Distribution Agreement

In presenting this Thesis as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my Thesis in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this Thesis. I retain all ownership rights to the copyright of the Thesis. I also retain the right to use in future works (such as articles or books) all or part of this Thesis.

_____

Anne A. Prodgers Date

RESPONSE TO FITNESSGRAM PARENT REPORTS IN GEORGIA PUBLIC SCHOOLS: AN EVALUATION OF PARENT INTERPRETATION AND INTERVENTION

BY

Anne A. Prodgers, MAT
Degree to be Awarded: M.P.H.
Executive MPH

Jessica Sales, PhD Thesis Committee Chair	Date
Kirsten Rodgers, EdD, MSPH, MCHES Thesis Committee Member	Date
Melissa Alperin, MPH, MCHES Chair, Executive MPH Program	Date

RESPONSE TO FITNESSGRAM PARENT REPORTS IN GEORGIA PUBLIC SCHOOLS: AN EVALUATION OF PARENT INTERPRETATION AND INTERVENTION

BY

Anne A. Prodgers
MPH, Emory University, 2015
MAT, University of Southern California, 2012
BS, University of Florida, 2007

Thesis Committee Chair: Jessica Sales, PhD

An abstract of
A Thesis submitted to the Faculty of the
Rollins School of Public Health at Emory University
in partial fulfillment of the requirements of the degree of
Master of Public Health in the Executive MPH program
2015

Abstract

RESPONSE TO FITNESSGRAM PARENT REPORTS
IN GEORGIA PUBLIC SCHOOLS: AN EVALUATION
OF PARENT INTERPRETATION AND INTERVENTION

BY
Anne A. Prodgers, MAT

Background: Childhood and adolescent obesity has been increasing steadily over the past 30 years, and today over one-third of children and adolescents are considered overweight or obese (CDC 2014). There are many associated health problems, including asthma, pre-diabetes, bone and joint problems, sleep apnea, social and psychological problems resulting from poor self esteem, high cholesterol, and high blood pressure (GADPH 2010, CDC 2014). Being overweight or obese as a child often leads to continued health problems as an adult. There is also an economic burden; the lifetime costs associated with childhood obesity average $19,000 per obese child, or $12,900 for a normal weight child who becomes obese later in life (DGHI 2014).

There are many school-based programs that aim to prevent or reverse childhood and adolescent obesity. Georgia schools have adopted FitnessGram, which assesses students' overall health-related physical fitness through tests that fall into five categories: aerobic capacity, muscular strength, muscular endurance, flexibility, and body composition. Students are evaluated based on standards determined by FitnessGram, called the Healthy Fitness Zone standards, and the results are shared via student and parent reports.

Objectives: This research will identify general trends in parental perception of and response to the FitnessGram parent reports. This will then allow for recommendations to be made regarding the improvement of this aspect of the program, and provide a basis for further research and evaluation of this program in Georgia.

Methods: An electronic survey was sent to the parents of one elementary school in Georgia and data was collected via SurveyMonkey. Responses were analyzed for general trends in how parents were receiving the reports, their interest and investment levels in reading and understanding the reports, and how they chose to respond to and/or intervene in their child's health-related physical fitness based on the scores and information in the reports.

Results and Conclusion: Parents want their children to be healthy, but they do not necessarily use the FitnessGram parent reports as a tool or source of information to help their child achieve their health status. Parents demonstrate having good intentions to intervene if the Healthy Fitness Zone standards are not met, but may lack the time, knowledge, or willingness to change their own behaviors in order to follow through with these interventions. The results of this study led to several recommendations for schools using the FitnessGram parent reports, to potentially improve parent knowledge and ability to successfully help their child practice healthy diet and activity behaviors, and ultimately reduce childhood and adolescent obesity in Georgia.

RESPONSE TO FITNESSGRAM PARENT REPORTS IN GEORGIA PUBLIC SCHOOLS: AN EVALUATION OF PARENT INTERPRETATION AND INTERVENTION

BY

Anne A. Prodgers
MPH, Emory University, 2015
MAT, University of Southern California, 2012
BS, University of Florida, 2007

Thesis Committee Chair: Jessica Sales, PhD

A Thesis submitted to the Faculty of the
Rollins School of Public Health at Emory University
in partial fulfillment of the requirements of the degree of
Master of Public Health in the Executive MPH program
2015

Acknowledgements

I would like to thank my wonderful Thesis Committee, Dr. Jessica Sales and Dr. Kirsten Rodgers, for their guidance and help throughout this entire process; for answering my many questions and providing constructive feedback and positive encouragement at every step of the way.

I would also like to thank Ms. Windy Bottoms, Principal of Birmingham Falls Elementary School, for agreeing to work with me and being so incredibly accommodating in her efforts to ensure that parents received the survey link.

Lastly, I have to thank my friends and family for putting up with me over the last two and a half years while I have been at Emory pursuing this degree. My old friends, for not taking it personally when all of my free time was suddenly devoted to writing papers and posting on discussion boards, and my new "Emory friends" for being such an amazing, warm, smart, and fun group to share this experience with. And my family, for providing so much support, mentally, emotionally, and of course sometimes financially. I don't think that I could have accomplished any of this without such amazing people by my side!

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

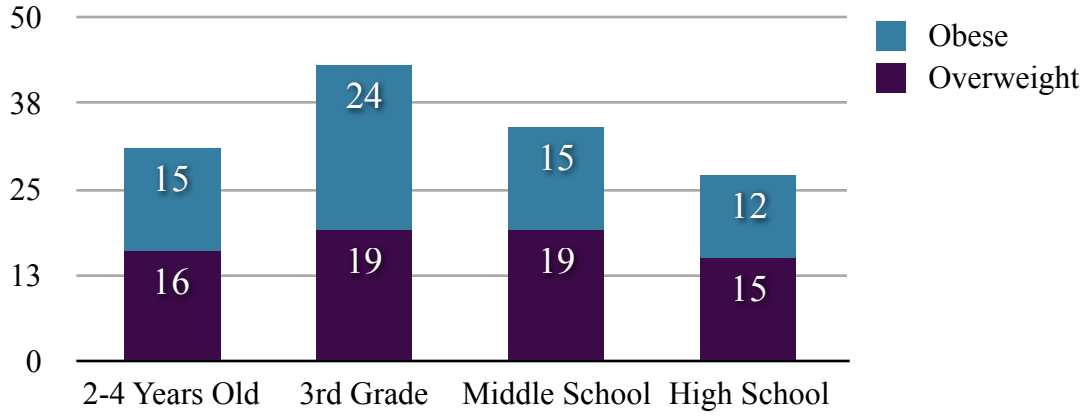
Background

Childhood and Adolescent Obesity. In 2012, over one-third of children (ages 6-11) and adolescents (ages 12-19) in the United States were identified as overweight or obese (CDC 2014). The National Institutes of Health (NIH) define "overweight" as a person with excess body weight for their height from fat, muscle, bone, water, or a combination of these factors. "Obese" is defined as having excess body fat. These conditions are typically diagnosed by determining a person's body mass index (BMI) which is an estimate of body fat that is calculated using the person's height and weight. Overweight and obesity in children and adolescents are diagnosed by comparing their BMI against growth charts that take age and gender into account (NIH 2012).

Over the last 30 years, child and adolescent obesity has increased significantly; the percentage of obese children increased from 7% in 1980 to 18% in 2012, and the percentage of obese adolescents increased from 5% to 21% during the same time period (CDC 2014). Childhood and adolescent obesity can lead to many other health problems for the child, such as cardiovascular disease, pre-diabetes, bone and joint problems, and psychological issues including stigmatization and low self-esteem (CDC 2014). Financially, their families and communities can be affected as well, as these health problems are costly to individuals and to society (GADPH 2010). In Georgia, childhood and adolescent obesity rates are high, but have seen a recent decline. In 2007, Georgia had the second highest rate of childhood obesity in the nation, and in 2011 had moved to the seventeenth highest (GADPH 2014). While this is progress, Georgia

needs to work to continue this trend in the right direction. Healthy People 2020 calls for a national 10% reduction in the proportion of children and adolescents aged 2-19 years who are considered obese, with a target of 14.5% of children and adolescents (HealthyPeople.gov). Figure 1 shows the percentages of overweight and obese youth in Georgia in 2010. Every age, sex, race, and ethnic group exceeded the Healthy People 2010 national goal (GADPH 2010).

Figure 1: Percent of Overweight and Obese Children and Youth in Georgia in 2010 (GADPH 2010).



Behavioral Risk Factors. In a 2005 study on childhood obesity, Reilly, et al. determined eight significant behavioral risk factors: birth weight, parental obesity, sleep duration, television viewing, size in early life, weight gain in infancy, catch-up growth, and early adiposity or body mass index (BMI) rebound (Reilly, et al. 2005). However, the exact mechanisms for some of these risk factors are unknown. For example, parental obesity may lead to child obesity through certain genetic markers, or because of family characteristics such as food choices (Reilly, et al. 2005). Single gene defects or mutations related to obesity, such as those responsible for Prader-Willi syndrome, account for a small percentage of childhood obesity cases (Ebbeling, et al. 2002). Genetic predisposition to obesity may actually be caused by complex interactions

between 250 associated genes, in addition to perinatal factors such as maternal obesity (Ebbeling, et al. 2002).

The most obvious behavioral risk factors are those related to physical activity and eating habits. Numerous studies have shown correlation between low amounts of physical activity and higher BMIs in children and adolescents (Ebbeling, et al. 2002). Of key interest is time spent watching television. This not only causes a lack of physical activity, but it has also been found that children consume more energy dense foods while watching TV, in addition to being exposed to commercials for fast foods, soft drinks, sweets, and sugar-sweetened breakfast cereal (potentially leading to the children choosing these foods over healthier options) (Ebbeling, et al. 2002).

Social Determinants. Children's physical activity and eating habits are molded by their physical and social environments. They tend to eat foods that are readily available, and if larger portions are provided, they are likely to eat more (Patrick, et al. 2004). Characteristics of the social environment, including socioeconomic and sociocultural factors such as parental education and ethnicity also influence these habits (Patrick, et al. 2004). According to Singh, et al. (2008), children of ethnic minorities, non-metropolitan residence, and lower socioeconomic status and social capital are found to be more likely to be obese. Also, while poverty-adjusted gradients were similar, parental education and social capital effects were more pronounced for females than for males (Singh, et al. 2008).

School-based Programs. In order to prevent childhood and adolescent obesity, characteristics of healthy and active lifestyles need to be taught, modeled, and encouraged. Children can be greatly influenced by their families, communities, schools, child care settings,

medical care providers, faith-based institutions, government agencies, the media, food and beverage industries, and entertainment industries (CDC 2014). Obesity prevention programs may concentrate on increasing physical activity, making healthy food choices and eating habits, and/or cardiovascular disease causes and prevention (Stice et al. 2006). This study will focus on a school-based physical activity program.

Youth physical fitness testing has existed in some form since the 1800s. In 1885, the organization now known as the American Alliance for Health, Physical Education, Recreation and Dance (AAHPER/AAHPERD) was created with concern for the physical fitness of American youth (Plowman, et al. 2006). In 1956, President Dwight D. Eisenhower established the President's Council on Youth Fitness (now known as the President's Council on Physical Fitness and Sports). This prompted the development of the AAHPER Youth Fitness Project (YFP), a nationwide pilot study that tested the fitness levels of children ages 5-12. This study resulted in national AAHPER YFP norms being published in 1958 (Plowman, et al. 2006). Then, in 1966 President Lyndon Johnson established the Presidential Award Program, which was partially based on performing in the 85th percentile in all AAHPER YFP items measured (Plowman, et al. 2006). Over the next 20 years, the program went through many changes due to dissatisfaction with the test items and award system, evolving research in the field, and the inability of program developers to agree on the criterion- and/or percentile-referenced standards that would be used.

Finally, in 1987, the first meeting of a new advisory council took place in Atlanta, Georgia with the goal of creating a health-related fitness test, criterion-referenced standards, and a physical activity promotion and reporting system (Plowman, et al. 2006). They utilized an

existing program called FitnessGram which had been created in 1982 by The Cooper Institute as a simple way for physical education teachers to provide parents with reports on their children's fitness levels. (Human Kinetics 2014). Several changes have been made over time, but parent reporting is still one of the major tenets of the program. It is now a comprehensive health-related physical fitness program for use in schools. The program assesses students' overall health-related physical fitness through a variety of tests that fall into five categories: aerobic capacity, muscular strength, muscular endurance, flexibility, and body composition. Students are evaluated based on standards determined by FitnessGram, called the Healthy Fitness Zone standards. Results of these tests are shared via student and parent reports. The reports also include recommendations for physical activity options that can help students reach or maintain the Healthy Fitness Zone (Human Kinetics 2014). The parent report is meant to engage parents by not only providing their child's scores, but also by providing ways to promote an active lifestyle at home. The goal is for the physical education that the child is receiving at school to be able to be continued in the home environment as well. Figures 2 and 3 show examples of student and parent reports that are generated by the FitnessGram program.

FitnessGram was adopted in 2011 by the Georgia Department of Education in response to the Georgia Student Health and Physical Education (SHAPE) Act passed during the 2009 Georgia legislative session (GDoE 2013). It is now a mandatory physical education program used in all Georgia public schools.

Figure 2: An example of a FitnessGram student report (The Cooper Institute 2013).

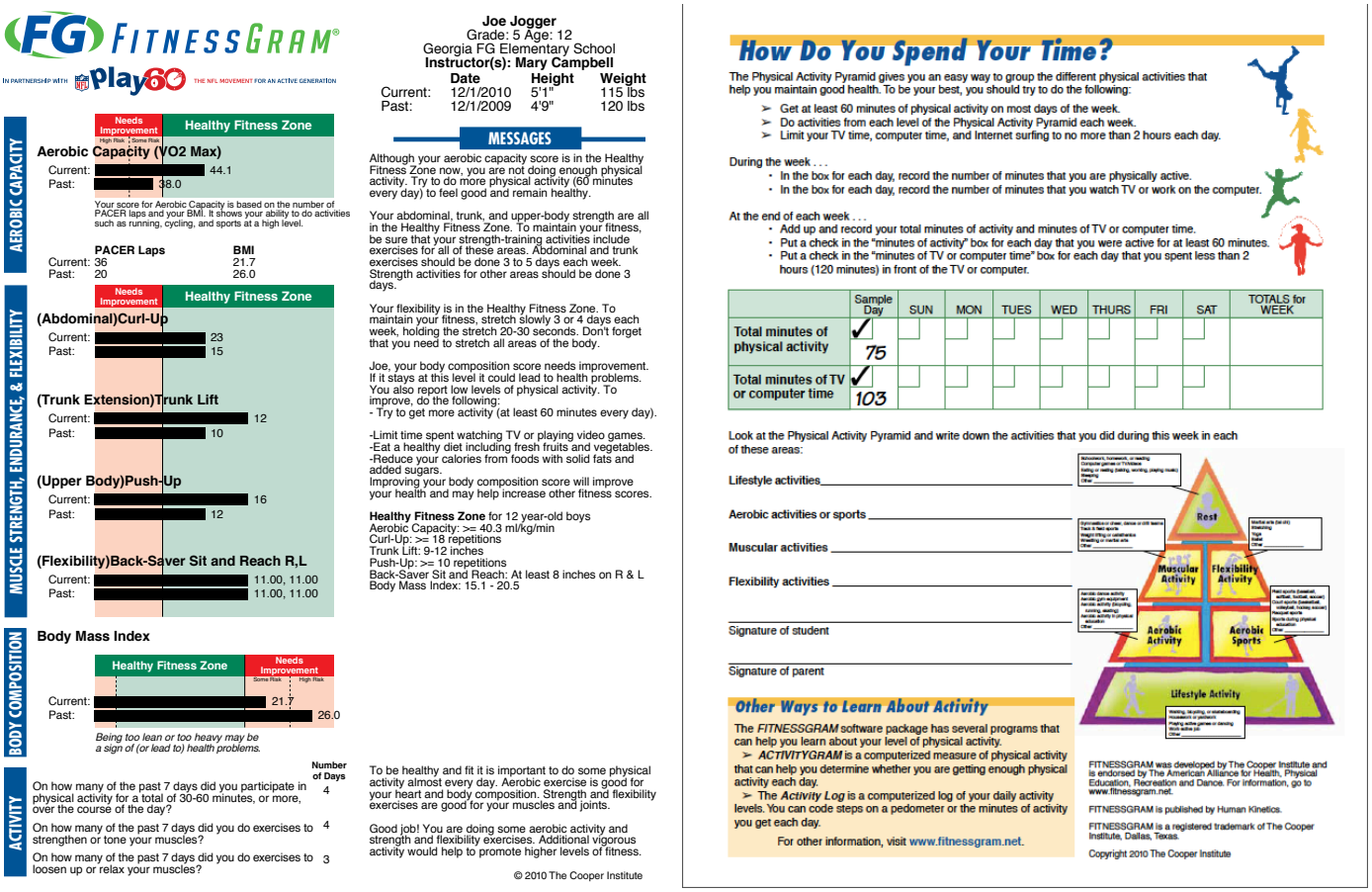
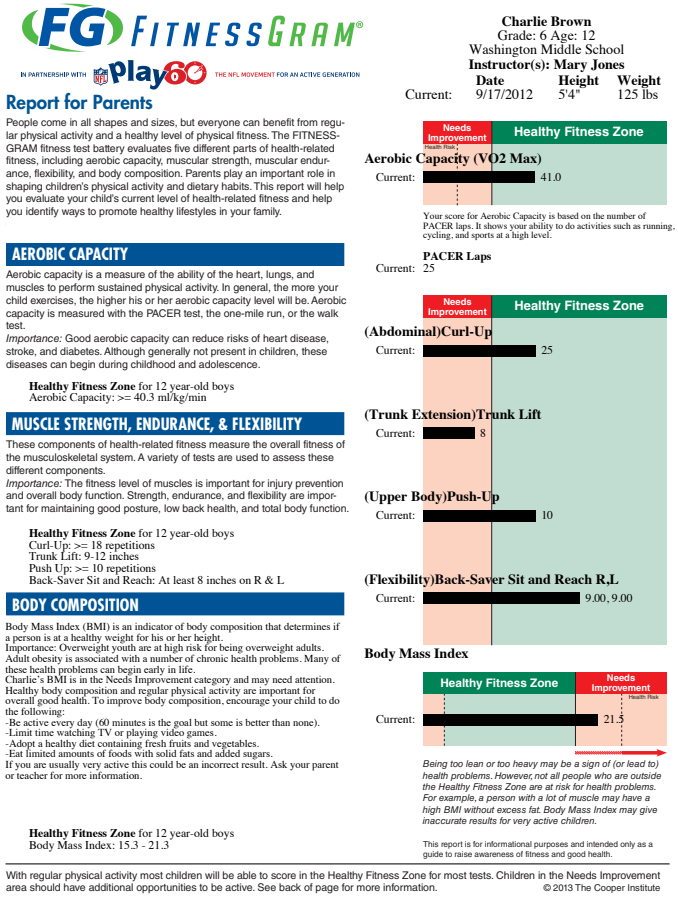


Figure 3: An example of a FitnessGram parent report (The Cooper Institute 2013).



Problem Statement

Childhood and adolescent obesity have many associated health risks over the short- and long-term. These include asthma, pre-diabetes, bone and joint problems, sleep apnea, social and psychological problems resulting from poor self esteem, high cholesterol, and high blood pressure (GADPH 2010, CDC 2014). Being obese as a child often leads to being obese as an adult, which then results in higher risk for adult health problems such as heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis (CDC 2014).

In addition to individual health burden, there is an existing economic burden of childhood and adolescent obesity in Georgia. In 2010, the Department of Public Health reported that obesity-related hospitalizations of children in Georgia cost $2.1 million a year, which is expected to rise (GADPH 2010). It is estimated that compared to a normal weight child who never becomes obese, the lifetime costs associated with childhood obesity average $19,000 per obese child, or $12,900 for a normal weight child who becomes obese later in life (DGHI 2014).

In most cases, children are not in control of forming their own diet and exercise habits. Parents typically supply and shape the environmental influences that affect infants and children, including the following factors relating to eating behavior: exposure to and accessibility to food, modeling of eating behaviors, providing food that leads to positive or negative physiological consequences, and feeding practices utilized (Hodges 2003). Similarly, there is a link between demonstrated parental levels of physical activity, encouragement, involvement/interaction, and support and their children's level of physical activity (Zecevic et al. 2010). Without positive parental interaction and role modeling, children and adolescents will likely not learn how to make healthy diet and exercise habits on their own. While FitnessGram attempts to address this

through the school-based program, parent engagement via the parent reports is crucial to establish healthy habits at home.

Purpose Statement

According to FitnessGram data from the 2011-2012 and 2012-2013 school years, Georgia has already seen an improvement in several measures of student physical fitness health. For example, there was a 4% increase in the percentage of students scoring within the Healthy Fitness Zone in all five testing areas (GDoE 2013). However, no further evaluation of the program in Georgia has been conducted. If and how individual aspects of the program were cause for this improvement has not yet been investigated. The purpose of this study was to evaluate one facet of FitnessGram - the parent reports - to determine their possible impact on student results based on parents' reception, interpretation, and response.

Research Questions

The study will seek to answer the following:

What role does parents' response to FitnessGram reports play in the overall physical health of students in Georgia public schools?

a. **How invested are parents in reading and interpreting FitnessGram reports received from the school?**
b. **Do parents intervene if the FitnessGram report indicates room for improvement in their child's physical aptitude? If so, what interventions do they use (e.g.**

discussions with child, changing child's diet, encouraging more physical activity, engaging PE teachers)?

Significance

This research will identify general trends in parental perception of and response to the FitnessGram parent reports. Data collected from parents will provide information regarding how the parent reports are being used in their current form, and reveal potential trends in parent engagement with FitnessGram and their child's fitness level. This will then allow for recommendations to be made regarding the improvement of this aspect of the program, and provide a basis for further research and evaluation of this program in Georgia. Ultimately, this research will contribute to further improvement in health-related physical fitness among Georgia students, contributing to lower rates of childhood and adolescent obesity and diminishing the health and economic burdens associated with these cases.

Theoretical Framework

This study was guided by the social-ecological framework. This framework in public health is based on the theory that individual risk factors alone do not shape a person's health and well-being; also at work are the relationships that this person has with other people and his or her environment. Specifically examined in this study are the relationships between children, parents, and the school community. The social-ecological framework recognizes the importance of considering how social environmental and biological factors jointly influence health (Richard et al. 2011). These social environmental factors can include influences such as socioeconomic

status, gender, and cultural, community, or political factors. The interrelationships between people (either individuals or populations) and these environmental influences will result in behavior adoption and maintenance (Richard et al. 2011).

The social-ecological framework draws from the fields of medicine and public health, in addition to the behavioral and social sciences, and gives greater attention to the social, institutional, and cultural contexts or people-environment interactions (Stokols 1992). This is in contrast to only examining individual risk factors (Richard et al. 2011). While individual risk factors such as genetic predisposition to obesity may exist in some children and adolescents, this study is instead focusing on how interpersonal relationships and interactions potentially influence health. According to the National Cancer Institute (2005), the social-ecological framework is comprised of two key concepts: 1. behavior affects and is affected by the five levels of influence (intrapersonal/individual, interpersonal, institutional/organizational, community, and public policy factors) and one health outcome can be the result of one, several, or all of these factors together; 2. individual behavior shapes and is shaped by the social environment in a cycle of reciprocal causation; people both influence and are influenced by others around them and their environment. Table 1 depicts five levels of the social-ecological framework, and how this research has been guided at each.

Table 1

Social-ecological framework (McLeroy et al. 1988) and its application to this study.

Level	Framework	Application
Intrapersonal	One's own knowledge, attitude, beliefs, self-concept, skill, and developmental history	Students and parents as individuals. Students have individual abilities and motivations regarding their physical fitness. Parents also hold their own knowledge and beliefs about how to maintain their child's health.
Interpersonal	Formal and informal social network and social support systems; family, coworkers, friendships	Relationships and level of engagement between students and parents regarding physical fitness. How are parents effectively involved in maintaining their child's health (or not)?
Institutional	Social institutions and organization characteristics, rules and regulations for operating	FitnessGram as a school-based program involves interaction between students, parents, and teachers/ administrators.
Community	Relationships among organization, institutions, and informal networks with defined boundaries	Health-related physical fitness of children and adolescents is a public health issue that affects the entire community. Community involvement can serve to decrease the present and future health and economic burdens of childhood and adolescent obesity.

Table 1

Social-ecological framework (McLeroy et al. 1988) and its application to this study.

Level	Framework	Application
Policy	Local, state, and national laws and policies	FitnessGram is required by the Georgia Department of Education to be used in all public schools. As a program mandated by public policy, it should be both effective and efficient. This research will guide recommendations for program improvement.

Chapter 2

Review of Literature

Introduction

A large body of research has been done on the subject of childhood and adolescent obesity. This literature review focuses on the most common risk factors and social determinants of this health issue, followed by the effects of parental involvement and school-based physical health programs. There are other factors not included here that may cause overweight or obesity in children and adolescents such as certain genetic predispositions, genetic disorders such as Prader-Willi syndrome, and hormonal disorders such as hypothyroidism and Cushing's syndrome. The studies included in this review are presented as they relate to the FitnessGram program and the effectiveness of parent reports.

Review of Literature

Childhood and Adolescent Obesity. Childhood obesity can be caused and/or influenced by many factors. Several of these are risk factors that may be present during the prenatal period, including maternal obesity, excess gestational weight gain, smoking during pregnancy, low maternal vitamin D status, and short duration of breastfeeding. In a 2014 study Robinson, et al. examined the outcomes of these factors in children aged 4 and 6 years. They found that there were positive graded associations with the number of early-life risk factors, even when other confounding factors such as child activity level and diet were considered (Robinson et al. 2014). Similar results were also found in another study that included maternal gestational weight gain,

smoking during pregnancy, short duration of breastfeeding, and shorter duration of daily sleep during infancy. In this 2008 study by Gillman, et al., preschool-aged children whose mothers did not gain excessive weight or smoke during pregnancy, and who were breastfed for at least 12 months and got at least 12 hours of sleep each day, had a predicted obesity prevalence of 6% as compared to 29% among children with all four risk factors. Later, when the children were 7 to 10 years old, these rates were 4% and 28%, respectively (Gillman et al. 2008). These studies show that early-life (prenatal and postnatal) risk factors can continue to have an effect into childhood.

There are racial and ethnic disparities in the prevalence of childhood obesity risk factors. These disparities were examined in a 2010 study that included the following variables: gestational weight gain, gestational diabetes, smoking during pregnancy, maternal depression, fetal growth and rapid infant weight gain, cord blood adipokines, infant feeding, maternal control of infant feeding, daily sleep during infancy, daily television viewing during infancy, and sugar-sweetened beverages, fast food, and family dinner (Taveras et al. 2010). The authors observed racial/ethnic differences in almost every factor examined, however the relationships between race/ethnicity and prevalence of obesity-related risk factors were confounded by socioeconomic status and maternal and paternal pre-pregnancy BMI. Adjustment for confounding variables still revealed differences: compared to white children, black and Hispanic children had lower birth weights but higher BMI scores and prevalence of obesity at 3 years of age, black and Hispanic mothers were more likely than white mothers to initiate breastfeeding but less likely to breastfeed exclusively past 6 months of age and more likely to introduce solid foods before 4 months of age, black and Hispanic mothers were likely to exert greater control over their infants' feeding by restricting food or pressuring them to eat, black and Hispanic infants were sleeping

less than white infants between 6 months and 2 years of age, and after 2 years of age black and Hispanic children were much more likely to have a television in their bedrooms and a higher consumption of sugar-sweetened beverages and fast foods (Taveras et al. 2010).

Several of these results have also been found in other studies. Neumark-Sztainer et al. (1996) found that children and adolescents with low SES tend to have less than adequate fruit and vegetable consumption. Crespo et al. (2001) found that non-Hispanic white boys had the highest levels of physical activity, and that African American youth spent the most time watching television, compared to all other racial groups.

As the child enters adolescence, they begin a critical period of increased risk for many health behaviors, including cigarette smoking, alcohol and drug use, unsafe sexual behavior, and obesity. Adolescents develop their health behaviors in response to influences present in their physical and social environments, genetics, and personal characteristics (Williams et al. 2014).

Parental Involvement in Child Physical Health. As a child grows up, there are more parent- and family-related risk factors that may influence physical health. In a 2006 study by Beets, et al., social support from parents in relation to physical activity was examined. The authors found that increased positive feedback from parents and availability/willingness of parents to provide transportation served to improve activity levels among children and adolescents. Also, reduced parental supervision (measured by the number of hours the child/ adolescent spent alone in the house after school) was related to less physical activity, likely because of the child/adolescent watching more television or playing video games, making more unhealthy food choices, and/or not having transportation for after-school sports or activities

(Beets et al. 2006). Parent engagement and having a supportive family environment can improve the outcome of health behavior changes more so than an intervention alone (Latzer et al. 2009).

Prevention strategies that involve parents have a greater likelihood of being successful (Waters et al. 2005). Parents sometimes lack the knowledge necessary to make the healthiest choices for their children, or sometimes do not consistently demonstrate the healthy behavior(s) even though they know what they are (Waters et al. 2005). Parents have also cited having difficulty in monitoring and controlling their child's eating behavior, as well as not knowing of any weight control strategies to try with their child (Borra et al. 2003). In a randomized clinical trial that involved parents as the exclusive agent of change in a childhood obesity intervention, a reduction in child body size and an improvement in parenting skills and confidence was measured immediately following the intervention and at a 12-month follow-up (West et al. 2010). This newer parent-based treatment model shifts the focus from the child and weight control to the parent and provision of an environment that is conducive to healthy behavior and that includes the entire family (West et al. 2010). This was developed in response to several issues with child-centered intervention strategies: singling out one child may result in feelings of stigmatization or exclusion from the family, and placing emphasis on weight loss can result in the child become preoccupied with food and/or body image, which may lead to body dysmorphia and/or eating disorders (West et al. 2010).

In a 2013 study on parental involvement in childhood weight control interventions in Europe, van der Kruk, et al. identified a difference in prevention versus treatment programs: the prevention studies all had low (as determined by the authors on a low-medium-high scale) levels of parental involvement and behavior change techniques, whereas the treatment studies included

a variety of low, medium, and high levels of parental involvement and more behavior change techniques (van der Kruk et al. 2013). In a similar review, it was noted that the most common involvement barrier that parents cite is lack of time, which can affect a child's activity levels and diet (Pocock et al. 2009).

School-based Intervention Programs. The School Health Policies and Programs Study 2000 revealed that while almost every state and school district required physical education at all three school levels, only 8% of elementary schools, 6% of middle/junior high schools, and 6% of senior high schools provided daily physical education or an equivalent for every grade level for the entire school year (Bergeson et al. 2001). Furthermore, few states and districts required any skill performance tests, fitness tests, or written knowledge tests. Many teachers tended to assess students based on wearing the appropriate clothing or uniform and attending class as opposed to actual performance, fitness, and/or knowledge. Other questionable practices that were found to be common were teachers using physical activity as punishment for bad behavior, the teaching of dodgeball (criticized for inherently eliminating students from activity and promoting aggressive behavior), and grouping students by selecting captains who then pick the rest of their team members (criticized for causing potential anxiety and/or embarrassment for students who do not get picked) (Bergeson et al. 2001).

The World Health Organization (WHO) has established the Health Promoting Schools (HPS) framework, which emphasizes the link between health and education: children who are healthy will more likely achieve better educational outcomes, which are then associated with better health later in life (Langford et al. 2015). The HPS initiatives include health education promoted through the formal school curriculum, changes to the school's physical and/or social

environment, and engagement with families and the community. Langford et al. (2015) reviewed 67 trials involving the HPS framework targeting physical activity and/or nutrition, and found intervention-related improvements in students' levels of physical activity, physical fitness, and fruit and vegetable intake. The authors also reported that the key elements for program success included tailoring the program to the individual needs of the school, aligning the interventions with the school's core aims, involving teachers in program development so that they feel ownership of the program, and providing ongoing support and training for the teachers throughout the implementation of the program (Langford et al. 2015).

An interesting point made by Hung, et al. in a 2014 study on the factors that enable health promoters in implementing health-promoting schools is that while the health and education sectors may share the goal of improving students' health, they typically have different approaches and outcome measures based on different assumptions. Educators tend to assume that students will be able to make health-related behavior decisions once they have acquired the appropriate knowledge through cognitive skills such as remembering and understanding, while healthcare professionals assess biometric outcomes and disease prevalence. This leads to different interpretations of the ideas of "health education" and "health promotion" as understood by different school staff (e.g. teachers and school nurses) (Hung et al. 2014).

Overweight and obesity are sensitive issues in schools. In one study involving high schools in Tennessee, school personnel identified adolescent obesity and the associated health problems as major health issues in their schools, however help for these students was not made explicitly available. All students received the same health and physical fitness education; if a student wanted additional help or information regarding being overweight they had to seek it out

themselves (Southerland et al. 2015). French, et al. (1994) found that only 10% of obese children and adolescents will seek weight loss treatment on their own.

There are four main types of overweight/obesity intervention programs: (1) multi-focus cardiovascular disease prevention programs that target obesity in addition to other risks of cardiovascular disease, (2) programs focused solely on the prevention of obesity or weight gain, (3) programs focused solely on increasing physical activity, and (4) eating disorder prevention programs that promote use of healthy weight management skills (Stice et al. 2006). In a 2002 review of school-based obesity prevention programs, Baranowski et al. found that the greatest program success was seen when these three factors existed: (1) the program was taught or implemented by outside professionals as opposed to classroom teachers at the school, the school was a middle or high school as opposed to an elementary school, and the focus of the program was inactivity reduction. In another review of school-based programs, Stice et al. (2006) also found that programs for adolescents were the most effective, compared to children. They hypothesized that this was because older program participants would be better able to understand intervention material and make decisions for themselves regarding physical activity and eating habits. They also found that programs enlisting only females were more effective than those for only males or both genders together, programs that were short in duration were more effective than lengthy ones, and programs that focused solely on obesity prevention were more effective than programs that focused on other health behaviors as well (Stice et al. 2006). Further research is needed to determine the causes of these findings.

Several studies have shown that the effectiveness and sustainability of intervention programs may be dependent on how the program is specifically tailored to individual settings or

communities, stakeholder involvement in the development of the program, and the use of gender-specific program design and materials (Williams et al. 2014).

In a formative evaluation of the CHASE (Creating Healthy Adolescents and Secondary school Environments) Project, Williams et al. (2014) identified key areas for the application of school-based efforts. One finding was that schools need to consider different target groups when designing interventions. They also found that community and parent engagement were integral to the success of the program. Consistent with other studies mentioned previously, positive role modeling and support in the home environment is crucial to the development and maintenance of healthy physical activity and nutrition behaviors (Williams et al. 2014).

Current Problem and Study Relevance

All of the aforementioned studies and program/intervention reviews aim to determine the same thing: the most efficient and effective way to prevent/treat childhood and adolescent obesity. The FitnessGram program attempts to incorporate several of the potentially successful methods outlined above, including engaging schools and teachers, and involving parents via the parent reports. As a national program, FitnessGram does not appear to utilize the methods of offering gender-specific physical education or creating school-specific curricula that is more personalized to the population of each individual school. However, these differences may be implemented by teachers, administration, and/or staff on a school-by-school basis.

While many other programs and interventions have been studied for their effectiveness in reducing childhood and adolescent obesity, FitnessGram in Georgia schools has not. Many studies have also already addressed parent involvement, and it has been shown that engaging

parents is a positive component for this health issue. This study will focus on parent engagement as it relates to FitnessGram.

Chapter 3

Methodology

Introduction

This research focused on the effectiveness of the FitnessGram parent reports through three main constructs: Parent reception of the reports (are parents actually getting them and are they reading them?), Parent interpretation of the reports (are the reports easy to read and understand, and do parents feel that their child's scores are accurate?), and Parent intervention/ response to the reports (do the reports serve as an impetus for change regarding parent involvement in their child's physical fitness?). An electronic survey was utilized for data collection. As this was the first formal study of parental interpretation of the FitnessGram reports, only one school was involved in the study in order to narrow the scope and keep the focus on general trends regarding the parent reports, as opposed to potentially confounding variables such as socio-economic status and other demographics.

Population and Sample

Population. Participants were parents of students at Birmingham Falls Elementary School (BFES) in Milton, Georgia. This school was selected because their student data showed improvement in the percentage of students in the Healthy Fitness Zone from the 2011-2012 to the 2012-2013 school year. BFES was recognized as a "Gold" school on the Governor's SHAPE Honor Roll in 2013 for demonstrating excellence in participation, data reporting, and student wellness. Also, the school routinely communicates with parents through email and the school

website, so parents were more likely to be able to receive and complete an online survey. The electronic survey link was sent to every parent email in the school's database; no parents were excluded for any reason. Parents were asked to voluntarily complete the survey.

According to the 2010 United States Census data, the city of Milton had a population of 32,712. The largest ethnic groups were White alone (76.6%), Asian alone (10.4%), and Black or African American alone (9.0%). The median home value was $439,100 and median household income was $113,000. Of people 25 years and older, 66.4% had obtained a bachelor's degree or higher level of education. Birmingham Falls Elementary School is one of four elementary schools in Milton. Per Fulton County Schools attendance zoning, all BFES students live within Milton city limits. The resp

Sample. A total of 32 respondents provided answers to the demographic questions included in the survey. Two respondents chose to skip them, without actually selecting the "Prefer not to answer" option. The results are summarized in table 2.

Table 2

Summary of respondent demographics (n = 32).

	n	%
Gender		
Male	2	6.25
Female	30	93.75
Gender of Respondent's Child(ren)		
Male	10	31.25
Female	14	43.75

Table 2

Summary of respondent demographics (n = 32).

Respondent has both male and female children at BFES	8	25.00
Race/Ethnicity of Respondent		
Asian or Pacific Islander	4	12.50
Hispanic American	2	6.25
White or Caucasian	25	78.13
Other	1*	3.13
Respondent's Relationship to Child(ren) at BFES		
Mother	30	93.75
Father	2	6.25
Age of Respondent		
30 - 39 years	4	12.50
40 - 49 years	26	81.25
50 - 59 years	2	6.25

**this respondent wrote-in that there are multiple ethnicities in the family due to adoption*

Recruitment. The principle of BFES sent the survey link via email to parents, accompanied by a letter explaining the nature and purpose of the study (see Appendix for full text of letter and survey instrument). The letter and survey link were also shared on the school's FaceBook page and Twitter feed.

Setting. The survey was able to be completed anywhere the parent had internet access. This may have included their home, place of employment, or anywhere on a smartphone.

Research Design

This was a descriptive research study which utilized a survey instrument to collect data. The aim of the study was to determine the general trends in how parents are receiving, interpreting, and responding to their FitnessGram parent reports, by gathering quantitative and qualitative information from parents/guardians regarding the reports.

Procedures. The FitnessGram survey was created using SurveyMonkey. Parents/ guardians received a link to the survey through email communication from the principal of BFES, along with the written introduction letter (see *Recruitment*) explaining the purpose of the survey as it relates to this study. Parents/guardians were given a two-week response period to complete the survey. The principal sent out one reminder email at the midpoint of this period.

Measures. The general scope of the survey questions covered parents' perception of, interpretation of, and response to the FitnessGram parent reports. Questions were designed to determine if parents were receiving the reports, their interest and investment levels in reading and understanding the reports, and how they chose to respond to and/or intervene in their child's health-related physical fitness based on the scores and information in the reports.

Informed Consent. The survey included an informed consent piece that the parent had to agree to before beginning the survey questions (see Instruments). If they chose not to give consent, they were automatically taken to the "Thank You" page and were not asked any questions. The survey did not ask parents for any identifying information, so their responses were not be able to be linked back to them or their child. There were no risks involved for the study participants, and while there were no direct immediate benefits to the participants for completing the survey, they may experience future benefits as the FitnessGram program is

improved based on this and subsequent research. This parent survey served as the first step in determining what is working well and what is not working regarding this aspect of the program, and led to recommendations for possible changes and further studies. These improvements will help parents with their involvement in their child's health-related physical fitness, which will ultimately benefit the children in the FitnessGram program and Georgia schools.

Instruments

The parent survey (see Appendix) was created using the online survey tool SurveyMonkey. Survey questions covered the three main constructs of the study: parent/guardian reception to, interpretation of, and intervention/response to the parent reports. The survey also included five optional questions at the end to obtain demographic data from the respondents. The entire survey experience took parents approximately 10-20 minutes to complete.

Data Management and Analysis

Data was collected through SurveyMonkey, with an account only accessible by the PI. Individual survey responses were not accessible to or shared with anyone else. Data analysis was performed solely by the PI. The survey link was sent to approximately 500 potential respondents. A 40% response rate goal was set, which would provide 200 completed surveys for analysis. The data collected was analyzed using descriptive and inferential statistics to report general trends in how parents are receiving, interpreting, and responding to their FitnessGram reports. As this was primarily an exploratory project, demographic variables such as race, SES, or family structure were collected but potential correlations between these factors and parent reception and/or

intervention were not investigated. Table 3 displays the general constructs of the survey and specific research questions.

Table 3

Survey constructs and specific research questions within each.

Construct	Research Question(s)
Reception	What percentage of parents have received a FitnessGram parent report? • Of parents who received a report, what percentage did not read it at all/read some of it/read all of it? • What were the most common reasons that made parents choose not to read any or all of the report?
Interpretation	Did parents feel that the scores and information on the report were easy to read and understand? • Did parents feel that more information was needed on the report? • Did parents feel that the information on the report was useful? • Were parents able to use the information on the report to help interpret their child's scores? Did parents believe that their child's scores were accurate? • Did parents believe that the report was useful in helping their child achieve/maintain healthy physical fitness levels?
Intervention/Response	What percentage of parents have a child who scored in the "Needs Improvement" zone? • What categories did these children need improvement in? • What were the most common interventions from parents in response to this "Needs Improvement" score? What were the most common interventions planned by parents if their child receives a "Needs Improvement" score in the future? How important is it to parents that their children score within the "Healthy Fitness Zone?" • Why or why not is this important to parents?

Chapter 4

Results

Introduction

The survey was opened by a total of 90 of 500 BFES parents/guardians. This was approximately an 18% response rate. Of these 90 respondents, 4 chose not to give consent on the first page, so they did not continue on with the survey questions. Therefore, responses were collected from 86 people. Less than half reported that they had definitely received a FitnessGram parent report in the past, but everyone that had received a report did take some time at least looking at their child's scores, and were able to answer the rest of the survey questions.

Findings

Reception. Of the 86 respondents that gave consent to continue the survey, 40% (34 people) reported that they have received a FitnessGram parent report in the past. 46% (40 people) reported that they have never received one, and 14% (12 people) did not know/did not remember.

All 34 people that reported receiving a parent report stated that they read at least part of it. 24% (8 people) only looked at their child's scores without reading any of the additional information, 41% (14 people) looked at their child's scores and read some of the additional information, and 35% (12 people) looked at their child's scores and read all of the additional information. Table 4 summarizes the reasons why parents chose not to read all of the additional

information on the report. Respondents were able to choose more than one reason. If they chose "other," they were asked to elaborate.

Table 4

Reasons for not reading some or all of the additional information provided on the parent report (n = 22)

Amount Read	Selected Responses	"Other" Responses
Did not read any of the additional information (8 respondents)	• I didn't have time (2) • It was overwhelming (2) • I wasn't interested (2) • Other (2)	• "My child is very physically active and very healthy. I had no concerns about his scores." • "I know the results were healthy and not concerned"
Read some of the additional information (14 respondents)	• I didn't have time (2) • I misplaced it before I had a chance to read all of it (2) • It was too long (6) • I understood the scores and did not need all of the additional information or explanations (8) • I wasn't interested (2) • Other (1)	• "It does not provide remediation. Only states the problems"

Interpretation. Table 5 shows how strongly respondents agreed or disagreed with statements regarding their interpretation of the parent reports. These statements were addressed by the 34 total respondents who reported that they had at least looked at their child's scores on the parent report.

Table 5

Parent opinions of the scores and information provided on the parent reports (n = 34).

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The scores on the Parent Report were easy to read and understand.	0	0	0	23	11
The additional information on the Parent Report was easy to read and understand.	0	2	13	9	10
The explanations of the different categories of tests (aerobic capacity, body composition, etc.) helped me understand what my child's scores meant.	0	2	13	9	10
I would have liked more information than what was included on the Parent Report.	0	11	17	4	2
I thought that some or all of the additional information on the Parent Report was unnecessary or too long.	2	7	11	12	2
I think my child's scores on the Parent Report are accurate.	0	2	11	14	7
Overall, the Parent Report gave me a good idea of my child's current level of physical fitness.	0	4	7	16	7
The Parent Report has been useful in helping my child achieve or maintain scores in the "Healthy Fitness Zone."	2	7	16	7	2

Intervention/Response. Of the 34 respondents who had received a parent report, 15 (44%) reported that their child had scored in the Needs Improvement zone in at least one area on the report. Ten (29%) respondents reported that their child had never scored in any Needs

Improvement zone, and 9 (26%) did not know/did not remember. Of the 15 children scoring in the Needs Improvement zone, the areas included Aerobic Capacity (2), Flexibility (4), and Body Mass Index (4). Eight respondents reported that they did not know/did not remember which area(s) their child scored in.

As seen in table 6, parents reported engaging in the following interventions in response to their children's scores on the parent report (broken down into parents of children who had/had not scored in the Needs Improvement zone and parents who did not know/remember). More than one response could be selected.

Table 6

Parent responses to student scores (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
I had a conversation with my child about his/her scores.	6	6	2	14
I helped my child develop a plan for improving or maintaining his/ her scores.	2	0	0	2

Table 6

Parent responses to student scores (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
I asked my child's PE teacher for guidance or suggestions.	0	0	0	0
I asked my child's pediatrician for guidance or suggestions.	2	0	0	2
I encouraged my child to be more active at home.	8	2	0	10
I encouraged my child to sign up for a team sport or classes such as martial arts or gymnastics.	8	0	0	8
I changed my child's diet.	4	0	0	4
I changed my own physical activity habits.	0	0	0	0
I changed my own diet.	0	0	0	0

Table 6

Parent responses to student scores (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
I did not do anything in response to the Parent Report.	0	2	6	8
Other: please explain (or elaborate)	2	0	0	2

Note. More than one response could be selected.

The “other” write-in responses were as follows:

- “My child has a thyroid problem-she found the process humiliating and invasive. I do not feel it is right for a public school to weigh and monitor my child. Many children have health issues and this test can make many children feel lesser and inadequate. I do not feel I need to tell the school personal health issue of a child in order for them to not be weighed at school. This test brough many tears and sadness to a child who simply had a thyroid disorder. It was especially humiliating when the test results were passed out at school in class.”
- “My son has always struggled with hamstring flexibility and it is something he works on long term, but inconsistently.”

Parents were also asked to think about what they would do in the future if their child were to score in the Needs Improvement Zone. Table 7 shows their responses, again broken down into parents whose child had/had not already scored in the Needs Improvement Zone and parents who did not know/remember. More than one response could be selected.

Table 7

Future interventions planned by parents in response to Needs Improvement scores (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
I will have a conversation with my child about his/her scores.	10	4	4	18
I will help my child develop a plan for improving or maintaining his/her scores.	6	6	2	14
I will ask my child's PE teacher for guidance or suggestions.	2	0	0	2
I will ask my child's pediatrician for guidance or suggestions.	4	0	2	6

Table 7

Future interventions planned by parents in response to Needs Improvement scores (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
I will encourage my child to be more active at home.	8	4	0	12
I will encourage my child to sign up for a team sport or classes such as martial arts or gymnastics.	6	6	0	12
I will change my child's diet.	4	4	0	8
I will change my own physical activity habits.	4	2	0	6
I will change my own diet.	2	2	0	4
I will not do anything in response to the Parent Report.	0	0	0	0
Other: please explain (or elaborate)	2	1	1	4

Note. More than one response could be selected.

The “other” write-in responses were as follows:

- “My son, who received a report, is in Middle School now, and he understands the areas he needs improvement in, and is happy during the 10 weeks he has PE -- however, our school does not offer year-round PE for students -- just a total of 20 weeks. He was disappointed when he had to change to Health class and Nutrition class -- he wished that he could say in PE. Getting him motivated at home is very difficult as he needs 2 to 3 hours to do homework, and is exhausted --- he was starting Tae Kwon Do but dropped out due to not having enough time for anything but homework. My daughter, who is very active, will gladly adhere to improvement plans if necessary, but I doubt she will need improvement in much of anything except maybe flexibility?”
- “My children are competitive athletes and eat a healthy diet so am not concerned at this time.”
- “Again this seems invasive. Parents should be monitoring this not schools.”
- “I'm not sure right now, we have an incredibly active family, we play a lot of sports and play at home. There are 7 of us in our family so there is always somebody to play with, plus we live on a farm where there is always plenty of chores to do.”

Finally, parents were asked how important it is to them that their child scores within the Healthy Fitness Zone. Table 8 shows their responses, again broken down into parents whose child had/had not already scored in the Needs Improvement zone and parents who did not know/ remember.

Table 8

Importance to parents of student scores within Healthy Fitness Zone (n = 34).

Response	Child Scored in the Needs Improvement Zone	Child did not Score in the Needs Improvement Zone	Parent did not Know/ Remember if Child Scored in the Needs Improvement Zone	Total
Not important	2	0	0	2
Somewhat unimportant	0	0	0	0
Somewhat important	4	4	4	12
Very important	9	7	4	20

Respondents were also able to provide additional explanation/elaboration of their answer to the question about how important the Healthy Fitness Zone is to them. Sixteen (47%) of parents provided the following responses:

From respondents that chose “Not Important:”

- “I do not need personal info about my child given to me by a public school. I rely on my childs personal doctor for this personal information.”

From respondents that chose “Somewhat Important:”

- “I do think being healthy is important, but I don't want to create negative body issues in my children by over focusing on these results”
- “My child is active and fit...so while I find it interesting, I am only somewhat interested because I do not have any major concern.s”

- “I'm not sure how accurate they are. I'm not sure of the testing methods and if they can truly predict Health.”
- “I know he is healthy. His weight is always what it shouod be, and he is very active in sports. He practices 5-10 hours per week so I know he is in great shape. I don't need a report to tell me he is healthy.”
- “I don't need the public school to tell me. My children have professional doctors and coaches who advise. We are all very educated on health and fitness in our household.”
- “These are basic values for fitness -- I'd like my kids to be at least OK -- if they are not, then I'm glad to know about it so we can work at improvement!”

From respondents that chose “Very Important:”

- “Want to know that she is in the Healthy Zone now to be able to ensure she is healthy as she grows into an adult.”
- “Kids today do not get enough physical activity at school.”
- “Because I want him to be healthy!”
- “Fitness is a very important component for our family lifestyle. My husband and I both go to the gym regularly.”
- “We are an active family and we believe in staying healthy and fit for long term health. We want our children to learn healthy habits at a young age.”
- “I want her to develop a life long level of health and fitness.”
- “To maintain healthy lifestyle in these critical development years.”
- “I want my child to stay healthy.”
- “I want my child to be fit and healthy.”

Other comments. Respondents were asked for any additional comments that they would like to make at about the FitnessGram parent reports. Five parents out of 34 chose to do this and provided the following comments:

- “It's great because you cannot see your child and their progress in PE or during the school day. I can't get my son to do much outside of school, and this is a "motivator" for him to try to improve his scores, so I think it's great. I'm also glad to know where my daughter scores to see if she is as fit as I think she is!”
- “waste of time and money”
- “I truey hope the schools of GA choose to do away with this testing. Parents need to make these choices not the schools. The process can be very humilitaing for mnany children of different sizes and degrees of fitness and health. I think the schools should educate the child with good choices and not monitor.”
- “Keep it brief. We parents are all busy and no one has time to read long report. Use more pictures than words!”
- “I really like them and appreciate the information.”

Summary

The majority of respondents were white 40-49 year old mothers with female children at BFES. In general, respondents seemed to appreciate or be ambivalent about the parent reports. Several respondents, however, showed a dislike and/or distrust of the reports, which is seen especially with the write-in comments. Regardless of their opinions of the parent reports, respondents demonstrated an overall desire for their child to be physically fit and healthy.

Chapter 5

Discussion

Summary of Study

Childhood and adolescent obesity has been increasing steadily over the past 30 years, and today over one-third of children and adolescents are considered overweight or obese (CDC 2014). There are many health problems that can result from being overweight or obese, including asthma, pre-diabetes, bone and joint problems, sleep apnea, social and psychological problems resulting from poor self esteem, high cholesterol, and high blood pressure (GADPH 2010, CDC 2014). Being overweight or obese as a child often leads to continued health problems as an adult. There is also an economic burden; the lifetime costs associated with childhood obesity average $19,000 per obese child, or $12,900 for a normal weight child who becomes obese later in life (DGHI 2014).

There are many school-based programs that aim to prevent or reverse childhood and adolescent obesity. Georgia public schools have adopted FitnessGram, which assesses students' overall health-related physical fitness through a variety of tests that fall into five categories: aerobic capacity, muscular strength, muscular endurance, flexibility, and body composition. Students are evaluated based on standards determined by FitnessGram, called the Healthy Fitness Zone standards, and the results of these tests are shared via student and parent reports.

This study focuses on the reception and use of the FitnessZone parent reports. An electronic survey was sent to the parents of one elementary school in Georgia and data was

collected via SurveyMonkey. Responses were analyzed for general trends in how parents receive, interpret, and respond to the reports and their child's scores.

Results of the survey show that overall, parents want their children to be healthy, but they do not necessarily use the FitnessGram parent reports as a tool or source of information to help their child achieve their health status. Parents demonstrate having good intentions to intervene if the Healthy Fitness Zone standards are not met, but may lack the time, knowledge, or willingness to change their own behaviors in order to follow through with these interventions. The results of this study led to several recommendations for schools using the FitnessGram parent reports, perhaps most importantly working to (1) ensure that all parents are receiving the reports, and (2) engage parents to build trust and ownership of the program. This will be an important step in improving parent knowledge and ability in order to successfully help their child practice healthy diet and activity behaviors, and ultimately reduce childhood and adolescent obesity in Georgia.

Conclusion

Many parents are not receiving the FitnessGram parent reports. Those who are receiving them are looking at the scores but not necessarily reading all of the accompanying information. Respondents commonly cited a lack of time or interest, saying that the report was too long or that they knew their child's scores were fine so they didn't feel the need to read all of the information.

Every survey respondent who had received and at least partially reviewed the parent report agreed that the scores on the parent report were easy to read and understand. Most were neutral or agreed that the additional information on the report was also easy to read and understand, and that it was useful in helping them interpret their child's scores. A small amount

(18%) of respondents would have liked more information than what was included, however 26% reported that the additional information was too long or not necessary.

Most parents/guardians believe that the FitnessGram scores for their child are accurate, and that the parent reports give them a good idea of their child's current level of physical fitness. However, almost half (47%) of the respondents are neutral on the question of whether or not the parent reports have been useful in helping their child achieve or maintain the Healthy Fitness Zone, with 26.5% disagreeing/strongly disagreeing with this and 26.5% agreeing/strongly agreeing. So, while parents are interested to see how their child is scoring, they are not actively using the parent report as a tool for improvement or maintenance. This could be due to aforementioned issues of the report being too long overall, or possibly not including the necessary information that parents would need in order to use it to help their child. One parent wrote-in the comment, "It does not provide remediation. Only states the problems." However, the parent report does include suggestions for children scoring outside of the Healthy Fitness Zone. It could be that the way these suggestions are presented or included make them difficult to find, understand, or apply in a real-life situation.

The most common responses to the parent reports include the parent having a conversation with the child about their scores, and encouraging the child to be more active either at home or by joining a sports team or class. 24% of respondents reported doing nothing in response to their child's scores. From parents/guardians of children that had scored in the Needs Improvement zone, responses also included helping the child develop a plan for improvement, asking their pediatrician for guidance, and changing the child's diet. No respondents reported asking the PE teachers for help or changing their own diet and/or physical activity behaviors.

When asked what they would do in the future if their child scored in the Needs Improvement zone, respondents selected many more interventions (82 total selections compared to 40). The most common interventions included having a conversation with the child about their scores, helping them to develop a plan for improvement, encouraging them to be more active at home and/or by joining a sports team or class, and changing the child's diet. Parents also reported that they would change their own diet and physical activity behavior, and ask both their pediatricians and PE teachers for guidance or suggestions. Interestingly, parents/guardians of children who had already scored in the Needs Improvement zone reported that they would do many more interventions in the future as compared to how they had already responded (46 total future interventions versus 30 total past interventions from this subset of respondents). Also noteworthy is that no respondents selected doing nothing in response to the parent report this time.

The write-in responses to the questions regarding past and future intervention/response to the parent reports are interesting, as they reveal some of the more complex issues surrounding the FitnessGram parent reports and school-based physical education programs in general. While several parents state a lack of concern for interventions because they are confident that their children are physically fit due to things such as playing on a competitive sports team, others express serious concerns about the invasiveness of the program and reporting methods, especially for children with other health issues such as a thyroid disorder that affects weight and BMI. One parent also noted a lack of time outside of school for her middle school child to engage in much physical activity due to having several hours of homework each night.

Ninety-four percent of respondents said that it is somewhat important or very important to them that their child scores in the Healthy Fitness Zone. From the write-in comments regarding this question, most “very important” respondents stated that they want their child to be healthy, now and as they grow and develop in the future. Several also mentioned that physical fitness is important in their family, and one stated that children do not get enough physical activity at school. Among the “somewhat important” and one “not important” respondents, there is a degree of skepticism regarding the reports and the public schools. Parents reported already knowing that their child is fit and active, or turning to doctors, coaches, or their own knowledge for this type of information, and therefore not needing the reports to tell them about their child’s fitness levels. Also expressed was uncertainty of the accuracy of the testing methods, concern that focusing on the results may contribute to negative body image, and a dislike for getting this type of information from the public school.

Lastly, when given the opportunity to write-in any additional comments about the parent reports, only five respondents chose to do so. Two of the comments were positive, two were negative, and one suggested keeping the reports brief with more pictures than words.

Implications

The findings from this study reveal several implications for public health in the area of childhood and adolescent obesity. Most prominently, it is clear that parents want their children to be healthy. They may be using the FitnessGram parent reports as a guide, or relying instead on their child’s doctors, coaches, or their own knowledge of health-related physical fitness. Regardless, they want their children to be healthy and they also have the desire and intention to

help them achieve and maintain a positive health status. When asked what they would do in the future if their child did not score within the Healthy Fitness Zone, parents showed an overwhelming intention to try many different intervention options. However, when asked about interventions that they had done in response to a past Needs Improvement score, parents reported actually doing far fewer of the same intervention options. For example, no parents reported changing their own diet or physical activity behaviors in the past, but then some of those same parents said that they would do that in the future. So the intention to do whatever it takes to help their children is there, but when they are actually faced with the situation, it doesn't always happen. This could be due to a lack of knowledge or skills necessary to change their own behavior; if the parent does not know how to make healthier meals or where in their neighborhood to go for exercise opportunities, they probably won't be successful at changing these behaviors in themselves. It could also be due to a lack of time and/or willingness to fully commit to changing their own behaviors. Similarly, if a parent is not able or willing to put in the time and effort it might take to help their child develop an eating or activity plan, or be available to drive their child to team practices or classes, they will not be able to carry out their intended intervention. Public health practitioners, doctors, coaches, and teachers must take this into consideration when working with the parents and children to prevent or reverse overweight and obesity cases.

Another implication revealed by this study is a general distrust of the public schools by some parents. School-based physical fitness and health programs have the potential to be very effective, but if parents do not trust the teachers or the programs used by the school, they will not support them. This leads to parents not taking test results seriously, which could then cause their

children to also not take them seriously. As school-based childhood and adolescent obesity programs continue to be studied, steps to change this way of thinking about the public school systems must be taken into consideration.

Special consideration must be taken for children with other health concerns that make physical activity and health more challenging for them, such as certain genetic disorders and thyroid conditions. By holding these children to the same metric standards as everyone else, we are potentially setting them up for failure. There is much more that goes into childhood and adolescent obesity than aerobic capacity, muscle strength, endurance, flexibility, and body composition. There are also qualities that cannot be measured quantitatively, including psychological factors such as body image, self-esteem, and confidence. While the physical health risks due to overweight and obesity are great, from a public health perspective we also need to consider the psychological and emotional consequences of placing too much of an emphasis on (or emphasizing in the wrong way) the metrics or "scores" related to physical fitness. Children and adolescents compare themselves to classmates and want to do well so as not to feel embarrassed or different from everyone else. When evaluating and implementing school-based physical fitness programs, consideration must be given to whether the program is helping students grow, develop, and learn about health-related physical fitness in positive ways, or in ways that could be very detrimental to the students' psyche.

Lastly, the majority (60%) of survey respondents reported that they have never received a FitnessGram parent report, or do not remember receiving one. This implies that the feedback that teachers and schools are attempting to provide to the parents is not reaching them, or not making

a memorable impact. This is an issue that prevents parents from becoming engaged in the FitnessGram program and working to continue the healthy behavior eduction at home.

Recommendations

Based on previous findings of research cited in the literature review and the conclusions of this study, the following are recommendations for schools currently using the FitnessGram program:

- Ensure that every parent/guardian receives their report. Different schools may need to utilize different methods of getting the reports home to parents depending on the population. Mailing the reports home in envelopes addressed to the parents would be an effective method for most schools, more so than relying on the child to bring it home and give it to their parent.
- Address the distrust of the program as part of the public school. Engage parents by inviting them to open forum discussions or presentations to explain how FitnessGram works, how the Healthy Fitness Zone standards were developed, and why the state chose to adopt this program. Allow parents to voice concerns, ask questions, and make suggestions. Give the parents the opportunity to advocate for their child and feel that their concerns are being heard. Consider forming a PTA position or committee as a parent contact for questions or concerns they may have throughout the year. Parents may feel more comfortable addressing a fellow parent through the PTA than they would a PE teacher or the school principal.
- Provide easy access to additional information for parents on how to help their child improve their diet and exercise behaviors. Depending on what works for the population of the school, this may be made available on the school website or through email, parent meetings at the

school, or events for parents and children to learn about and participate in healthy behaviors together. Emphasize the interventions that parents have already reported engaging in the most. For example, many parents said that they had (or would have) a conversation with their child about his/her scores, so it may be helpful to provide parents with effective talking points and guidance on how to approach this topic with sensitivity. Parents also said that they would encourage their child to join a sports team or class, so provide them with information on what teams, clubs, and classes are available at the school or in the community, and how to try-out or register. Empower the parents with the knowledge and skills they need to feel they are capable of instilling healthy behaviors in their child at home. Different parents need and/or want different amounts of information with their parent reports, and giving them options such as receiving informative emails or attending meetings and events will allow each parent some flexibility in how much additional information they are getting.

- Explore different options for children with weight-related disorders or other physical handicaps that make achieving the Healthy Fitness Zone standards unrealistic. Health and fitness is not "one size fits all," and therefore a health and fitness program should not be this way either. This could mean having different metrics for the Healthy Fitness Zone, different methods of testing, or putting the focus on participation instead of performance.
- Do not hand out the reports during class when students have an opportunity to see others' reports or ask each other how they scored. Student reports could be mailed home along with the parent reports in order to give everyone privacy while reviewing them.
- Work to engage other community resources and stakeholders as partners in the effort to continue and reinforce the health-based physical fitness curriculum outside of the school. This

may include faith-based organizations, local chapters of the YMCA, Boys and Girls Club, Big Brothers Big Sisters, Girl Scouts, Boy Scouts, etc. This may also help to improve parent perception of the program.

This study is a starting point for future research on the effectiveness of the FitnessGram parent reports and other aspects of the program. Future studies should include larger samples and compare results between schools. Policies or procedures in place at different schools that prove to be effective may then be able to be shared with other schools. This could also reveal demographic or geographic differences in the effectiveness of the parent reports. Specifically, variables such as race/ethnicity, age and gender of the parent/guardian and age and gender of the child, and parent/guardian relationship to the child should all be investigated to see how (if at all) they affect the results. From there, recommendations can be made to address the effectiveness of the parent reports among various subsets of the school population. This research should also be shared with FitnessGram and the Cooper Institute, as it may initiate changes to the design and/or content of the parent reports or other aspects of the FitnessGram program.

Future studies should also include randomized controlled trials to distinguish the effects of the FitnessGram parent reports (or other aspects of the program such as student reports or testing parameters) on childhood and adolescent overweight and obesity rates. An evaluative study of the entire program will also be beneficial, as well as a longitudinal study that tracks student scores to see the impact of the program as students progress through elementary, middle, and high school. Finally, the long-term impact of the program should be evaluated in the future, to determine the residual effects of the program at certain points in time after a student has graduated from high school.

Lastly, future studies should also include the impact that the FitnessGram program has had on the physical education curriculum, "classroom" - which may include a gym, outdoor field, and/or other facilities - and teachers. This could include studying the ways in which the program has affected how teachers are creating and implementing lesson plans and assessments, using equipment or other materials, and the teacher evaluation process. Similarly to the way that this study gathered opinions from parents, teachers should also be asked for their views on the program. Teacher and administration buy-in is equally important to parent/guardian buy-in in relation to the success of the program.

Limitations and Delimitations

Limitations. While FitnessGram as a program has been in use since 1988, it was only recently implemented in Georgia schools. Therefore, there were only two years of available school data at the time of this study - the 2011-2012 and 2012-2013 school years. BFES was identified by this data as a school that had shown improvement from the first to second year, but this does not necessarily show a trend.

Because the only data collection method used was the parent survey, there is the potential for error due to self-reporting. Parents may have not answered truthfully, either intentionally or unintentionally, which may affect overall results. Also, the survey link could have been multiple parents/guardians per household, as the school may have multiple email addresses on file for the same child. There was no way built into the survey of limiting respondents to one per household.

Despite multiple requests from the BFES principal via email, FaceBook, and Twitter, the survey only had an 18% response rate. This makes it difficult to generalize results, as there may

have been non-response bias; the people who chose to respond may have already had strong feelings (either positive or negative) about the FitnessGram program in general and/or the parent reports specifically. The parents who were neutral about FitnessGram may have been more likely to choose not to respond. Several studies cited in the literature review (Taveras et al. 2010, van der Kruk et al. 2013, Beets et al. 2006) also noted difficulty with eliciting parent participation.

According to 2010 United States Census data, the median home values ($439,000) and median household incomes ($113,000) for this population are much higher than the state of Georgia ($151,3000 and $49,179, respectively). The racial makeup of Georgia is also different, with the largest populations being 62.5% White, 31.4% Black or African American, 9.2% Hispanic or Latino, and 3.7% Asian, compared to the study population with 76.6% White, 10.4% Asian, and 9.0% Black or African American. While this study did not investigate demographics in relations to the results, it is clear from past research (Taveras et al. 2010, Neumark-Sztainer et al. 1996, Crespo et al. 2001) that characteristics such as SES and race do tend to affect physical activity, eating behaviors, and child obesity rates.

Delimitations. In order to narrow the scope of this study, only one Georgia school was used. This was because this was the first research done to evaluate the effectiveness of the FitnessGram parent reports. The goal of this study was to be able to make recommendations for improvements to the parents reports, and also suggestions for future and follow-up research on the FitnessGram program. Because this was a starting point and exploratory project, it was desirable to control for as many variables as possible, including demographics. The population of BFES is much more homogenous than the population of all students in Fulton County, or the entire state of Georgia. Race, family structure, household income, and other demographics may

play a role in parental perception and involvement in health-related physical fitness. Also, if additional schools were included in this study, variables such as differences in school structure, physical education class schedules, physical education teachers and available equipment and supplies, cafeteria lunch choices, and emphasis placed by the school on physical fitness and FitnessGram would have to be considered.

References

Baranowski, T., Cullen, K., Nicklas, T., Thompson, D., & Baranowski, J. (2002). School-based Obesity Prevention: A Blueprint for Taming the Epidemic. *American Journal of Health Behavior, 26(6),* 486-493.

Beets, M.W., Vogel, R., Forlaw, L., Pitetti, K.H., & Cardinal, B.J. (2006). Social support and youth physical activity: The role of provider and type. *American Journal of Health Behavior, 30,* 278-289.

Borra, S.T., Kelly, L., Shirreffs, M.B., Neville, K., & Geiger, C.J. (2003). Developing health messages: qualitative studies with children, parents, and teachers help identify communications opportunities for healthful lifestyles and the prevention of obesity. *Journal of the American Diabetic Association, 103,* 721-728.

Burgeson, C., Wechsler, H., Brener, N., Young, J., & Spain, C. (2001). Physical Education and Activity: Results from the School Health Policies and Programs Study 2000. *Journal of School Health, 71(7),* 279-293.

Crespo, C.J., Smit, E., Troiano, R.P., Bartlett, S.J., Macera, C.A., & Andersen, R.E. (2001). Television watching, energy intake, and obesity in US children: results from the Third National Health and Nutrition Examination Survey, 1988–1994. *Archives of Pediatrics & Adolescent Medicine, 155(3),* 360-365.

French, S.A., Perry, C.L., Leon, G.R., & Fulkerson, J.A. (1995). Dieting behaviors and weight change history in female adolescents. *Health Psychology, 14(6),* 548-555.

Gillman, M., Rifas-Shiman, S., Kleinman, K., Oken, E., Rich-Edwards, J., & Taveras, E. (2012). Developmental Origins of Childhood Overweight: Potential Public Health Impact. *Obesity, 16(7),* 1651-1656.

Glanz, K., Rimer, B.K., & National Cancer Institute (U.S.). (2005). Part 2 - Theories and applications. In K. Glanz, B. K. Rimer, & National Cancer Institute (U.S.) (Eds.), Theory at a glance: a guide for health promotion practice. (pp. 9-22). Bethesda, MD: U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute.

Hesketh, K., Waters, E., Green, J., Salmon, L., & Williams, J. (2005). Healthy eating, activity and obesity prevention: a qualitative study of parent and child perceptions in Australia. *Health Promotion International, 20(1),* 19-26.

Langford, R., Bonell, C., Jones, H., & Campbell, R. (2015). Obesity prevention and the Health promoting Schools framework: essential components and barriers to success. *International Journal of Behavioral Nutrition and Physical Activity, 12,* 15.

Latzer, Y., Edmunds, L., Fenig, S., Golan, M., Gur, E., Hochburg, Z., Levin-Zamir, D., Zubery, E., Speiser, P., & Stein, D. (2009). Managing Childhood Overweight: Behavior, Family, Pharmacology, and Bariatric Surgery Interventions. *Obesity, 17(3),* 411-423.

McLeroy, K.R., Steckler, A. & Bibeau, D. (1988). The social ecology of health promotion interventions. *Health Education Quarterly, 15(4)*, 351-377.

National Institutes of Health: How Are Overweight and Obesity Diagnosed? July 13, 2012. Retrieved from http://www.nhlbi.nih.gov/health/health-topics/topics/obe/diagnosis

Neumark-Sztainer, D., Story, M., Resnick, M.D., & Blum, R.W. Correlates of inadequate fruit and vegetable consumption among adolescents. *Preventive Medicine, 25,* 497-505.

Plowman, S., Sterling, C., Corbin, C., Meredith, M., Welk, G., & Morrow, J. (2006). The History of FITNESSGRAM. *Journal of Physical Activity & Health, 3(Suppl. 2)*, S5-S20.

Pocock, M., Trivedi, D., Wills, W., Bunn, F., & Magnusson, J. (2009). Parental perceptions regarding healthy behaviours for preventing overweight and obesity in young children: a systematic review of qualitative studies. *Obesity Reviews, 11(5),* 338-353.

Richard, L., Gauvin, L., & Raine, K (2011). Ecological Models Revisited: Their Uses and Evolution in Health Promotion Over Two Decades. *Annual review of public health, 32,* 307-26.

Robinson, S., Crozier, S., Harvey, N., Barton, B., Law, C., Godfrey, K., Cooper, C., & Inskip, H. (2014). Modifiable early-life risk factors for childhood adiposity and overweight: an analysis of their combined impact and potential for prevention. *The American Journal of Clinical Nutrition, 101(2),* 368-375.

Southerland, J., Williams, C., McKeehan Dula, T., & Leachman Slawson, D. (2015). School-Based Adolescent Obesity Prevention Programming: Perceptions of School Personnel in Southern Appalachia. *Southern Medical Journal, 108(2),* 125-129.

Stice, E., Shaw, H., & Marti, C.N. (2006). A Meta-Analytic Review of Obesity Prevention Programs for Children and Adolescents: The Skinny on Interventions that Work. *Psychological Bulletin, 132(5),* 667-691.

Stokols, D. (1992). Establishing and maintaining healthy environments. Toward a social ecology of health promotion. *American Psychology, 47(1)*, 6-22.

Taveras, E., Gillman, M., Kleinman, K., Rich-Edwards, J., & Rifas-Shiman, S. (2010). Racial/ Ethnic Differences in Early-Life Risk Factors for Childhood Obesity. *Pediatrics, 125(4),* 686-695.

Tsz Man Hung, T., Chung Lim Chiang, V., Dawson, A., & Lai Tong Lee, R. (2014). Understanding of Factors that Enable Health Promoters in Implementing Health-Promoting Schools: A Systematic Review and Narrative Synthesis of Qualitative Evidence. *PLoS ONE, 9(9): e108284.* doi:10.1371/journal.pone.0108284.

United States Census Bureau: State and County QuickFacts: Georgia. Retrieved from http://quickfacts.census.gov/qfd/states/13/1351670.html

van der Kruk, J.J., Kortekaas, F., Lucas, C., & Jager-Wittenaar, H. (2013). Obesity: a systematic review on parental involvement in long-term European childhood weight control interventions with a nutritional focus. *Obesity Reviews, 14(9),* 745-760.

West, F., Sanders, M., Cleghorn, G., & Davies, P. (2010). Randomised clinical trial of a family-based lifestyle intervention for childhood obesity involving parents as the exclusive agents of change. *Behaviour Research and Therapy, 48(12),* 1170-1179.

Williams, S., & Mummery, W.K. (2014). We can do that! Collaborative assessment of school environments to promote healthy adolescent nutrition and physical activity behaviors. *Health Education Research, 30(2),* 272-284.

Zecevic, C., Tremblay, L., Lovsin, T., Michel, L. (2010). Parental Influence on Young Children's Physical Activity. *International Journal of Pediatrics, 2010,* Article ID 468526, doi: 10.1155/2010/468526

Appendix

Letter to Parents

Dear BFES Parents/Guardians,

My name is Anne Prodgers and I am a graduate student at the Emory University Rollins School of Public Health. For my thesis, I am studying the FitnessGram program that is used in PE classes in Georgia to promote health-related physical fitness. You have probably received a FitnessGram Parent Report with an explanation of your child's physical fitness scores from their PE teacher. I am interested in these Parent Reports and how they are perceived and responded to by the parents/guardians who get them.

This parent survey will be the first step in determining what is working well and what might not be working regarding the Parent Reports, and will guide recommendations for possible changes. Improvements to the program will help parents and guardians with their involvement in their child's health-related physical fitness, and will ultimately benefit the children in the FitnessGram program and Georgia schools.

Please consider completing a short survey that will help me with my research. You will not be asked for any personal information about yourself or your child, and your responses will be completely anonymous and confidential. The survey will take approximately 10-20 minutes to complete. It will be available until Friday, March 27th.

Follow this link to begin the FitnessGram survey: https://www.surveymonkey.com/s/FitnessGramParents

Thank you for your time. I appreciate your help!

Sincerely,

Anne Prodgers, MAT, MPH Candidate

Informed Consent and Survey Items

"Jump logic" was utilized to automatically take respondents to the correct next question, dependent on their answers.The following items were included in the survey:

1. Informed Consent

   Dear BFES Parent/Guardian,

   You have been invited to participate in a survey about the FitnessGram Parent Reports you may have received. The goal of this survey is to identify trends in the way that parents/guardians interpret and respond to the Parent Reports and their child's scores.

   There are no expected risks or benefits to participating in this survey. Your participation will have no impact on you and your child's relationship with BFES.

You will not be asked for any personal information about yourself or your child, and your responses will be completely anonymous and confidential. The survey will take approximately 10-20 minutes to complete. Your participation is voluntary and you may stop the survey at any time if you choose to do so.

If you have questions about this study, your part in it, your rights as a research participant, or if you have questions, concerns or complaints about the research you may contact the following:

Anne Prodgers**,** Principal Investigator: aaprodg@emory.edu

Emory Institutional Review Board: 404-712-0720 or toll-free at 877-503-9797 or by email at irb@emory.edu

Please select one option below:

a. I DO consent to participate in this survey designed to gather data on how parents/ guardians respond to FitnessGram Parent Reports. *(go to #2)*
b. I DO NOT consent to participate in this survey designed to gather data on how parents/guardians respond to FitnessGram Parent Reports. *(go to Thank You page; no survey questions given)*

2. Are you the parent or guardian of at least one child at BFES?
   a. yes

b. no *(survey ends, go to Thank You page)*

3. Have you ever received a FitnessGram Parent Report with your child's fitness scores? (picture of an example parent report displayed here)
   a. yes
   b. no *(survey ends, go to Thank You page)*
   c. I don't know/don't remember *(survey ends, go to Thank You page)*

4. When you received your Parent Report, how thoroughly did you read it?
   a. I did not look at my child's scores or read the additional information at all *(go to #5)*
   b. I looked at my child's scores, but did not read any of the additional information *(go to #6, then #8)*
   c. I looked at my child's scores, and read some of the additional information *(go to #7, then #8)*
   d. I looked at my child's scores, and read all of the additional information *(go to #8)*
   e. I don't know/don't remember *(go to #8)*

5. Which of the following reasons explain why you did not look at or read the Parent Report? Check all that apply. *(go to #20)*
   a. I didn't have time
   b. I misplaced it before I had a chance to read it

c. I didn't know what it was

d. It was overwhelming

e. It was too long

f. It looked complicated

g. I wasn't interested in knowing how my child scored on the fitness tests

h. Other: please explain (or elaborate on any of the reasons you chose above)

6. Which of the following reasons explain why you did not read the additional information on the Parent Report? Check all that apply. *(go to #8)*

a. I didn't have time

b. I misplaced it before I had a chance to read it

c. It was overwhelming

d. It was too long

e. I understood the scores and did not need additional information or explanations

f. I wasn't interested

g. Other: please explain (or elaborate on any of the reasons you chose above)

7. Which of the following reasons explain why you did not read all of the additional information on the Parent Report? Check all that apply. *(go to #8)*

a. I didn't have time

b. I misplaced it before I had a chance to read all of it

c. It was overwhelming

d. It was too long

e. I understood the scores and did not need all of the additional information or explanations

f. I wasn't interested

g. Other: please explain (or elaborate on any of the reasons you chose above)

Please identify how strongly you agree or disagree with the following statements:

8. The scores on the Parent Report were easy to read and understand.

a. Strongly disagree

b. Disagree

c. Neutral

d. Agree

e. Strongly agree

9. The additional information on the Parent Report was easy to read and understand.

a. Strongly disagree

b. Disagree

c. Neutral

d. Agree

e. Strongly agree

10. The explanations of the different categories of tests (aerobic capacity, body composition, etc.) helped me understand what my child's scores meant.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

11. I would have liked more information than what was included on the Parent Report.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

12. I thought that some or all of the additional information on the Parent Report was unnecessary or too long.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

13. I think my child's scores on the Parent Report are accurate.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

14. Overall, the Parent Report gave me a good idea of my child's current level of physical fitness.
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly agree

15. The Parent Report has been useful in helping my child achieve or maintain scores in the "Healthy Fitness Zone."
    a. Strongly disagree
    b. Disagree
    c. Neutral
    d. Agree

e. Strongly agree

16. Has your child ever been scored in the "Needs Improvement" zone in any category on the Parent Report?

    a. Yes *(go to #17)*

    b. No *(go to #18)*

    c. I don't know/don't remember *(go to #18)*

17. In which category did your child score in the "Needs Improvement" zone? Check all that apply.

    a. Aerobic Capacity

    b. Muscular Strength/Muscular Endurance

    c. Flexibility

    d. Body Mass Index

    e. I don't know/don't remember

18. Did you do any of the following after receiving your Parent Report? Check all that apply.

    a. I had a conversation with my child about his/her scores.

    b. I helped my child develop a plan for improving or maintaining his/her scores.

    c. I asked my child's PE teacher for guidance or suggestions.

    d. I asked my child's pediatrician for guidance or suggestions.

e. I encouraged my child to be more active at home.

f. I encouraged my child to sign up for a team sport or classes such as martial arts or gymnastics.

g. I changed my child's diet.

h. I changed my own physical activity habits.

i. I changed my own diet.

j. I did not do anything in response to the Parent Report.

k. Other: please explain (or elaborate)

19. If your child scores in the "Needs Improvement" zone on a future Parent Report, will you do any of the following? Check all that may apply.

a. I would have a conversation with my child about his/her scores.

b. I would help my child develop a plan for improving his/her scores.

c. I would ask my child's PE teacher for guidance or suggestions.

d. I would ask my child's pediatrician for guidance or suggestions.

e. I would encourage my child to be more active at home.

f. I would encourage my child to sign up for a team sport or classes such as martial arts or gymnastics.

g. I would change my child's diet.

h. I would change my own physical activity habits.

i. I would change my own diet.

j. I would not do anything in response to my child's scores.

k. Other: please explain (or elaborate)

20. How important is it to you that your child scores within the “Healthy Fitness Zone?”

a. Not important

b. Somewhat unimportant

c. Somewhat important

d. Very important

21. Please elaborate on your answer to the previous question. Why is it important or unimportant to you that your child scores within the “Healthy Fitness Zone?”

22. Do you have any other comments about the FitnessZone Parent Reports?

The following are 5 demographic questions. If you do not wish to provide the information asked, please select “I prefer not to answer.”

23. What is your gender?

a. Male

b. Female

c. I prefer not to answer

24. What is the gender of your child(ren)?

a. Male

b. Female

c. I have both male and female children at BFES

d. I prefer not to answer

25. Which race/ethnicity best describes you?

a. American Indian or Alaskan Native

b. Asian or Pacific Islander

c. Black or African American

d. Hispanic American

e. White or Caucasian

f. Multiple Ethnicities or Other (please specify)

g. I Prefer not to answer

26. What is your relationship to your child(ren) at BFES?

a. Mother

b. Father

c. Step-mother

d. Step-father

e. Grandmother

f. Grandfather

g. Aunt

h. Uncle

i. Guardian

j. Other (please specify)

k. I prefer not to answer

27. What is your age?

a. 20-29 years

b. 30-39 years

c. 40-49 years

d. 50-59 years

e. 60-69 years

f. 70-79 years

g. 80 years and above

h. I prefer not to answer

(Thank You page at the end to thank parents for their participation)