealtime participation as a method of improving overall health outcomes requires additional research and supporting data before it can be recommended as a feasible intervention for improving adolescent health.
APPENDIX A
SURVEY
APPENDIX A

SURVEY

Family Mealtime Participation Questionnaire

The following questions will ask about your experiences at home and at school. Please read each section carefully and answer each question to the best of your ability by placing an “X” in the appropriate block or filling in the blank. Your answers will be kept confidential, so please be as honest as possible.

Section 1: Family Mealtime

A. Family Mealtime Participation

Participation in family mealtime can be defined as the act of eating at least one meal per day with at least one family member who lives in your home, at a table, with or without electronic devices, such as television, computer, or cell phone.

During the past 7 days…

<table>
<thead>
<tr>
<th></th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Almost never</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you participate in regularly scheduled mealtimes?</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. Did you eat a meal with at least one of your parents, caregivers, or legal guardians?</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>3. Did other family members eat with you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the past 7 days…

<table>
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<th></th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. How many meals did you eat with at least one other family member WITHOUT electronic devices (television, cell phone, computer)?</td>
<td>4a. Breakfast</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4b. Lunch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4c. Dinner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. How many meals did you eat with at least one other family member **WITH** electronic devices (television, cell phone, computer)?

<table>
<thead>
<tr>
<th></th>
<th>5a. Breakfast</th>
<th>5b. Lunch</th>
<th>5c. Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### B. Family Mealtime Barriers

To what extent do you agree or disagree with the following statements?

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neutral</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. My family is not able to eat together because we are busy and have different schedules.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. My family prefers to eat meals in different rooms from each other.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The television is usually on during mealtimes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. My family members and I are allowed to use our cell phones or computers at the table.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section 2: Social Well-being

A. **Parents/Caregivers/Legal Guardians**

Respond to the following questions about your relationship with your parent(s), caregiver(s), or legal guardian(s).

<table>
<thead>
<tr>
<th></th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Sometimes</th>
<th>Almost never</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Do you like to spend time with your parent(s), caregiver(s), or legal guardian(s)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Do you find time to spend time with your parent(s), caregiver(s), or legal guardian(s)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Would you go to your parent(s), caregiver(s), or legal guardian(s) for advice about…</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12a. School issues
12b. Friends
12c. Boyfriends/girlfriends
12d. Smoking/alcohol/drug use
12e. Sexual intercourse

B. Friends

To what extent do you agree or disagree with the following statements?

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neutral</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. I feel part of a close group of friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I feel that I have a best friend.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I feel comfortable talking to other students throughout the school day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I feel lonely at school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. School Environment

To what extent do you agree or disagree with the following statements?

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Neutral</th>
<th>Somewhat Disagree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. I like school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I feel it is important to do well in school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I feel comfortable talking to the teachers and staff in my school.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Extracurricular Activities

During the past month how often did you participate in…
Daily | More than once a week | Once a week | Once a month | Less than once a month | Never
--- | --- | --- | --- | --- | ---
20. …a sports team (varsity, junior varsity, intramural, or recreational, etc.)? | | | | | |
21. …a musical group (choir, band, orchestra, etc.)? | | | | | |
22. …a school or community club (Honors Society, language club, drama club, etc.)? | | | | | |
23. …a volunteer activity for a school or community cause (food drives, community clean-up days, fundraisers, etc.)? | | | | | |

**Section 3: Academic Performance**

**A. Academic Performance**

Respond to the following questions about your current academic performance.

<table>
<thead>
<tr>
<th>24. My current grade in Health class is…</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>I don’t know</th>
</tr>
</thead>
</table>

25. My current high school grade point average (GPA) is…*Please fill in your current GPA.*

GPA: _______________

**Section 4: Demographics**

**A. Demographics**

26. Gender _______________________

27. Age _______________________

28. Ethnicity: (choose one)

   ____ African American
   ____ Asian
   ____ Caucasian
28. Which group of your family does this person belong to?

____ Hispanic/Latino
____ Middle Eastern
____ Other

29. Number of adults (people over 18 years old) living in your home ____

30. Number of children (people under 18 years old) living in your home, including yourself ____

Thank you for your participation!
APPENDIX B

INFORMATIONAL PARENT LETTER
Dear Aurora High School Parent/Caregiver/Legal Guardian,

Your child is currently enrolled in the Spring 2017 Health class at Aurora High School. As part of the Ohio Health Education requirements, your child will be learning about nutrition and personal health; the harmful effects of alcohol, tobacco, and illicit drugs; and characteristics of healthy personal relationships. In cooperation with a graduate student at Kent State University, we will be administering a brief anonymous survey discussing these class topics. The results from the survey will not be linked to your child and will only be used to support the completion of the graduate student’s thesis paper. Please see attached for further information.

If you have any questions, would like additional information, or would like to see the survey questions, please contact graduate student Lynne Hutchison at 440-724-5363; Kent State University advisor Dr. Karen Gordon at 330-672-2248; or Aurora High School at 330-562-3501.

Sincerely,

Dr. Paul Milcetich
Principal, Aurora High School

Lynne Hutchison
Kent State University Graduate Student
Study Title: Effect of Family Mealtime Participation on Academic Performance and Social Well-being in Northeast Ohio High School Students

Principal Investigator: Dr. Karen Gordon, Lynne Hutchison

Your child is being invited to participate in a research study. This consent form will provide you with information on the research project, what your child will need to do, and the associated risks and benefits of the research. Your child’s participation is voluntary.

Purpose: The purpose of this study is to investigate the effect of family mealtime participation on students’ academic performance and social well-being, specifically whether more frequent family mealtime participation results in improved grades and social relationships. The data collected may help improve lesson planning processes and identify family mealtimes as an effective method of improving academic and social success within the school environment.

Procedure
Your child’s participation will require him/her to complete a short 20-minute survey during Health class. The survey will ask questions about your child’s current participation in family mealtimes, feelings towards parent-child and peer relationships, participation in extracurricular activities, feelings toward school, and Health class grade and overall grade point average (GPA). Your child’s participation in this study is entirely optional and there will be no negative consequences if your child chooses not to participate. If your child chooses to participate, they may choose to skip any questions they find uncomfortable or may choose to stop at any time during the study with no negative consequences. Surveys will be provided to all students during the administration period. Your child will then be given 20 minutes to complete as much or a little as he/she chooses. Surveys will then be collected in a folder, sealed, and given to the researcher for data analysis. Surveys will be kept anonymous and data will not be linked to your child’s name.

Benefits
The research will not benefit you or your child directly. However, your child’s participation in this study will help us to provide feedback to your child’s Health teacher regarding current Health curriculum and add to the preexisting body of knowledge concerning the potential impact of family mealtime participation on child health and well-being.

Risks and Discomforts
There are no anticipated risks beyond those encountered in everyday life. The survey questions are aligned with the current Health class curriculum and all survey data will be kept anonymous and in a secure location. The school, staff, and students will not be given access to any individual data. Feedback to Health teachers will be provided after data compilation and analysis occurs and will only include generalized data trends.

**Privacy and Confidentiality**
No identifying information will be collected.

**Compensation**
Participation or non-participation will have no effect on your child’s grade in the classroom.

**Voluntary Participation**
Taking part in this research study is entirely up to you and your child. You and/or your child may choose not to participate or may discontinue their participation at any time. If you and/or your child choose not to participate, your child may sit quietly until the end of the administration period and return their incomplete survey when the envelope is circulated. Participation or non-participation will not be monitored and will have no effect on your child’s grade in the classroom.

**Contact Information**
If you have any questions or concerns about this research, you may contact Dr. Karen Gordon at 330-672-2248. This project has been approved by the Kent State University Institutional Review Board. If you have any questions about your rights as a research participant or complaints about the research, you may call the IRB at 330-672-2704.
APPENDIX C

INFORMATIONAL TEACHER LETTER

Dear Aurora High School Health Educator,

My name is Lynne Hutchison and I am a graduate student at Kent State University. I am currently working on my Masters in Nutrition and am required to complete a research study in order to graduate. I have chosen to investigate the effect of family mealtime participation on students’ academic performance and social well-being, specifically whether more frequent family mealtime participation results in improved grades and social relationships. With the gracious permission of Dr. Milcetich, the students enrolled in your Spring 2017 Health class will be asked to complete a short 20-minute survey during class time. The topics discussed in the survey parallel several of the Ohio Health Education requirements you will be teaching—nutrition and personal health; the harmful effects of alcohol, tobacco, and illicit drugs; and characteristics of healthy personal relationships.

The survey will ask questions about your students’ current participation in family mealtimes, feelings towards parent-child and peer relationships, participation in extracurricular activities, feelings toward school and bullying, and Health class grade and overall grade point average (GPA). As a result, the data collected may help identify family mealtimes as an effective method of improving academic and social success within the school environment.

All materials you will need are enclosed, including the Parental Consent Informational Letter, Student Informational Handout, Verbal Assent Script, and Family Mealtime Participation Questionnaire.
**Parental Consent Informational Letter:** Parents will be provided with an informational letter prior to survey administration. Please send a letter home with each student two weeks prior to your scheduled survey administration date.

**Verbal Assent Script and Student Informational Handout:** Preceding survey administration, please read enclosed *Verbal Assent Script* aloud to students and provide *Student Informational Handout* half-sheet to each student. The script includes information about the survey and instructions for those students who choose not to complete the survey, as well as instructions for survey collection.

**Family Mealtime Participation Questionnaire:** All students should receive and return a survey regardless of completion. Student participation in this study is completely optional and there will be no negative consequences if a student chooses not to participate. Participating students may skip any questions they find uncomfortable or may choose to stop at any time during the study with no negative consequences. Survey responses will be kept confidential and will not be linked to your students’ names. If a student chooses not to participate they are asked to silently “doodle” on the survey until the remainder of the students finish. This will help ensure anonymity. When all students are finished, please pass the survey folder around to each desk, allowing students to individually place their surveys in the folder. This should be sealed once all surveys are enclosed.

If you would like additional information regarding this research study, please contact me at 440-724-5363 or my advisor Dr. Karen Gordon at 330-672-2248. This study has been approved by Kent State University.

Sincerely,

Lynne Hutchison
APPENDIX D

VERBAL ASSENT SCRIPT
APPENDIX D

VERBAL ASSENT SCRIPT

Effect of Family Mealtime Participation on Academic Performance and Social Well-being in Northeast Ohio High School Sophomores

*Please read aloud to students prior to survey administration.*

**Health Teacher Script:**

In cooperation with a graduate student at Kent State University, we will be completing a brief survey in class today. The survey contains questions about topics we have discussed throughout the semester, such as nutrition, risky behaviors, and personal relationships and will take approximately 20 minutes to complete.

The survey is completely optional and will not positively or negatively affect your grade. You may choose not to participate. You may also choose to skip any questions or stop at any time.

You will all receive a copy of the survey along with an informational handout. *(Pass out Student Informational Handout)* If you choose not to participate, you may “doodle” on the survey until the remainder of the class is finished. Surveys will then be collected in a folder *(Show folder)* that will be passed around to each of your desks and sealed after all surveys are enclosed. I will not see the surveys after they have been completed and I will not know whether or not you have participated.

Does anyone have any questions before we begin? *(Provide clarification, if necessary, and pass out Family Mealtime Frequency Questionnaire)*
APPENDIX E

INFORMATIONAL STUDENT LETTER
Dear Student,

In cooperation with a graduate student at Kent State University, we will be completing a brief survey in class today. The survey contains questions about topics we have discussed throughout the semester, such as nutrition, risky behaviors, and personal relationships and will take approximately 20 minutes to complete.

Participation is completely optional and there will be no negative consequences if you choose not to participate. If you do participate, you may skip any questions you wish not to answer or may choose to stop at any time during the study with no negative consequences. Survey responses will be kept anonymous and will not be linked to your name.

If you would like additional information regarding the survey, please contact graduate student Lynne Hutchison at 440-724-5363.
APPENDIX F

SUMMARY OF MEANS AND FREQUENCIES OF ACADEMIC PERFORMANCE INDICATORS—HEALTH CLASS GRADE AND GPA—FOR HIGH SCHOOL SOPHOMORE SURVEY PARTICIPANTS
**APPENDIX F**

**SUMMARY OF MEANS AND FREQUENCIES OF ACADEMIC PERFORMANCE INDICATORS—HEALTH CLASS GRADE AND GPA—FOR HIGH SCHOOL SOPHOMORE SURVEY PARTICIPANTS**

Table 12  
*Means and Frequencies of Academic Performance Indicators—Health Class Grade and GPA—for High School Sophomore Survey Participants (\( \bar{x} = \text{Mean}, \ S D = \text{Standard Deviation} \))*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Response</th>
<th>( n \ (% ))</th>
<th>( \bar{x} \pm SD )</th>
</tr>
</thead>
</table>
| My current grade in Health class is…  
A)  | 74 (70.5%) | 3.71 ± 0.52   |
| B)  | 23 (21.9%) |               |
| C)  | 3 (2.9%)   |               |
| D)  | 0 (0.0%)   |               |
| F)  | 0 (0.0%)   |               |
| I don't know                   | 5 (4.8%)  |               |

\( n = 105 \)

| My current high school grade points average (GPA) is…  
A)  | 4.20 | 3 (3.4%)     |
| B)  | 4.00 | 10 (11.2%)   |
| C)  | 3.85 | 1 (1.1%)     |
| D)  | 3.82 | 1 (1.1%)     |
| E)  | 3.80 | 9 (10.1%)    |
| F)  | 3.78 | 1 (1.1%)     |
| G)  | 3.70 | 2 (2.2%)     |
| H)  | 3.65 | 2 (2.2%)     |
| I)  | 3.60 | 5 (5.6%)     |
| J)  | 3.52 | 1 (1.1%)     |
| K)  | 3.50 | 9 (10.1%)    |
| L)  | 3.40 | 9 (10.1%)    |
| M)  | 3.33 | 2 (2.2%)     |
| N)  | 3.30 | 3 (3.4%)     |
| O)  | 3.20 | 3 (3.4%)     |
| P)  | 3.10 | 1 (1.1%)     |
| Q)  | 3.00 | 9 (10.1%)    |
| R)  | 2.95 | 1 (1.1%)     |
| S)  | 2.90 | 4 (4.5%)     |
| T)  | 2.80 | 5 (5.6%)     |
| U)  | 2.70 | 1 (1.1%)     |
| V)  | 2.50 | 2 (2.2%)     |
| W)  | 2.35 | 1 (1.1%)     |
| X)  | 2.30 | 1 (1.1%)     |
| Y)  | 2.00 | 2 (2.2%)     |
| Z)  | 1.70 | 1 (1.1%)     |

\( n = 89 \)

\( \bar{x} = 3.36 \pm 0.52 \)

\( a \)The mean is calculated from data from a scale where five equals “A” and one equals “I don’t know.”

\( b \)The mean is calculated from data from an open-ended, free-response question.
REFERENCES


Ohio Department of Education. (n.d.). Ohio revised code (ORC) 3313.60 prescribed curriculum requirements. Retrieved from


