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The Role of Family Support in the Relationship Between Childhood Obesity and the Number of Days Bullied in Trinidad

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Abstract

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MSN, Western Governors University, 2018

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

There is limited data on childhood obesity and the number of days bullied in Trinidad and Tobago. This study examined the association between childhood obesity and the number of days an obese child has been bullied in Trinidad in the past 30 days, with family support as a moderator. The theoretical framework for this study was Bronfenbrenner's social-ecological model, which posits that a child's microsystems are instrumental in influencing their behaviors. A self-administered low-cost 2017 Global School-based Student Health Survey (GSHS) was used for this cross-sectional study. The sample comprised 2,229 school adolescents 13 to 17 years of age. Childhood obesity was measured using the World Health Organization's criteria to define obesity for the 2017 GSHS. A moderated regression analysis was used for the study. Findings indicate that underweight, overweight, obese, age, and gender did not predict ($p = .523$) the number of days a child is bullied in Trinidad and Tobago. Adding the interaction term did not yield significant results ($p = .306$). However, when family support was added to the model, the findings were significant $p < .001$. Family support directly affects bullying but does not moderate the relationship between childhood obesity and bullying. The social change implications are that findings can be used to educate educators and school administrators in Trinidad and Tobago and alleviate bullying incidents.

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Dedication

My capstone is dedicated to my mother; she was my source of strength. She was the person who taught me continually to put God first. It is also dedicated to obese children in Trinidad and Tobago and globally who experience victimization.

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Section 1: Foundation of the Study and Literature Review

Introduction

Childhood bullying, a power-imbalanced relationship, has become a significant public health issue. Data show that 1 in 3 children are bullied worldwide, ranging from verbal and physical abuse to teasing and name-calling (Armitage, 2021). There is also an increased probability that children who experience bullying will experience poor health and unfavorable social and educational outcomes (Armitage, 2021). The United Nations Educational, Scientific and Cultural Organization (UNESCO)'s previous month's data from school settings shows that approximately 32% of students globally experienced bullying perpetrated by their peers (UNESCO, 2019). In the report, physical bullying was the most common form of bullying, followed by sexual bullying in all regions except for Europe and North America. However, in those regions, psychological bullying is most prevalent (UNESCO, 2019). Data further show cyberbullying is a significant concern, with 1 in 10 children experiencing this form of bullying, while a physical fight between students is concerning, involving 1 in 3 students, and 1 in 3 students noted that they were physically attacked in the past year (UNESCO, 2019). Bullying is of significant concern in third world countries, with 25% of children in the Caribbean region being bullied, 38.3% involved in physical fights, and 33.8% being physically attacked (O'Higgins Norman, 2020).

Childhood obesity is also considered a global public health issue, and it is noted that the prevalence of overweight and obesity has dramatically increased (Gonzalez-Alvarez et al., 2020). In 2016, about 340 million children and adolescents ages 5–19 were

considered overweight or obese, while 39 million children ages 5 or younger were obese in 2020 (World Health Organization [WHO], 2021). Obese children are likely to be obese during adulthood, putting them at risk of decreased life expectancy, increased morbidity, and mortality because of the link between obesity and chronic diseases, including hypertension, diabetes, and respiratory diseases (Gonzalez-Alvarez et al., 2020). These children experience low self-esteem, decreased quality of life, stigmatization, and bullying (Gonzalez-Alvarez et al., 2020).

Bullying and childhood obesity are global health challenges, significant issues in some developing countries, and have become important public health issues in the Caribbean. In the Caribbean, childhood obesity is considered an epidemic, with children and adolescents two to three times more obese than other children globally (Cruickshank-Taylor, 2021). Furthermore, 1 in 3 Caribbean children is overweight or obese, and in seven of the 11 Caribbean Community and Common Market countries, childhood obesity exceeds 10%. Consequently, an association between bullying and body shaming of overweight individuals exists, leading to physical and mental health problems (Avinum & Hariri, 2019). The literature has shown that body-shaming is associated with the likelihood of getting bullied (Avinum & Hariri, 2019; Lestari, 2019).

I hypothesized that for students who receive emotional and mental support from family members, obesity is less likely to influence the chance of getting bullied, decreasing the number of days being bullied than those who do not receive support. The existing literature on the studied population has not examined this relationship. Findings provide information on how bullying of obese children can be mitigated by family and

friends' support, resulting in positive social change and improved psychological outcomes in obese children in Trinidad and Tobago.

In Section 1, I provide the background of the study, the problem statement, and the study's purpose. Also included are the study variables, the research questions and hypotheses, the theoretical framework, the nature of the study, and definitions of the various term used. The assumptions, scope, and delimitations are discussed, in addition to the limitations and significance of the study. Section 1 concludes with a summary and transitions to Section 2.

Background

Bullying and childhood obesity are significant issues in the Caribbean Island of Trinidad and Tobago, where the population is estimated to be 1,356,633, and the island is approximately 5,128 square miles (Francis-Granderson & McDonald, 2018). Over decades, there has been minimal improvement in the prevalence of childhood obesity in Trinidad and Tobago, with data showing a 16% increase from 2001 to 2010, and in 2012 the rate increased from 5% to 26%, representing less than 10-year-old data (Richards et al., 2019). Between 2011 and 2017, data gathered for the Global School Health Survey (GSHS) through collaboration with the Pan American Health Organization and the Centers for Disease Control and Prevention (CDC) revealed that the overweight rate for students ages 13 to 15 years increased by 7.3%. At the same time, there was a 5% increase in the obesity rate (Richards et al., 2019). In 2017, 51.1% of secondary students were overweight or obese (Richards et al., 2019). Previous data revealed that 33.5% of Trinidadian children ages 13 to 15 are overweight compared to 25.6% of Jamaican

children within the same age group, while 17.4% are obese compared to 10.1% (Richards et al., 2019).

In Trinidad and Tobago, educators and school administrators must deal with increased bullying incidents (Bernard et al., 2019). According to Johnson (2020), about 30% of Trinidad adolescents had bullying experiences and identified themselves as being the aggressor (13%), being victimized (11%), or both (6%). Although there is little research on this increasing public health issue in Trinidad and Tobago, Bernard et al. noted that addressing children's security and safety is complex. There is also a concern for bullied Trinidadian children's emotional and mental well-being, academic success, and ability to function in society (Bernard et al., 2019).

Rupp and McCoy (2019) posited that overweight and obese adolescents' chances of being bullied are more significant than their peers considered healthy. These overweight and obese adolescents are likely to be victims of various forms of bullying, including weight and race-based bullying (Rupp & McCoy, 2019). The authors noted that a high rate of peer victimization relating to overweight and obesity exists, putting victims at risk for poor emotional and social health (Rupp & McCoy, 2019). Bullying relating to obesity is not a public health issue that affects only adolescents. Bacchini et al.'s (2015) study findings showed that obese children ages 6 to 14 who were included in an outpatient sample of 947 children in Italy were more involved in bullying experiences.

Family Support and Justification

I examined if family support moderates the relationship between childhood obesity and the number of days bullied in Trinidad and Tobago. Ho et al. (2022) argued that bullying and victimization could be moderated by family support. Zhao and Chang (2019) indicated that children with less parental support and parents who do not see the necessity of becoming involved in their children's life while attending school are more likely to become victims of bullying, leading to substandard academic performance. Dilek Genctanirim (2022) also posited that family support plays an essential role in students' adjustment to school settings, with parents being significant to children's development and success within schools. Research has shown that students who experience a high prevalence of victimization and are supported by adults at home and in school are likely to experience greater life satisfaction (Miranda et al., 2019). Researchers found a negative association was found between family support and a high rate of bullying victimization (Lee et al., 2022). The same findings were found with multiple forms of victimization (i.e., verbal and cyberbullying; Lee et al., 2022). The above results show the significance of family support in moderating bullying incidents by making examining the role family support plays in moderating the number of days obese children are bullied in Trinidad and Tobago essential.

Although researchers have investigated this issue, there is very little or no literature on systematic studies that show how the relationship between obesity and bullying is affected by environmental characteristics. The Caribbean is experiencing a childhood obesity epidemic; approximately 1 in 5 children are overweight and at risk of

developing non-communicable disease during adulthood (Caribbean Public Health Agency, n.d.). Bullying in Trinidad and Tobago is concerning for educators. Ramdass et al. (2017) evaluated the relationship between school type, sex, school location, and bullying and found a connection between the variables and bullying. Lee et al. (2021) noted that obese children are in danger of being victimized by their peers, including verbal and physical abuse. Bullying and obesity are public health issues in Trinidad and Tobago. However, I found no previous studies on the role of family support in mitigating the number of days obese children experience bullying in Trinidad and Tobago. The current study's findings may increase public health officials' knowledge of one potential factor contributing to bullying experiences in Trinidad and Tobago, decreasing the gap in knowledge of Trinidad and Tobago's public health officials. The goal was to focus on whether the effect of childhood obesity on getting bullied can be alleviated/minimized.

Problem Statement

Bullying and childhood obesity are two public health issues of significant concern in Trinidad and Tobago. The overall overweight and obesity prevalence rate in children 13 to 17 years is 32.3%, while 33.4% of boys and 31.1% of girls in that age group is considered overweight or obese (Global Obesity Observatory, n.d.). In 2014, Trinidad and Tobago's Ministry of Education reported that among students from 8 to 14 years of age, close to 94% of students in their study indicated that they had bullied or victimized other students (Seepersad, 2016). Also, Katz et al. (2010), who examined over 2,000 students from at-risk Trinidad and Tobago schools, found that an average of 41.6% of participants indicated that bullying was a significant problem at their school.

Ramdass et al. noted that educators in Trinidad and Tobago are concerned about bullying and getting bullied within the country's school system. Concern for students' mental, psychological, and emotional well-being has led teachers to submit reports to the Ministry of Education. Although the Ministry of Education took some steps to address bullying, including employing deans of discipline, training teachers to deal with conflict among students, and having staff at schools that deal with the emotional needs of students, the statistics continue to increase (United National Congress, 2015). Given that 22.9% of students ages 13–15 years in Trinidad and Tobago GSHS experienced suicidal thoughts over 12 months, bullying can have long-term physical and mental effects on the growth of children (WHO, 2020a). The statistics present a significant challenge to public health professionals not just in Trinidad and Tobago but at a global level.

Given the background, I examined the extent to which family support can potentially moderate the relationship between obesity and bullying. The selection of family support as the potential moderator is based on resilience theory, which postulates that children are resilient and are able to face adversity when they have a strong relationship with family members (i.e., adults) and the community (Harvard University, n.d.; Masten, 2018; Sattler & Font, 2018; Theiss, 2018; Zhang et al., 2022; Zolkoski & Bullock, 2012). Whether family support moderates the relationship between obesity and bullying in the context of Trinidad and Tobago has not been empirically examined in the literature. The current study's findings will contribute to the literature on whether family support can reduce the impact that obesity has on the number of days bullied.

Purpose of the Study

I aimed to examine how the relationship between childhood obesity and the number of days bullied can be affected/modified by family support. Findings may inform school administrators, teachers, and parents of the significance of the environment in reducing bullying occurrences. Bullying and childhood obesity are public health issues in Trinidad and Tobago. Determining the positive effects of parental support in minimizing bullying incidents in obese Trinidadian children is essential since it is likely to decrease bullying incidence in obese Trinidadian children. Given the high bullying incidences in Trinidad and Tobago, it is necessary to determine if obese children are more predisposed to being bullied (Bernard et al., 2019). By examining the role of family support in bullying incidents in this population, positive steps can be taken to minimize bullying incidents and address the mental health issues often faced by children who are bullied because of their physical appearance (Waasdorp et al., 2018). The role family support plays provided an in-depth understanding of family support as a moderator in the relationship between obesity and the number of days bullied, which is significant since bullying remains an important issue in Trinidad and Tobago.

Study Variables

The current study consisted of one independent variable (IV) and one dependent variable (DV). The IV was childhood obesity, while the DV was the number of days a child has been bullied. The moderator variable was family support, and I examined its influence on the number of days obese children are bullied. The two covariates used for the current study were age and gender.

Research Questions

The two research questions grounded the study:

Research Question 1 (RQ1): Is there an association between childhood obesity and the number of days bullied in Trinidad, adjusted for age and gender?

H_o1: There is no association between childhood obesity and the number of days bullied in Trinidad.

H_a1: There is an association between childhood obesity and the number of days bullied in Trinidad.

Research Question 2 (RQ2): Does family support moderate the relationship between childhood obesity and the number of days bullied, adjusted for age and gender?

H_o2: Family support does not moderate the relationship between childhood obesity and the number of days bullied in Trinidad.

H_a2: Family support moderates the relationship between childhood obesity and the number of days bullied in Trinidad.

Theoretical Framework

Bronfenbrenner's (1977) social ecological model (SEM) posited that humans develop throughout their life span because of their environment (i.e., where they live and grow, referring to the immediate setting and the formal and informal larger social context where these settings are embedded. Bronfenbrenner discussed the interplay between the microsystem, mesosystem, exosystem, macrosystem, and human development. These systems can show how each system contributes to accepting bullying behaviors in

children in Trinidad and Tobago. The microsystem identifies complex relationships between the environment and individuals.

Mesosystem involves interrelations with significant settings, such as the school environment and family members. The mesosystem can provide structure for learning about bullying and its negative impact (Bronfenbrenner, 1977). The exosystem is viewed as an extension of the mesosystem. It can intrude upon and encompass the individual immediate settings. Such impingement can affect the care children receive to address their emotional and behavioral health, including budgetary constraints. The microsystem, mesosystem, and exosystem are distinct manifestations of the macrosystem. The macrosystem signifies culture or institutional subculture patterns (Bronfenbrenner, 1977). Public health leaders who do not see the significance of addressing Trinidadian children's emotional and behavioral health can foster an environment where children who are obese experience bullying and intimidation. In such instances, the increasing prevalence of bullying incidents in the Trinidad and Tobago school system will continue to persist (Robertson, 2020).

Given the broad theoretical background\, it can be argued that how one views or experience their given environment is closely mirrored by how they perceive their abilities and unique characteristics (i.e., obesity, physical disability, and height). Researchers have found that physical characteristics that are not the norm (obesity) lead to bullying victimization (Lian et al., 2018; Sutter et al., 2015). It is not out of line to expect that childhood obesity, one component of an individual's unique characteristics, may stimulate people's reactions in various forms, including bullying.

As Bronfenbrenner's SEM suggests, human development is immensely affected by the immediate setting and social context. Given that there is no closer setting than family, family support may moderate the relationship between obesity and the likelihood of getting bullied. For example, for obese children's parents who frequently communicate with their child's teachers and raise potential concerns, teachers are more likely to look out for them at school during recess or lunchtime, reducing the child's likelihood of being bullied. Also, parents who are engaged in their children's everyday activities, such as volunteering as a mystery reader, helping make copies of learning materials, or serving during lunch, may minimize the occurrences of their child getting bullied. Using family support as a moderator will be important in understanding whether the potential negative impact of childhood obesity can be minimized.

Nature of the Study

I addressed the research questions in this quantitative study by using a specific research design, including a quantitative cross-sectional study design to examine the association between the IV childhood obesity and the number of days bullied in Trinidad. I examined the role of family support as a moderator on the relationship between obesity and the number of days bullied. The variables under study are presented in Table 1.

Table 1

Table of Study Variables

Variable name	Type of variable	Level of measurement
Childhood obesity	Independent	Nominal
Number of days bullied	Dependent	Continuous/Ratio
Family support	Moderator	Continuous
Gender	Covariate	Nominal
Age	Covariate	Continuous/Ratio

Cross-sectional studies allow for the use of secondary data acquired from population-based surveys, such as 2017 GSHS results (Setia, 2016). Once I obtained approval, I retrieved data on GSHS from the World Health Organization (2022a). These data were instrumental in answering the research questions and determining the association between the variables under study. I selected participants through randomized sampling, allowing for the generalizability of the findings (The Economic Times, 2022).

The collected data would be analyzed using International Business Machine (IBM) Statistical Package for the Social Sciences (SPSS) 28 statistical software (IBM, n.d.). I analyzed the association between obesity and being bullied using a linear regression model after inspecting and ensuring that all the assumptions of linear regression model are met. In this study, I tested if family support influences the relationship between obesity and being bullied. I used a moderated regression model. Findings from the study can highlight whether children who are more obese than others are more likely to be bullied and whether the extent to which the relationship can be minimized will depend on the degree of family support they receive. Steps can then be taken to increase educators' and administrators' awareness and implement programs where obese children are mentored and encouraged to speak up when bullied. Counseling can be provided to address the emotional and mental health needs of children being bullied and those committing the bullying.

Literature Search Strategy

I used various electronic databases during the literature review. The keywords and databases I searched included *bullying*, *intimidation*, *obesity*, *school bullying*,

underweight, *overweight*, *self-image*, *Caribbean*, *family support*, *role*, *relationships*,
Trinidad and Tobago, *victimizatio*n, and *Trinidad*. I used the following databases: Google
Scholar, PubMed, JSTOR, and EBSCO. Other websites searched included the WHO, the
Ministry of Health Trinidad and Tobago, and the Caribbean Public Health Agency. I used
the Walden University Library to set up an EBSCO alert for peer-reviewed articles dated
2017 or later for the studied topic. Finding peer-reviewed articles on obesity and bullying
and the influence of family support were challenging since a dearth of information exists
on studies conducted in Trinidad and Tobago or the Caribbean. A broader search
included articles not focusing on Trinidad and Tobago or the Caribbean.

Theoretical Framework

Bronfenbrenner's SEM posits that an individual's behavior is linked to complex
interactions between their environment, including home, school, neighborhood, and
church. These influence levels affect their development processes and behavior (Cross et
al., 2015). Bronfenbrenner identified the microsystem, mesosystem, exosystem, and
macrosystem as levels of influence and ranges from personal interaction with parents and
peers to the broader culture, such as customs and values of the community in which they
live (Analisah & Indartono, 2019). Bronfenbrenner's theory led to more profound insight
into human development. The context in which children develop is considered, making
the SEM appropriate for understanding bullying behaviors and the role of family support
in moderating the relationship between childhood obesity and getting bullied (Soyer,
2019).

The SEM's different concentric circles (see Figure 1) illustrate how each level of influence has its characteristics and how interactions occur, affecting human behavior and development (Hayden, 2019). I considered three levels of influence: (a) the microsystem, (b) the mesosystem, and (c) the macrosystem. The microsystem elucidates the role of parent/adolescent communication in decreasing bullying incidents. Examining the parent/school interaction (mesosystem) further shed light on how this level of influence impacts bullying incidents in obese children in school settings. In contrast, I discussed the community's role in predicting the increased potential for bullying, and I analyzed cultural norms (macrosystem) regarding one's gender and the increased likelihood of experiencing bullying.

Figure 1

Diagram of the SEM
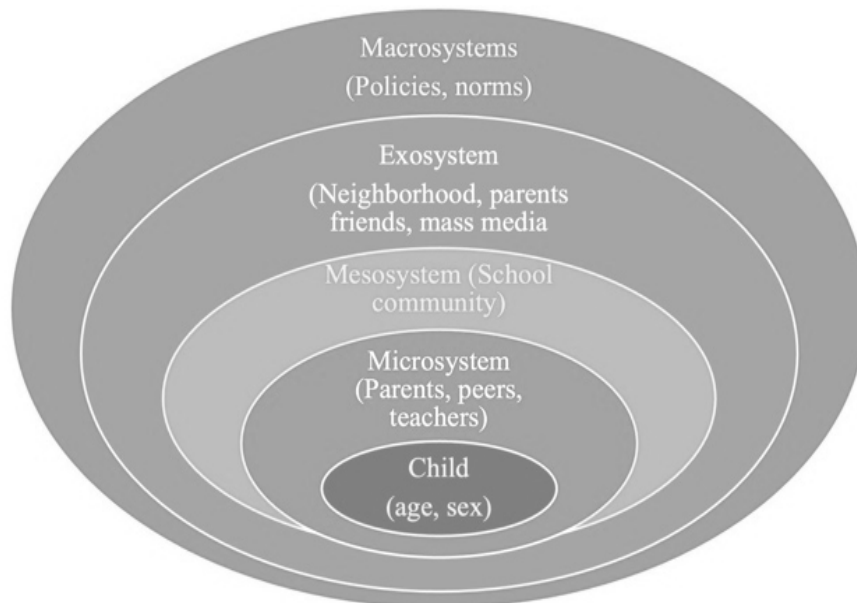
Note. Adapted from Hayden (2019).

Major Theoretical Propositions

The SEM illustrated in Figure 1 shows that the two smallest circles represent the child, their parents, teachers, and peers, which are part of their microsystem. A child's microsystems are instrumental in influencing bullying behaviors or acceptance of bullying behaviors. It is through their microsystem they learn how to live, form relationships, and obtain experiences (Swick & Williams, 2006). Bullying behaviors have been linked to poor parent-child relationships when parents are considered non-participants in their child's life (Georgiou, 2009). It is also noted that when strong relationships are formed between children and parents, the likelihood increases that these children are more likely to have strong relationships with others, including their peers, likely decreasing bullying incidents (Qiu, 2021). Researchers Hong et al. (2021) noted that a link between bullying experiences and supportive relationships exists, and students in supportive relationships with peers or their support system are less likely to get bullied

Brazelton and Greenspan (2000) noted that trust-building experiences are nurtured because of the attachment behaviors parents offer to their children, which can lead to victimized students having the courage to report bullying experiences. Zhao and Chang, who evaluated multiple variables and their influence on bullying victims, found that family support decreased school bullying victimization. Nunez-Fadda et al. (2020) noted that when adolescents communicate freely with parents, they develop a sense of belonging and acceptance, and socialization is facilitated, leading to direct and indirect protection from being involved in bullying incidents at school. The relationships students

build within their microsystems can become protective factors, leading to reduced bullying incidents (Qiu, 2021).

Bullying in school settings is a global public health issue, leading to health issues in children, including anxiety, suicidal ideation, poor academic achievement, and poor health. Shaheen et al. (2019) found that when family and friends provide social support to children, bullying victimization decreases, which is consistent with findings from other studies conducted by Seo et al. (2017) and van Harmelen et al. (2016). Adolescents ages 13 to 17 years living in Trinidad are the study's targeted population. Since previous studies show that family support can influence bullying incidents, this study can aid in understanding the relationship between family support and the number of days obese children are bullied in Trinidad. The results can be used to educate parents, school educators, and administrators on the importance of family support in decreasing the number of days a child get bullied.

Mesosystem and Bullying

The mesosystem is another level of influence that should be considered. A child's mesosystem comprises the relationship between two settings (i.e., their home and school environment) and the different interactions/relationships between peers, parents, and teachers, which is significant when studying bullying. The school environment is a setting where students socialize, and various factors such as obesity allow students to perceive others as different increase the likelihood of students being bullied (Oriol et al., 2017). Researchers Schmidt et al. (2016) also noted that the mesosystem includes the principal environment where individual development occurs and the neighborhood where

schools are embedded, impacting school systems. Ramdass et al. examined the relationship between bullying practices and location, sex, and school type in Trinidad and Tobago, found that one's location and sex yielded significant differences.

The mesosystem can provide insight into one's social network. A child's mesosystem is instrumental in teaching them norms and expectations about behaviors, including bullying. The interaction between these settings can impact a child's development and bullying experiences (Soyer, 2019). Positive relationships between students, school administrators, and teachers are essential to minimize unsafe feelings students may experience in their school environment, leading to decreased bullying incidents since these relationships can lead to victims seeking help from administrators (Aceves et al., 2010; Eliot et al., 2010; Espelage, 2014). Parent communication with school staff creates a home-school connection that can eventually lead to a shared commitment to promote an environment where students feel safe and minimize bullying incidents. Study findings have shown that parents' involvement in their child's lives and interaction with the school environment may buffer the effects of children being exposed to bullying incidents or being perpetrators (Bouchard & Smith, 2017; Espelage, 2014; Lee, 2011).

Macrosystem and Bullying

The macrosystem is the outermost level of influence in children's life. It is viewed as a cultural blueprint that provides insight into system-level activities and assists in determining social structures. The macrosystem includes social, cultural, organizational, and political contexts, unprinted rules and norms, and laws and regulations (Eriksson et

al., 2018; Huang et al., 2013). An in-depth look into a society's macrosystem level of influence can shed light on existing links between bullying behaviors and the lack of education and anti-discrimination laws (Horton, 2020). The macrosystem level of influence can potentially impact school-wide norms, including bullying.

Hawley and Williford (2015) posited that consideration should be given to the influence of the macrosystem on schools, students, teachers, and peer groups. Bullying is viewed as a systemic phenomenon, and risk and protective factors relating to students, families, peers, community, the school environment, and cultural norms influence bullying behaviors (Hornby, 2016). Understanding the macrosystem level of influence on bullying behaviors in Trinidad's school environment is essential.

In summary, the SEM can be successfully used to examine obesity and family support as risk and protective factors of bullying in Trinidad, which is essential to developing effective intervention strategies. It can illuminate the complexities involved in bullying, including family support, peer relationships, societal influences, and teacher interaction (Swearer & Hymel, 2015). Peer (i.e., microsystem) victimization occurs across different ages. It is noted to increase with age, studies show that boys are more likely to be bullied and be perpetrators of bullying (Menesini & Salmivalli, 2017; Swearer & Hymel, 2015; Zhang et al., 2019). School and home interaction (i.e., mesosystem) and cultural norms (i.e., macrosystem) have been shown to impact bullying incidents within neighborhoods and schools, making the SEM appropriate to answer the research questions.

Irrespective of the various research findings, I found no studies on the relationship between family support and how family support affects/modify the number of days obese children are bullied in Trinidad. The use of the SEM allows for examining the role of family support in bullying incidents, providing teachers, parents, and administrators with information that can be utilized to address bullying as a public health issue in Trinidad. The current research differs from studies conducted by Jones (2020) or Ramdass et al. The researchers investigated adolescents and bullying in Trinidad and Tobago and the most common types of bullying according to school location, sex, and kind of school, respectively. This research differs from previous research and is significant because it addresses the importance of family support. Bronfenbrenner's SEM suggests that human development is immensely affected by our immediate settings and social context. This theoretical framework can be appropriately used to identify the role of family support in moderating the number of days obese children are bullied in Trinidad, leading to positive social change.

Similar Application of the Theory

Researchers have used the SEM in ways similar to the current research. Swick and Williams (2006) used the SEM to understand how families handle stressors, including violence and homelessness since it provides insight into family relationships and can aid in understanding families' strengths and needs. Chan et al. (2016) used the SEM to understand the complexities of violence in various settings, including homes and schools. Hong et al. (2010) conducted an ecological analysis to determine the risk and protective factors for wife battering in South Korea. Lim and Hoot (2015) evaluated the

multicultural context of school bullying, and Cross et al. aimed to understand how theoretical and empirical risk and protective factors can mediate cyberbullying perpetration by adolescents. Using the SEM is appropriate when attempting to illustrate how family support can moderate bullying incidents in Trinidad.

The victimization of obese students occurs more frequently than victimization relating to race or religion (Bacchini et al., 2015). Eskisu (2014) noted that bullying experiences were linked to limited support from family, teachers, and peers. Students' interaction within their ecological system allows for a multilevel assessment of the association between childhood obesity and bullying incidents in Trinidad. A look at children's interaction at home and school shows how childhood obesity influences their social environment, including being bullied at school and how the relationship within their microsystem, including family support, moderates bullying experiences (Ayers et al., 2012; Feeg et al., 2014). The macrosystem, which includes cultural norms within communities, including schools, can influence students' behaviors, leading to bullying or resistance to being bullied.

Literature Review Related to Key Variables

Bullying

Bullying is defined as aggressive behavior towards others, it is intentional, and victims are frequently bullied by individuals or groups and is an imbalance of power between the victim and bullying perpetrators (Menesini & Salmivalli, 2017). Many factors contribute to students being bullied, including appearance (i.e., obesity), learning disabilities, and an individual's characteristics, such as being perceived as weak. Students

who are isolated, have few friends, and are viewed as not being cool are also at risk of being bullied (Hicks et al., 2018; UNESCO, 2019). Bullying takes many forms, and two subtypes of bullying behavior are direct and indirect. Direct bullying involves face-to-face interaction and includes verbal or physical aggression or destruction of property, while indirect bullying is covert. Indirect bullying involves socially isolating others or spreading malicious rumors about the victimized student, sometimes done via the Internet (i.e., cyberbullying; Menesini & Salmivalli, 2017; Olweus et al., 2019; Smith et al., 2012). Bullying in schools has been a global public health issue and a significant concern for Caribbean nations. Public health officials, including those in Trinidad, must be diligent in addressing bullying because of its negative consequences on children.

Consequences of Bullying

Obese students are at risk of developing anxiety, depression, and decreased self-esteem, and the risk of developing these psychological disorders further increases since victimization of students leads to an array of mental and physical symptoms and poor academic performance (American Psychological Association, 2017; De Sousa et al., 2012; Rankin et al., 2016; Uleanya et al., 2018). Studies have shown that mistreated overweight and obese kids are at an increased risk of internalizing symptoms, including anxiety, and depression, leading to mental health issues in these students (Ngo et al., 2021; Waasdorp et al., 2018). Victimized obese kids are also prone to feeling isolated and may develop bulimic behaviors (Pearce et al., 2002; Waasdorp et al., 2018). Being victimized is also linked to decreased health-related quality of life, making addressing the victimization of obese children a significant public health issue.

Mistreatment of students by their peers is a psychosocial stressor that lingers, impacting their physical health. Students are likely to suffer from headaches, be nauseated, and experience fatigue (Hager & Leadbeater, 2016). The stress experienced by these students sometimes results in sleep disturbances, which may likely contribute to the tiredness victimized students experience (Hager & Leadbeater, 2016; Hunter et al., 2014). Bullying has also been linked to increased adiposity during young adulthood. Baldwin et al. (2016) found among students who experienced mistreatment, body mass index (BMI) and waist-to-hip ratio increased in young adulthood. Bullying also leads to students experiencing palpitations and chronic pain (Hunter et al., 2014).

Various studies have shown a link between bullying and poor academic performance, and it is noted that the adverse effects of students' experiences can linger even into adulthood (Hager & Leadbeater, 2016; Zhang et al., 2019). Bullying is a significant concern for public health officials in Trinidad or globally.

Childhood Obesity and Bullying

Childhood obesity is a global public health issue in high and low-income countries, including the Caribbean, with children between the ages of 5 to 19 having the highest mean BMI compared to children globally. Data show that in Trinidad and Tobago, there has been a progressive increase in childhood obesity from 12% to 51.5% between 2001 and 2018, putting these children at risk of being bullied (Rambaran et al., 2021). To my knowledge, no researchers have looked at childhood obesity and bullying and how family support moderates bullying incidents in obese children in Trinidad,

which is essential since various studies show that children who are obese are at increased risk of being bullied.

A case-control study, which included 740 children attending public schools in Argentina, found that obese children ages 9 to 10 are likely to experience bullying, with boys being at increased risk of being physically bullied (Kovalskys et al., 2016). Four types of bullying were examined among children (6,939) in grades 6 through 10 in the United States. Researchers found verbal bullying was more significant in obese girls and overweight boys. Researchers discovered physical bullying was predominantly found in underweight boys, while relational bullying was linked to underweight girls (Wang et al., 2010). In a study conducted by Nabors et al. (2019), which included 26,094 students ages 10 to 17, found that the chance of being victimized because of one's weight status was significant and obese participants were less likely to be bullies. Findings from these studies validate the importance of determining whether obese Trinidadian children are at greater risk of being bullied and how family support can influence bullying victimization in these children.

The previous studies used large sample sizes, making the results more generalizable. In Kovalsky et al.'s study, the researchers limited participants to Caucasian students, causing their results not to be generalizable. The researchers' findings add to the body of literature that validates that being obese is a risk factor for children being victimized. Drawbacks to the studies include using a cross-sectional design by Nabors et al. since determining changes in victimization or weight over time is impossible. Kovalsky et al. noted that their questions were not specific to weight-based bullying,

making their findings questionable. Childhood obesity and bullying are two significant public health issues in Trinidad and Tobago. Despite the identified limitations, findings can shed light on the need to consider the association between obesity and bullying incidents in Trinidad and how family support moderates the relationship between childhood obesity and bullying incidents.

Family Support Bullying and Moderating Effects

Bullying of students is a significant public health concern since victimized students experience various physical and psychological symptoms, and their academic performance can also be affected. According to Shaheen et al., the prevalence and detrimental effects of bullying make it a public health concern. The researchers noted that when family and friends provide supportive relationships, the risk of being bullied decreases. When students have supportive relationships with family and friends, it is feasible they will discuss their bullying experiences, allowing them to obtain guidance on an appropriate coping mechanism (Shaheen et al., 2019). Family, peers, and sibling support have been shown to reduce bullying because it can lead to victimized students becoming resilient (Ho et al., 2022; Rothon et al., 2011; Shaheen et al., 2019). Family support will likely moderate the relationship between childhood obesity and bullying incidents in Trinidad.

Data show that bullying is a public health issue in Trinidad and Tobago with 20.8% of students ages 13–17 who completed the WHO 2017 survey reported being bullied 1 month before completing the survey (Baek et al., 2020). Attempts should be made to decrease bullying incidents in Trinidad by increasing the encouragement of

family support. Ledwell and King (2015) conducted a study to examine family support and its moderating effects on bullying and students' ability not to internalize behaviors such as depression when a high level of parental communication exists between parents and students. Findings showed that interaction with parents moderate the association between bullying and internalizing problems since interaction with parents allows students to discuss negative experiences at school (Ledwell & King, 2015).

Flouri and Buchanan's (2002) study findings validate the later findings of Ledwell and King's analysis. The researchers found that fathers' involvement in their teenage sons' lives moderated bullying experiences. Deeper exploitation of family support in decreasing bullying incidents in Trinidad is needed, particularly since Qiu noted that children who have strong relationships with parents are likely to build a strong relationship with others. When students develop strong relationships with peers, the likelihood of being victimized decreases, potentially reducing mental health issues in obese children in Trinidad since a link to bullying and depression and anxiety exists.

Bullying and Gender

Data show that obese male and female students are victimized, and it is also noted that direct versus indirect bullying is often more common in a specific gender. Verbal aggression, which obese students can directly or indirectly experience, is most frequently reported by students regardless of their weight status (Sizemore, 2015). Morales et al. (2019) evaluated second-grade data in the United States. They examined the separate and combined effects of being an obese male or female and experiencing victimization in school settings. Findings showed that obese children are more likely to be victimized, and

gender was not a protective factor against verbal or indirect bullying for obese girls. Pearce et al. noted that girls experienced more indirect bullying while boys acknowledged being teased, punched, and kicked more often than overweight or average-weight children.

Koyanagi et al. (2020) found that obese girls, compared to obese boys, were more likely to experience any form of bullying victimization, which was also the findings of the study conducted by Lee et al. (2021). Data from a national survey also indicated that overweight boys (24%) and girls (30%) currently in sixth grade noted that they were teased daily and rejected because of their weight (Uddin Kalar et al., 2015). It was also reported that the number doubled in boys and girls attending high school to 58% and 63% respectively (Uddin Kalar et al., 2015). Bullying is a global issue, and children experience direct and indirect bullying for reasons including race, religion, and physical appearance. According to Ngo et al., victimization not only differs by gender but also according to one's age.

Bullying and Age

Bullying of obese children occurs across different age groups, and obese kids are more likely to be victimized (Van Geel et al., 2014). The association between being obese, bullying victimization, age, and the form of victimization differs. Janssen et al. (2004) found the chances of obese girls ages 11 to 16 being victimized are more significant than their normal weight peers within the same age group, and the same findings were also noted for younger obese males, ages 11 to 12. Results also showed that boys and girls were both likely to experience verbal victimization, while girls were at

greater risk of experiencing physical or relational bullying (Janssen et al., 2004). Researchers Lumeng et al. (2010) found in their study of obese 8 to 11-year-old students there is a high probability that an obese third grader is likely to be victimized in sixth grade, as reported by the teacher (33.9%), mother (44.5%), and children who reported being victimized (24.9%). Lian et al. found that older male and female adolescents were less likely to be bullied. Chronic bullying is not only possible in obese children but is also expected in underweight children, making addressing bullying in Trinidad an urgent public health issue.

There are strengths and weaknesses to the previous studies. Lian et al. and Janssen et al. used self-reported height and weight data, while Lumeng et al. used third, fifth, and sixth-grade height and weight measured during the study. Self-reported data are subject to biased reporting or participants' inaccurate recollections of their height and weight (Burkholder et al., 2020). All researchers also used surveys, leading to reliability and validity concerns about the measurement tools used (Burkholder et al., 2020). Researchers Lumeng et al. surveyed students, teachers, and parents when gathering data on bullying incidences. Surveying the different groups increased the validity of the information received since researchers can determine consistency in the information provided. An analysis of the studies showed that large sample sizes were used, making findings more generalizable, and highlighting the studies' strengths.

Definitions

I used various terms in the study. The operational definitions of the independent and DV (s) and extraneous variables are provided to clarify the following terms.

Adolescents: The phase of life between childhood and adulthood, early adolescence, is between ages 10 to 13; middle youth, ages 14 to 17; and late adolescents, 18 to 21 (Allen & Waterman, 2019). In this study, I refer to students ages 13 to 17 years.

Body mass index (BMI-for-age): A measurement used to determine a child's health status, is specific to a child's age and gender and calculated using the child's height and weight (CDC, 2022).

Bullying: A power imbalance, which can be observed or perceived, and involves unwanted or aggressive behavior(s) by youths who are not siblings of the individual being victimized. Three factors can be used to identify bullying. It is the intention of the perpetrator to harm the victim, involves a power imbalance, and the bullying behaviors are repetitive (Hicks et al., 2018; Ho et al., 2022; Juvonen & Graham, 2014; Zhang et al., 2019).

Childhood obesity: Childhood obesity for this study is defined as being obese >+*2SD* from the median for BMI by age and sex, as described in the 2017 GSHS codebook (Trinidad). Overweight is considered >+1*SD* from the median for BMI by age and sex, while underweight is <-2*SD* from the median for BMI by age and sex. All others are considered normal weight.

Cyberbullying: The bullying of students using digital devices (cell phones, computers, tablets) to spread rumors about someone, including sharing personal information or pictures of the individual (Assistant Secretary for Public Affairs, 2021).

Direct bullying: The victim is present during the bullying event, including verbal bullying (i.e., name-calling) and physical bullying, including hitting and kicking (Hicks et al., 2018; Morales et al., 2019).

Family support: The frequency in which parents or guardians understood students' problems and worries within the past 30 days and how often the parents or guardians checked to see if their homework was done during the past 30 days.

Gender: The term is used to denote either male or female.

Indirect bullying: The victim is absent during the bullying event; bullying can occur through verbally spreading rumors or via the internet, and students can be socially excluded (Hicks et al., 2018).

Relational bullying: Students' social status and relationships are harmed through rumors and social exclusion; attempts are made to ostracize students (Kennedy, 2020).

Assumptions

I made several assumptions for the study. It was assumed that obese children in Trinidad are less likely to get bullied when family support is given. The assumption was also made that students' height and weight would be accurate, and I needed to calculate students' BMIs and determine whether students were overweight or obese (see CDC, 2022). It was also assumed that students provided honest answers when they completed the GSHS. I assumed students answered the survey questions without assistance or coercion from parents, teachers, or peers or intentionally reported incorrect information leading to biased answers (see Burkholder et al., 2020). The final assumption was the gathering of data occurred via a culturally sensitive, reliable, and valid instrument.

Scope of Delimitations

A delimitation of the current study was that ethnic groups and obesity, and bullying would not be studied. Since childhood obesity could be more prevalent in Blacks than in children of other races in Trinidad, leading to targeted interventions and an increased likelihood of positive social change. Another delimitation was I only included Trinidadian children in the study. I eliminated other Caribbean nations, making the study less generalizable to other Caribbean countries, and narrowing the scope of the results (Burkholder et al., 2020).

Limitations

Limitations to the study include using secondary data and whether reliable anthropometric data would be used to determine children's BMI, which was significant in deciding whether a child was overweight or obese. The self-reporting of bullying incidents could lead to underreporting of victimization due to fear of retaliation. Also, recall bias was possible, likely leading to victims having difficulty recalling information, thus incorrectly completing the survey. Future researchers should utilize various sources to determine incidences of victimization in obese students, including peers, and teachers, thus providing more reliable data (Lee et al., 2021).

Significance

Bullying and childhood obesity are two significant public health issues in Trinidad and Tobago. To the best of my knowledge and considerable research using Google Scholar and Walden's library, there have been efforts to examine the relationship between obesity and bullying in secondary schools in Trinidad. Whether the relationship

can be affected by family support has not been systematically explored in Trinidad. Family support is critical given that bullying incidents continue to increase in Trinidad and Tobago (Robertson, 2020). Findings from the study can shed new light on the mechanism that parents, and school administrators can collectively use to minimize bullying regarding physical characteristics. These results are likely to help obese children enjoy and focus more on what they care about and ultimately achieve better academic outcomes and increased mental health, resulting in positive social change.

Limited to no data exist on childhood obesity and the influence of parent support in minimizing obese children getting bullied in Trinidad. This study adds to efforts being made by the Trinidad and Tobago Ministry of Education to address bullying incidents in school settings. Bullying of obese children is a global public health concern, and insight on this issue related to Trinidad can benefit other Caribbean nations. Findings can be used to educate parents on the significance of being supportive of their children, thus minimizing the risk of being bullied. Results from the study can be used to implement school-based interventions to address bullying, a significant public health issue in Trinidad and Tobago. Obese children will likely achieve better academic and mental health outcomes. According to the CDC (n.d.a.), poor mental health in children is a significant public health concern. Minimal to no information exists about bullying incidents and childhood obesity in Trinidad. Findings from this study can lead to positive social change since steps can be taken to improve the mental health of obese children in Trinidad.

Summary

I provided an overview of the research in this section, with bullying and childhood obesity statistics in Trinidad and Tobago presented to highlight the two existing public health issues. Data show that approximately 30% of Trinidad adolescents had bullying experiences and identified themselves as being the aggressor (13%), being victimized (11%), or both (6%). In 2017, the overweight rate for students ages 13 to 15 years increased by 7.3%, and at the same time, there was a 5% increase in the obesity rate. Bullying of obese children continues to be a worldwide issue. I conducted an analysis to examine the influence of family support on the bullying experiences of obese children in Trinidad.

I used the SEM to illustrate how the various level of influences, including one's parents, teachers, and school norms, can influence bullying incidences. I focused on family support, which is essential to a child's development and relationship with parents, socialization at school, and within their community. The literature review showed that bullied children risk experiencing mental health and physical consequences, some of which can linger into adulthood. The research shows that obese boys and girls and children as young as 8 years old are likely to be victimized, making addressing this public health issue essential. Bullying is a public health issue in Trinidad and a significant concern for educators and school administrators. Any attempts to reduce bullying of obese and normal-weight children requires a systematic approach. Implementations of interventions at the microsystem, mesosystem, and macrosystem levels must be considered. When effectively implemented, a comprehensive approach can lead to

positive results and social change. In Section 2, I will discuss the research design and data collection, including the methodology used for data collection and analysis, and provide answers to the research questions.

Section 2: Research Design and Data Collection

Introduction

I examined how the relationship between childhood obesity and the number of days bullied in Trinidad can be affected/modified by family support. Section 2 includes a discussion of the research design and data collection. I also include the rationale for selecting the research design. Also included in this section are the population being studied, sampling procedures, instrumentation, operationalization for each variable, data analysis plan, possible threats to validity, ethical procedures, and a summary of Section 2.

Research Design and Rationale

I used a secondary data set, cross-sectionally collected by the Trinidad Ministry of Health through collaboration with the WHO and CDC. The number of days bullied was the DV for this study, while the main IV was childhood obesity. The moderating variable was family support, and I used gender and age as covariates. This research design was relevant and appropriate because the DV, number of days the participant was bullied, which was a continuous variable. Moderated regression model enables me to examine whether family support can affect/modify the impact obesity has on getting bullied. This technique also allows controlling various variables regardless of their measurement level (Creswell & Creswell, 2018). I controlled age (i.e., continuous variable) and gender (i.e., nominal variable) in this model. The cross-sectional design gave a glimpse of data collected at a specific time from a given population (Creswell & Creswell, 2018). It showed whether family support would likely decrease the number of days obese children get bullied in Trinidad. Various researchers used cross-sectional studies to examine

school bullying and its prevalence and to investigate influential factors, including family and school factors, that can impact bullying incidences (Saiz et al., 2019; Shaheen et al., 2019; Wang et al., 2012).

Time and Resource Constraints and Rationale

Cross-sectional studies describe a variable and assess cause and effect (Aggarwal & Ranganathan, 2019). Bullied children often exhibit mental health symptoms such as depression or anxiety (Ngo et al., 2021; Waasdorp et al., 2018). Information gathered from the study illuminated the need for increased mental health counselors in Trinidad to address the mental health needs of victimized students.

Setia indicated that cross-sectional studies simultaneously measure participants' outcomes and exposure. It is also noted that these studies can be conducted within a short timeframe and is relatively inexpensive since data are usually gathered during one encounter, and follow-up is not required (Aggarwal & Ranganathan, 2019; Setia, 2016). Despite these advantages, obtaining causal relationships from cross-sectional studies can be challenging (Setia, 2016). I examined how the relationship between childhood obesity and the number of days a child gets bullied in Trinidad can be affected/modified by family support. Using a descriptive cross-sectional design allowed the sample population to be assessed at a particular time. It will provide insight into areas within the research that may require further studies (see Simkus, 2021). Cross-sectional studies allow for the analysis and comparison of multiple variables and outcomes simultaneously (Simkus, 2021).

Benefits Associated With the Design Choice

Cross-sectional studies describe a variable and assess cause and effect (Aggarwal & Ranganathan, 2019). The use of cross-sectional studies in public health is beneficial to the discipline since it can highlight patterns and connections, such as the link between childhood obesity and the number of days a child gets bullied and the influence of family support in mitigating bullying occurrences (National EMSC Data Analysis Resource Center, 2022). Descriptive cross-sectional studies aid in appraising disease burden and can benefit public health by providing information that can be helpful during resource planning (Aggarwal & Ranganathan, 2019).

Methodology

Population

For the study, I used secondary data from the WHO. The GSHS, a self-administered low-cost school-based survey, is used to gather data from students regarding their health behavior and protective factors (WHO, 2022b). This ongoing low-cost cross-sectional study was initiated by the WHO and the CDC, and individuals from 103 countries participated in the study, including Trinidad and Tobago (Fan & Zhang, 2021). The data collected came from 2,836 male and female Trinidadian students, the target population. The target population ages ranged from 13 to17 years, and survey data collection occurred during one class period via a self-administered questionnaire with a standardized scientific sample selection process (WHO, 2022-b). The data set contained information on bullying, age, gender, family support, and BMI, necessary information to answer the research questions.

Sampling Procedures

The GSHS involved a two-stage cluster sample design (WHO, 2020c). The goal was to generate data that represents all students in Forms 1–6 in Trinidad and Tobago. Cluster sampling is considered ideal because of the impracticality of compiling a list of the various elements composing the population (Creswell & Creswell, 2018). According to Gerstman (2015), multistage sampling is often used in a large-scale survey such as the GSHS, which first selected schools with probability proportional to enrollment size, and then made all students from randomly selected classes eligible to participate (WHO, 2020c).

The WHO's (2020c) GSHS data are publicly available. Specific conditions are delineated regarding data usage, including acknowledging the source, non-commercial use, and the data can be used for public health purposes that do not result in profits is permitted. Before publication, the WHO should be notified, and the coordinator of the survey should be offered co-authorship of publications or reports that utilize the survey results (WHO, 2020-c). The WHO, a reputable organization, manages and maintains comprehensive data collection. Member states mandate information pertaining to global health and well-being (WHO, 2022c). The 2017 GSHS data set was appropriate for the current study because it is the most recent and includes the studied variables, making answering the research questions possible.

Sample Size and Power Analysis

The use of an entire population is not feasible when conducting research studies. Selecting participants representing the population is necessary, leading to results that

draw true inferences about the population (Kadam & Bhalerao, 2010). The 2017 GSHS in

Trinidad and Tobago had a total of 3,869 participants, 1,033 from Tobago and 2,836 from

Trinidad. The population under study was 13 to 17-year-old males and females from

Trinidad (N = 2,836). Based on the entire population, 3,869, using a 95% confidence

level and a 5% margin of error, the recommended sample size is 350. See Figure 2.

Figure 2

Sample Size/Conjointly Calculator
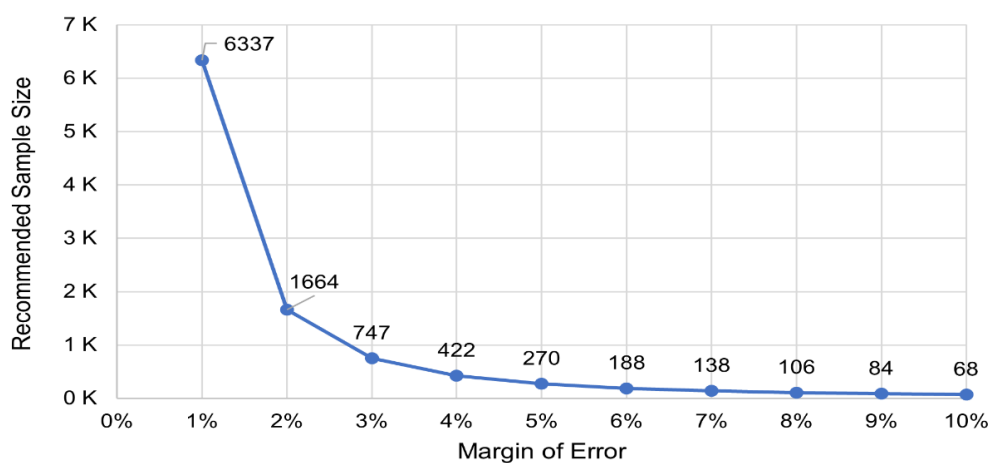
Notes: n = the sample size, N = the population size, z = is the confidence level (in

percent, such as 90% = 0.9), p = the sample proportion (in percent, such as 50% = 0.5), e

= the margin of error) in percent, such as 5% = 0.5) Moving from a 5% margin of error to

a 1% margin of error would require a sample size 20 times as large (Chipeta, 2020).

The current sample size of 2,836 was far greater than the minimum recommended

sample size of 350. The minimum sample size is the minimum number of respondents

needed to get survey results that reflect the population that this study is examining, while

adhering to the desired confidence interval (i.e., margin of error) and confidence level

(Frankfort-Nachmias et al., 2021). For the confidence level, I chose 95%, which means

the true population value would fall within the confidence interval on 95% of the

occurrences. The accuracy of study's results is determined by how high the confidence

interval is of which 5% margin of error is used (Frankfort-Nachmias et al., 2021). For the

results of the regression model to be valid and reliable with four predictor variables, the

absolute minimum sample size was 129 (see Figure 3), using G*Power to determine the

sample size. Based on G*Power, the sample size needed for the study was smaller (129)

and far below the sample size of 2,836.

Figure 3

*Sample Size/G*Power*
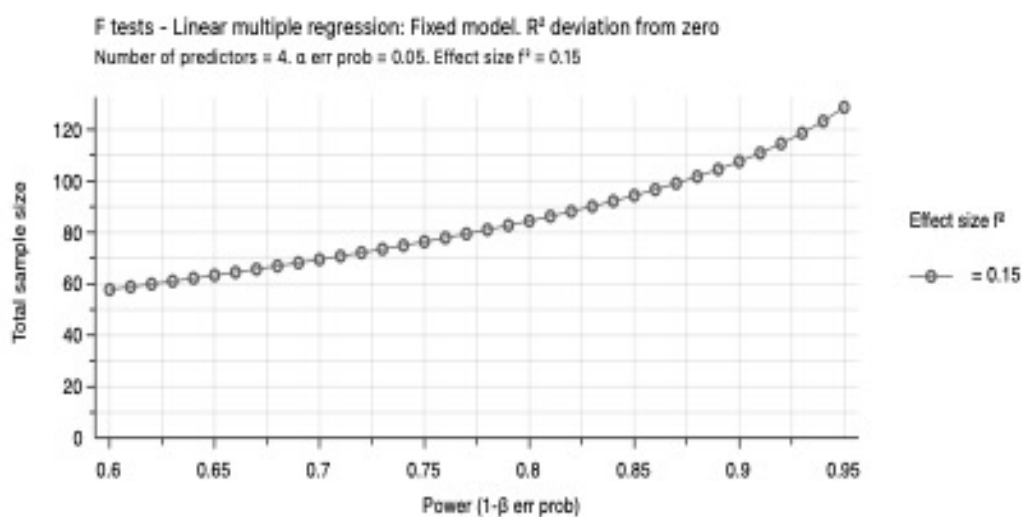
Instrumentation and Operationalization of Constructs

The WHO and multiple agencies developed the GSHS, including the United

Nations, United Nations Children's Fund, UNESCO, and the Joint United Nations

Program on HIV/AIDS. The CDC (2018) provided technical assistance. The survey

assesses students' protective factors and health behaviors, and findings are used to develop programs and establish priorities. Results from the data can also be used to advocate for resources (CDC, 2018). The core modules included in the survey are mental health, protective factors, and violence. Answers to these questions can provide insight into whether the relationship between childhood obesity and the number of days bullied in Trinidad can be affected/modified by family support. This instrument was previously used by Fan and Zhang, who examined recent trends in overweight and obesity among adolescents aged 12 to 15 years across 21 countries.

I completed this study based on public data from the WHO, who worked with the CDC to sponsor the research. The Trinidad and Tobago Ministry of Health was the primary investigator of the 2017 survey, which garnered a 100% school response rate. Overall, 89% of the students responded by answering the self-administered survey (WHO, 2020b). Researchers used the GSHS to collect data from adolescents between ages 13 to17 years currently enrolled in school and was the third GSHS conducted by Trinidad and Tobago (WHO, 2020b).

Operationalization of Variables

IV: I defined *childhood obesity* for this study as being obese >+*2SD* from the median for BMI by age and sex, as described in the 2017 GSHS codebook (Trinidad). Overweight is considered >+1*SD* from the median for BMI by age and sex, while underweight is <-2*SD* from the median for BMI by age and sex. I considered all others as normal weight. The IV was a nominal variable. I recoded underweight, overweight, and obese as dummy variables.

BMI is calculated using an individual's height and weight. The formula is kg/m²

where kg is an individual's weight in kilograms and m² is their height in meters squared

(Fan & Zhang, 2021). One question measured participants' height without their shoes on.

Another question measured how much they weighed without their shoes on. Researchers

calculated BMI in the original study using answers to these two questions.

DV: I defined the DV as the number of days a child was bullied during the past 30

days. It was a continuous variable using the following scale: 1 = 0 day, 2 = 1 or 2 days, 3

= 3 to 5 days, 4 = 6 to 9 days, 5 = 10 to 19 days, 6 = 20 to 29 days, 7 = All 30 days.

Moderator Variable: Family support was an index variable based on the average

of two items. The items are: (a) How frequently the guardians/parents understood the

problems of their child during the last 30 days, and (b) How often parents/guardians

check to see if the child's homework is done during the past 30 days. Both items were

based on five-point Likert scale from 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Most of

the time, 5 = Always. I combined the two items, and I used an average of the two items.

It was a continuous variable. I also reported Cronbach's alpha score (see Glen, n.d.).

Control Variables: Age and gender were control variables in this study. I

measured age as a continuous variable using the following scale: 1 = "11 years or

younger", 2 = 12 years old, 3 = 13, 4 = 14, 5 = 15, 6 = 16, 7 = 17, and 8 = 18 years or

older. Gender was a nominal variable coded 1 = male and 2 = female.

Data Analysis Plan

I used secondary data for this quantitative study. The Trinidad and Tobago

Ministry of Health collected data were from 13 to 17 years old adolescent students

currently enrolled in school. I downloaded the GSHS data from the WHO website. I used SPSS 28 to analyze the data via statistical tests appropriate to my study.

The 2017 GSHS data were previously edited by the CDC, which involved scanning, editing, cleaning, and weighting the data (WHO, 2020b). I cleaned the data before my analysis to ensure no mistakes (see Burkholder et al., 2020). A linear regression model examined the relationship between childhood obesity and bullying. The model examined if family support influenced the nature of the relationship between child obesity and bullying. I tested assumptions for regression, including linearity, homogeneity of variance, multicollinearity, and normality (Gerstman, 2015). I also examined Mahalonibias' test for potential multivariate outliers (see Ghorbani, 2019).

Research Questions and Hypotheses

RQ1: Is there an association between childhood obesity and the number of days bullied in Trinidad, adjusted for age and gender?

H_o1: There is no association between childhood obesity and the number of days bullied in Trinidad.

H_a1: There is an association between childhood obesity and the number of days bullied in Trinidad.

RQ2: Does family support moderate the relationship between childhood obesity and the number of days bullied, adjusted for age and gender?

H_o2: Family support does not moderate the relationship between childhood obesity and the number of days bullied in Trinidad.

H_a2: Family support moderates the relationship between childhood obesity and

the number of days bullied in Trinidad.

Detailed Analysis Plan

The statistical test used to test the hypothesis was a moderated regression. I first

performed a linear regression model without the moderator to examine the direct effect of

obesity on bullying. In a second model, I applied a moderation analysis to determine the

impact of obesity and if the number of days bullied depends on family support.

I tested several assumptions to ensure that the statistical model results were valid.

First, I examined if the relationship between the IV and the DV was linear, characterized

by a straight line (see Gerstman, 2015). Using SPSS, I performed scatterplots of the

relationship between each IV and the DV, showing whether the relationship between

each IV and the DV would be linear (see Wagner, 2020).

The second assumption I tested was whether there was no multicollinearity in the

data. For this assumption, I tested whether the predictors were too highly correlated with

one another (see Pezzullo, 2013). To test this assumption, I selected collinearity

diagnostics in SPSS as part of the linear regression procedure, producing two statistical

information: tolerance and variance inflation factor (VIF). Tolerance indicates how much

of the variability of the specified IV was not explained by other IVs in the model. If less

than 0.1, multicollinearity may exist (Marcoulides & Raykov, 2019). For VIF, values

above 10 are a concern.

The third assumption test examined whether the values of the residuals were

independent. This examined whether the observations in the data were independent of

one another or uncorrelated. (Corporate Finance Institute [CFI], 2022). I tested this assumption using the Durbin-Watson statistic, available in the linear regression procedure in SPSS (see CFI, 2022).

The fourth assumption was whether the variance of the residuals was constant. In other words, it tests the assumption that the variation in the model's residuals (or amount of error) is similar at each point across the model (Rudy, 2011). To test the fourth assumption, I plotted the standardized values my study model would predict against the standardized residuals obtained.

The fifth assumption tests whether the values of the residuals are normally distributed (National Institute of Standards and Technology, n.d.). I tested this assumption by looking at the distribution of residuals. This can be done by checking the normal probability plot option available under plots when performing linear regression in SPSS.

Lastly, I examined if no influential cases biased my model. Significant outliers and influential data points can place undue influence on the model, possibly making it less representative of the data as a whole (Pinho et al., 2015). To identify any particular influential data points, I selected the Cook's distance option under the save function when performing regression in SPSS.

Multiple testing correction, such as Bonferroni, is normally not applicable to multiple regression modeling. The statistical model controlled for both gender and age. I selected gender as a control variable because literature indicates that obese girls are more likely to experience any form of victimization (see Koyanagi et al., 2020; Lee e al.,

2021). I needed to control for gender effect. I selected age as a control variable because literature suggests that as children get older and mature, they are less likely to be bullied (see Lian et al., 2018). I controlled for age factor. The interpretation of the results started with descriptive statistics of the study variables followed by correlations table. I will present results of the assumption tests followed by reporting of the multiple regression model results. The main focus was answering the two main research questions.

Threats to Validity

External Threats

The main threat to external validity in this study was the sample is limited to children in Trinidad. This limits the generalizability of the study's findings to a broader group of people.

Internal Threats

Many factors contribute to internal validity, including researcher bias, which includes changing the research design, incorrect use of an instrument or maturation, referring to changes in participants over time (Burkholder et al., 2020). For this study, I used secondary data. One of the limitations of using a secondary dataset is that the dataset may not necessarily have the variable that I want to measure.

Ethical Procedures

Ethical considerations were made when collecting the GSHS data. The Trinidad and Tobago Ministry of Health collected data and obtained parent and student consent (Fan & Zhang, 2021). The WHO also requires participating countries to maintain and protect the privacy of participating schools and students (CDC, n.d.b.; Fan & Zhang,

2021). I used secondary data for my study while adhering to Walden University's

Institutional Review Board (IRB) guidelines after gaining approval.

Summary

In this Section, I discussed the study methodology. I used a quantitative

descriptive cross-sectional design. The research questions in this quantitative study

examined the association between the IV childhood obesity and the number of days

bullied in Trinidad. The role of family support as a moderator on the relationship between

obesity and the number of days bullied will be examined. I used 2017 data from the

WHO to answer the study hypotheses and research questions. In this section, I provided

the population being studied, sampling procedures, instrumentation, operationalization

for each variable, data analysis plan, possible threats to validity, ethical procedures, and a

summary. In Section 3, I will provide statistical analysis and data results.

Section 3: Presentation of the Results and Findings

Introduction

Bullying and childhood obesity are public health issues in Trinidad and Tobago. Determining the positive effects of parental support in minimizing bullying incidents in obese Trinidadian children is essential. Therefore, the study's purpose was to examine how the relationship between childhood obesity and the number of days an obese child is bullied in Trinidad can be moderated by family support. The Trinidad and Tobago Ministry of Health collected the 2017 GSHS. Researchers collected data from Forms 1 to 6, for participants ages 13 to 17 years. Secondary data set from the WHO was used for a quantitative descriptive cross-sectional analysis. The IV for this study was childhood obesity. The number of days a child has been bullied was the DV. I used family support as a moderator on the relationship between childhood obesity and getting bullied. Age and gender were covariates.

In this Section, I review the study's purpose, research questions, and hypotheses. I discuss how I accessed the data set for secondary analysis. I used a linear moderated regression model test the hypotheses. The research questions guiding the study were:

RQ1: Is there an association between childhood obesity and the number of days bullied in Trinidad, adjusted for age and gender?

$H_0 1$: There is no association between childhood obesity and the number of days bullied in Trinidad.

$H_a 1$: There is an association between childhood obesity and the number of days bullied in Trinidad.

RQ2: Does family support moderate the relationship between childhood obesity and the number of days bullied, adjusted for age and gender?

$H_0$2: Family support does not moderate the relationship between childhood obesity and the number of days bullied in Trinidad.

H_a2: Family support moderates the relationship between childhood obesity and the number of days bullied in Trinidad.

Accessing the Dataset

The Trinidad and Tobago Ministry of Health carried out the 2017 GSHS, and data collection occurred from January 2017 to December 2017 (Global Health Data Exchange [GHDX], 2021). The cross-sectional study is a collaborative process that includes the WHO and CDC. The Trinidad and Tobago Ministry of Health allowed students to self-report their answers to the survey. Researchers used a computer-scannable answer sheet to report students' responses. The Ministry of Health successfully obtained a 100% school response rate, while 89% of the students responded (WHO, 2020a). The survey measured students' alcohol use, protective factors (family support), mental health, and physical activity. Researchers measured students' age and gender along with the percentages of students overweight, underweight, and obese using their median BMI and the number of days bullied in the past 30 days. The data set is publicly available from the WHO. After obtaining IRB approval, I created an account on the WHO website to access the data set, which I used to run my analysis using SPSS Version 28.

Discrepancies from Section 2

In Section 2, the sample size indicated was N = 2,836 and included students from 11 years or younger to 18 years or older. However, since the current study only includes students ages 13 to 17, the "How old are you?" variable was recoded to have only the age group of students in the current study. Also, in Section 2, I planned to calculate BMI directly based on weight and height. The change was that underweight, overweight, and obese variables were precalculated and available for selection in the original data. Therefore, to be consistent with the measure of underweight, overweight, and obese in the literature, I used the same variables that were available in the data set.

Demographic Characteristics of the Sample

Data was collected data from students living in Trinidad ages 13 to 17 years (WHO, 2020b). Table 2 summarizes the demographic characteristics of the age and gender of the study's sample, which included 2,229 participants. Five hundred and eighty-eight (n = 588) 14-year-old adolescents represented the largest age group to participate in the survey (26.4%), while 17-year- old (n = 288) made up the smallest group of students (10.2%) who participated in the survey. A higher number of females (n = 1196, 53.7%) than males (n = 1,023; 45.9%), participated in the survey.

Table 2

Demographic Characteristics of the Sample

Characteristics	N	%
Age in years		
13	473	21.2
14	588	26.4
15	540	24.2
16	400	17.9

Characteristics	*N*	%
17	228	10.2
Gender		
Female	1196	53.7
Male	1023	45.9

Sample Representativeness

Researchers used a two-stage cluster sampling method to gather data representing students 13 to 17 years in Trinidad and Tobago. The two-stage cluster sampling method is beneficial when collecting information from a dispersed population (Rahman et al., 2022). Researchers at the Ministry of Health first selected schools with probability proportional to enrollment size and randomly selected classes. Students in the chosen classes were allowed to participate in the survey (WHO, 2020b). Probability sampling offers everyone in the population an equal chance of being selected (Rahman et al., 2022). The sample for the current study represents children from various schools in Trinidad, increasing the likelihood of the findings being more generalizable.

Univariate Analysis

The univariate analysis table, Table 3, highlights the mean results for family support, an index variable based on the average of two items: first, how frequently the guardians/parents understood the problems of their child during the last 30 days; second, how often parents/guardians checked to see if the child's homework was done during the past 30 days. Both items are based on five-point Likert scale from 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Most of the time, 5 = Always. The mean finding was 2.73 with a SD of 1.268. I examined normality assumption by using Kolmogorov-Smirnov test on family support. Result showed that family support was not normally distributed ($p < .001$, see

Table 4) The histogram in Figure 4 shows that family support is reasonably normally

distributed within the sample. In addition, the skewness and kurtosis statistics showed

that the data were not skewed significantly (skewness statistic = .254). The number of

days bullied during the past 30 days was the DV measured as a continuous variable result

shows that the average number of days bullied was 1.32 days, with a standard deviation,

(*SD)*, of .990. The analysis also showed that 60.6% of the students available in the

sample was within the normal weight.

Table 3

Univariate Analysis

Characteristics	N	%	Mean	SD
Family support			2.73	1.27
How many days bullied			1.32	.99
Childhood obesity				
Underweight	145	7.3		
Overweight	319	16.0		
Obese	320	16.1		
Normal	1208	60.6		
Age in years				
13	473	21.2		
14	588	26.4		
15	540	24.2		
16	400	17.9		
17	228	10.2		
Gender				
Female	1196	53.7		
Male	1023	45.9		

Note. How many days bullied? = How many days bullied in the past 30 days? Family

support is an index variable based on the average of two items. First, how frequently the

guardians/parents understood the problem of their child during the last 30 days. Second,

how often parents/guardians check to see if the child's homework is done during the past

30 days.

Table 4

Test of Normality

	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Family support	.123	2102	<.001

Figure 4

Family Support
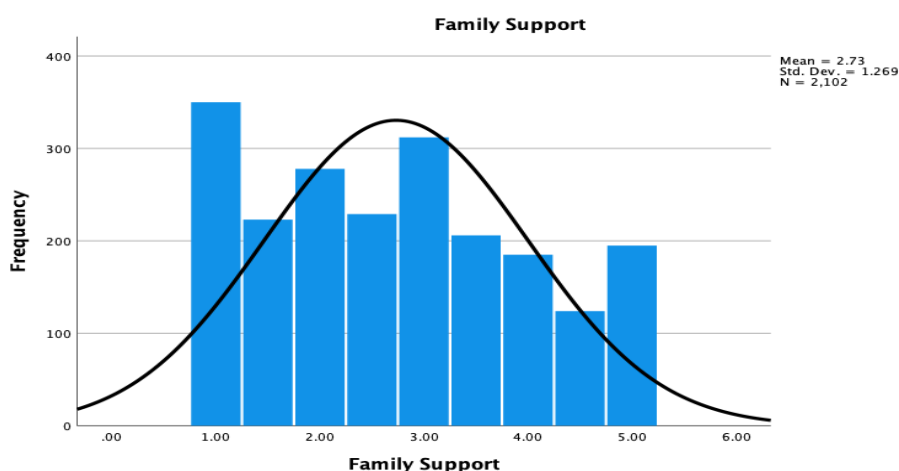
Note. Family support is an index variable based on the average of two items: (1) how frequently the guardians/parents understood the problem of their child during the last 30 days, and (2) how often parents/guardians check to see if the child's homework is done during the past 30 days.

Results

The GSHS 2017 data contained the variables required to conduct the current study. I measured the IV childhood obesity using percentages of students that were underweight, overweight, and obese using $<-2SD$, $>+1SD$, and $>+2SD$ from the median for BMI by age and sex, respectively. It also included the number of days the respondents

were bullied in the past 30 days. I combined two variables representing protective factors to find the average to determine the level of family support received, and I also included the covariates, gender and age. Table 5 contains the descriptive statistics for the study sample.

In Table 5, 6.5% of the sample was underweight, 14.3% overweight, and 14.4% obese. A higher number of students were bullied for one or two days representing 7.9% of the sample, while 82.1% experienced no bullying. The mean finding for family support using the Kolmogorov-Smirnov test was 2.73, with a *SD* of 1.268. The sample included students 13 to 17 years, with 14 years old students representing the highest age group, totaling 588 (26.4%) students, and 10.2% of 17-year-olds also completed the survey, making up the smallest age group to be represented. Finally, more 13 to 17 years old female students than male students completed the questionnaire, representing 53.7% and 45.9%, respectively.

Table 5

Descriptive Statistics of the Sample

Variable	Frequency	%	Mean	*SD*
Childhood obesity				
Underweight (ref=normal)				
No	1847	82.9		
Yes	145	6.5		
Overweight (ref=normal)				
No	1673	75.1		
Yes	319	14.3		
Obese (ref=normal)				
No	1672	75.0		
Yes	320	14.4		
Number of days bullied				
0 days	1832	82.1		
1 or 2 days	176	7.9		

Variable	Frequency	%	Mean	SD
3 to 5 days	59	2.6		
6 to 9 days	27	1.2		
10 to 19 days	15	0.7		
20 to 29 days	8	0.4		
All 30 days	34	1.5		
Family support			2.73	1.27
Age in years				
13	473	21.2		
14	588	26.4		
15	540	24.2		
16	400	17.9		
17	228	10.2		
Gender				
Female	1196	53.7		
Male	1023	45.9		

Statistical Assumptions

I checked statistical assumptions required for linear regression by first assessing the linearity of the relationship between continuous IVs and the DV using a scatterplot. I checked the relationship between family support and the number of days bullied in the past 30 days for linearity. Figure 5 shows that the relationship is not very strong. The scatterplot shows that the relationship between family support and the number of days bullied in the past 30 days can be modeled by a straight line, suggesting that the relationship between these two variables is linear.

To thoroughly test the assumption of linearity, I also examined in relation to the number of days bullied in the past 30 days. Although the relationship in Figure 6 is weak, it can be modeled as having a linear relationship.

Figure 5

Association Between Family Support and Number of Days Bullied
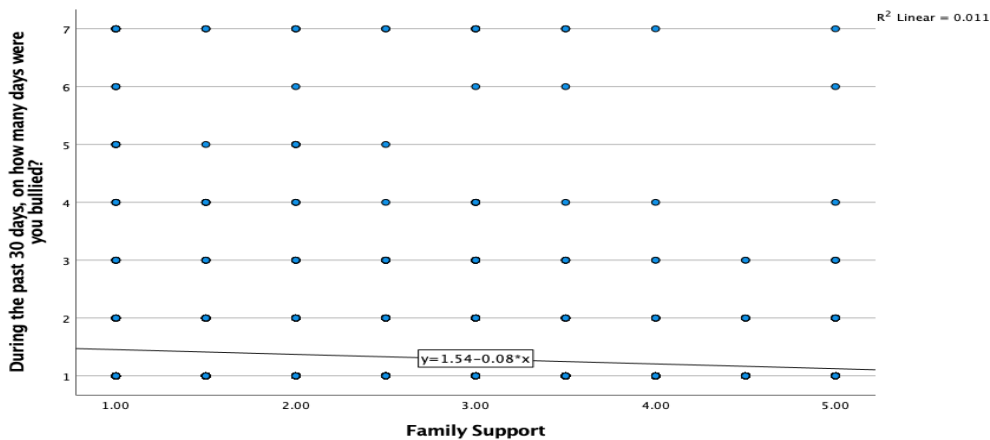
Note. Each dot represents family support, an index variable based on the average of two items. First, how frequently the guardians/parents understood the problem of their child during the last 30 days. Second, how often parents/guardians checked to see if the child's homework was done during the past 30 days, and the number of days bullied in the past 30 days.

Figure 6

Association Between Age in Years and Number of Days Bullied
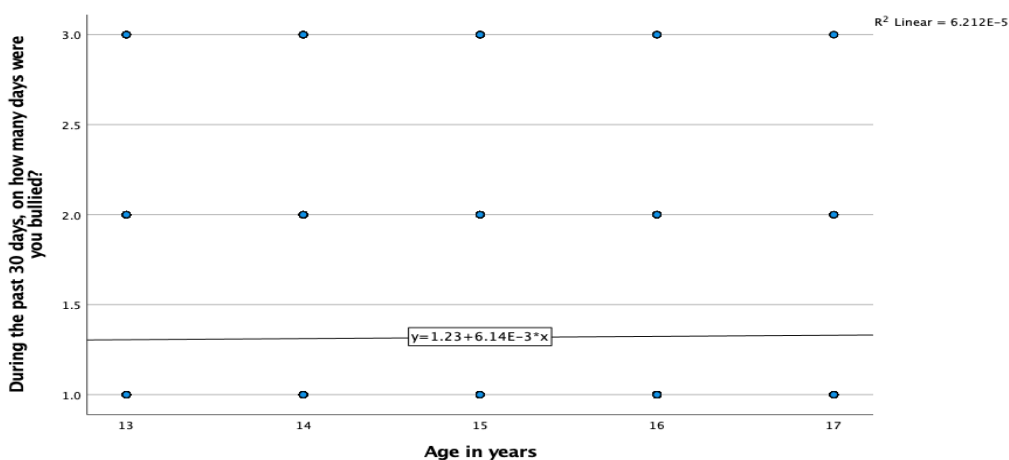
Note. Each dot represents age in years from 13 to 17 years and the number of days bullied in the past 30 days.

I assessed the multicollinearity assumptions (see Appendix A) by VIF, and all reported VIF to be well below 4. The highest VIF was 1.068 representing overweight, and the lowest was 1.012 for gender. The findings suggest that the predictors are not highly correlated. I evaluated the values of the residuals for independence, determined by Durbin-Watson statistic, which was 1.927 in Table 6, indicating no autocorrelation (Corporate Finance Institute [CIF], 2022). I assessed a scatterplot (see Appendix B) to test the variance of the residuals, which showed no discernable pattern signifying that the assumption was met. Lastly, I examined whether influential cases could bias the model by examining Cook's distance, which had a minimum value of 0 and a maximum value of .041. The values are below 1; therefore, all residuals are well predicted (see Howtostatsbook, n.d.).

Table 6

Model Summary[b]

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	.115	.013	.010	.985	1.927

Note. Predictors: (Constant), GENDER, Obese_D, AGE_IN_YEARS, UWT_D, FSupport, OWT_D. DV: BULLIED

Statistical Analysis Findings

The results are presented according to the research questions being used for the study. Table 1 of Section 1 notes the measurement level used for each variable. The findings from the covariates are also discussed.

RQ1: Is there an association between childhood obesity and the number of days bullied in Trinidad and Tobago (Trinidad), adjusted for age and gender?

$H_0 1$: There is no association between childhood obesity and the number of days bullied in Trinidad.

$H_a 1$: There is an association between childhood obesity and the number of days bullied in Trinidad.

A multiple regression analysis without the moderator, family support, showed that the model was not statistically significant (Adjusted R^2 = -.001, p = .612) as shown in Tables 7 and 8.

Table 7

Model Summary[b]

Model	R	R square	Adjusted R square
1	.043[a]	.002	-.001

Note. Predictors: (Constant), Gender, Obese (ref=normal), Age in years, Underweight (ref=normal), Overweight (ref=normal). Dependent Variable: During the past 30 days, on how many days were you bullied?

Table 8

Mean and Significant Level for Study Variables

Model	Mean Square	Sig.
1 Regression	.043[a]	.002

Note. DV: Bullied. Predictors: Gender, Obese (ref=normal), Age in years, Underweight

(ref=normal), Overweight (ref=normal).

Table 9 shows that the IV was not associated with the DV. Underweight (b = .02,

p = .822, 95% CI [-.154, .194]), overweight (b = .102, p = .108, 95% CI [-.022, .226]),

and obese (b = .003, p = .968, 95% CI [-.122, .127]) did not significantly predict getting

bullied. There was no sufficient evidence to reject the null hypothesis.

Table 9

Regression of Association Between Childhood Obesity and Bullying

Variable	B	*SE*	t	p	95% CI
(Constant)	1.210	.265	4.575	<.001	[.692, -1.729]
Underweight (ref=normal)	.020	.089	.225	.822	[-.154, -.194]
Overweight (ref=normal)	.102	.063	1.608	.108	[-.022, -.226]
Obese (ref=normal)	.003	.063	.040	.968	[-.122, -.127]
Age in years	.007	.018	.400	.689	[-.028, -.042]
Gender	-.038	.045	-.837	.403	[-.127, -.051]

Note. DV: During the past 30 days, on how many days were you bullied? underweight

(<-2SD from the median for BMI by age and sex), overweight (>+1SD from the median

for BMI by age and sex), and obese (>+2SD from the median for BMI by age and sex).

RQ2: Does family support moderate the relationship between childhood obesity

and the number of days bullied, controlling for age and gender?

Ho2: Family support does not moderate the relationship between childhood

obesity and the number of days bullied in Trinidad.

Ha2: Family support moderates the relationship between childhood obesity and the number of days bullied in Trinidad.

A multiple regression analysis with the moderator, family support, showed that the model was not statistically significant (Adjusted $r^2 = 0$, $p = .523$). as shown in Tables 10 and 11.

Table 10

Model Summary[b]

Model	R	R Square	Adjusted R Square
1	.042	.002	0

Note. Predictors: (Constant), Obese_D,GENDER,AGE,UWT_D,OWT_D

Table 11

Mean and Significant Level for Study Variables

Model	Mean Square	Sig
1 Regression	.767	.523[b]

Note. Predictors: (Constant), Obese_D,GENDER,AGE,UWT_D,OWT_D

The moderator analysis table, Table 12, summarizes the analysis for the second research question. The table shows that the control variables (i.e., age and gender) and the three dichotomous variables underweight, overweight, and obese were entered into the model and yielded results that were not statistically significant. However, the model was statistically significant when I added family support (b = -.078, $p = <.001$). In the third step, I included the interaction terms determining if the relationship between BMI and the number of days bullied within the past 30 days is moderated by family support. The interaction term was not statistically significant, underweight (b = -.038, $p = .52$), overweight (b = -.068, $p = .102$, and obese (b = -.023, $p = .593$).

Model 1 includes the control variables and the three dichotomous variables representing underweight, overweight, and obese with the normal weight being used as a reference category. Results showed that none were statistically significant predictors of getting bullied. When I added family support to Model 2, it is the only variable that shows statistical significance, $p < .05$. As family support increases, the number of days a child gets bullied decreases (b = -.078, p = <.001).

Adding the three interaction terms as shown in Table 12 also yielded results that were not statistically significant. These findings indicate that family support does not influence the impact that child's weight issues have on the number of days a child gets bullied. Family support does not moderate the relationship between weight and getting bullied in Trinidad and Tobago (Trinidad). Therefore, there was insufficient evidence to reject the null hypothesis.

Table 12

Moderator Analysis: Family Support and Bullying

Variables	Estimate	*SE*	95%CI		*p*
			LL	UL	
(Constant)	1.217	.058	1.103	1.331	<.001
Age	.018	.012	-.004	.041	.113
Gender	-.014	.040	-.092	.064	.723
UWT_D	.040	.077	-.111	.191	.603
OWT_D	.069	.055	-.038	.176	.206
Obese_D	.006	.055	-.101	.113	.913
(Constant)	1.508	.082	1.346	1.669	<.001
Age	.000	.012	-.023	.024	.976
Gender	-.005	.039	-.083	.072	.894
UWT_D	.054	.077	-.096	.205	.478
OWT_D	.081	.054	-.026	.187	.137
Obese_D	.022	.054	-.085	.128	.691
Fsupport	-.078	.016	-.109	-.047	<.001

Variables	Estimates	SE	95% CI		p
			LL	UL	
(Constant)	1.467	.091	1.289	1.645	<.001
Age	.001	.012	-.023	.025	.932
Gender	-.003	.039	-.080	.074	.940
UWT_D	-.056	.185	-.419	.307	.762
OWT_D	.279	.132	.019	.538	.035
Obese_D	.087	.137	-.181	.355	.523
FSupport	-.065	.020	-.105	-.025	.001
UWT_X_Fsupport	.038	.058	-.077	.152	.520
OWT_X_Fsupport	-.068	.042	-.151	.014	.102
Obese_X_Fsupport	-.023	.043	-.107	.061	.593

Note. CI = confidence interval; LL = lower limit, UL = upper limit

a. DV: Bullied

Summary

In Section 3, I examined the association between childhood obesity and the number of days bullied. I analyzed the role of family support in influencing the association between underweight, overweight, and obese and the number of days bullied. I conducted linear regression and a moderated regression analysis. No significant statistical findings were found for RQ1, suggesting that childhood obesity does not predict the number of days an obese child is bullied in Trinidad and Tobago (Trinidad). I included family support in the model to analyze RQ2. Findings showed that it predicts the number of days a normal weight child is bullied in Trinidad and Tobago (Trinidad). However, family support did not significantly moderate the relationship between childhood obesity and the number of days an obese child is bullied in Trinidad and Tobago (Trinidad).

Section 4 will include an introduction, an interpretation of the findings, and an overall analysis of the study's limitations. Recommendations for further research and

professional practice will be provided. The finding's potential impact on positive social

change will be analyzed, especially at the family and school levels. The interpretation of

the findings as it relates to the theoretical framework will be reviewed, and a conclusion

will summarize the main essence of the study.

Section 4: Professional Practice Application and Social Change Implications

Introduction

Bullying and childhood obesity are two significant public health issues in Trinidad and Tobago. I examined how the relationship between childhood obesity and the number of days an obese child is bullied is moderated by family support in Trinidad and Tobago. Determining the association between the variables under study can increase public health officials' awareness of one factor influencing the high bullying incidence in Trinidad and Tobago. Data from Johnson's study showed that 30% of adolescents in Trinidad and Tobago had bullying experiences, believed themselves to be the aggressor (13%), or were victimized (11%). Since bullying incidents are increasing in Trinidad and Tobago, knowing if the IV childhood obesity significantly influences bullying can aid educators in finding strategies to resolve bullying incidents.

However, the findings from the study revealed that family support has no impact on childhood obesity and being bullied in Trinidad and Tobago. The data analysis revealed that family support has a simple direct effect on bullying (b = -.078, p = <.001). As family support went up, bullying went down. The findings that family support has a simple direct effect on bullying can be used to educate educators and school administrators. The awareness that family support can help decrease bullying incidents in Trinidad and Tobago is significant. The increased knowledge provides a considerable implication about what educators and administrators can use to alleviate bullying incidents, leading to positive social change.

Key Findings

I used secondary data to conduct a quantitative descriptive cross-sectional design to understand the effect of family support on moderating the relationship between childhood obesity and the number of days obese children 13 to 17 years old are bullied in Trinidad and Tobago. Descriptive cross-sectional studies are used to emphasize connections, and patterns. The IV was childhood obesity. The DV was the number of days bullied in the past 30 days, while family support was used as the moderator. I used data collected by the Trinidad and Tobago Ministry of Health between January 2017 to December 17 for this cross-sectional study.

A review of the literature has shown that childhood obesity and bullying are two significant public health issues in Trinidad and Tobago (Johnson, 2020; Richards et al., 2019). However, an extensive literature review did not reveal whether any researchers conducted empirical studies to examine the association between childhood obesity and bullying in Trinidad and Tobago. More specifically, despite the anecdotal evidence that family support is critical in a child's environment, there have not been substantive efforts to examine whether family support moderates the obesity-bullying relationship.

Data analysis for the current study included using the GSHS 2017 data from the WHO to answer the two research questions. RQ1: Is there an association between childhood obesity and the number of days bullied in Trinidad and Tobago, adjusted for age and gender? RQ2: Does family support moderate the relationship between childhood obesity and the number of days bullied, controlling for age and gender?

Pengpid and Peltzer (2021) examined the prevalence and correlation between frequent and infrequent bullying in the Association of Southeast Asian Nations. The researchers found an association between low peer support and bullying. Similarly, Spriggs et al. (2007) found that it is essential that bullying prevention efforts should include addressing family interactions. The literature confirms that bullying incidents decrease when students receive support from family, peers, and siblings (Ho et al., 2022; Rothon et al., 2011; Shaheen et al., 2019). However, the current study's findings contradict what was supported in the literature. Results from the present study show that the relationship between childhood obesity and bullying was not moderated by family support. Family support did not influence the relationship between childhood obesity and the number of days bullied in the past 30 days in Trinidad and Tobago

In the current study, the analysis for RQ1 showed that a linear relationship between the IV childhood obesity and the number of days bullied in the past 30 days did exist. For RQ2, the moderated regression model for the study showed that underweight, overweight, obese, age and gender did not predict ($p = .523$) the number of days a child is bullied in Trinidad and Tobago (Trinidad). Adding the interaction term did not yield significant results ($p = .306$). The R^2 increased from .2% to 1.2%. The increase when family support was added to the model was statistically significant, $p<.001$; see Appendix C.

Interpretation of Findings

Bullying of adolescents is a prevalent global public health issue (Koyanagi et al., 2020). It is defined as a power imbalance involving unwanted, repetitive, or hostile

behaviors toward an individual by others, not including their siblings, and the intention is to hurt the individual (Hicks et al., 2018; Ho et al., 2022; Juvonen & Graham, 2014; Zhang et al., 2019). However, studies show that a child's supportive relationship with their parents decreases the likelihood of that child being bullied (Hong et al., 2021; Qiu, 2021). Parents must form trusting relationships with their children, allowing them to develop the tenacity to stand up against bullies or to divulge to parents or educators their victimization experiences.

I examined whether family support moderates the relationship between childhood obesity and the number of days an obese child is bullied in Trinidad and Tobago. Although the study did not find a significant relationship showing that underweight ($b =$ .020, $p = .822$, 95% CI [-.154, .194]), overweight ($b = .102$, $p = .108$, 95% CI [-.022, .226]), and obese ($b = .003$, $p = .968$, 95% CI [-.122, .127]) predicted the number of days children in Trinidad get bullied, it showed that family support has a simple direct effect. The simple direct effect found confirmed findings from other studies that show that family support moderates bullying incidences while disconfirming other studies that showed that obese children are at a high risk of getting bullied.

Findings and Knowledge Extension

In Section 1, I discussed the study by Shaheen et al. The findings from that study showed that a supportive relationship with family and friend decreases the likelihood of a child being bullied. Children's chances of not being bullied have also been linked to resiliency developed by their relationships with their family and peers (Ho et al., 2022; Rothon et al., 2011; Shaheen et al., 2019). Researchers Ledwell and King's study also

confirmed the findings from the current study. Their research showed that when students interacted with parents, there was a moderation of the association between bullying and internalizing behaviors such as depression. These studies confirm the findings from the current study that shows, overall, family support has the potential to moderate children's bullying/victimization experiences.

The current study disconfirmed Nabors et al.'s findings. The researchers' study included 26,094 participants, ages 10 to 17 years, and the results showed a significant relationship between one's weight status and bullying experiences. My study showed that weight did not significantly predict bullying experiences.

As discussed in Section 1, Ramdass et al. noted that bullying is a significant concern in Trinidad and Tobago. The researchers conducted a study to determine which form of bullying is more prevalent. They also sought to establish the extent to which school type, location, and sex determine bullying practices. The researchers examined the schools' role in addressing bullying. The sample included randomly selected students from two grades and two school districts, comprising 410 students (Ramdass et al., 2017). The researchers examined the relationship between direct (physical and verbal) and indirect bullying (social and cyber) and their influence on overall bullying. Unlike the current study, Ramdass et al. did not include childhood obesity nor the influence of family support in determining bullying practices. The use of family support as a moderator extends knowledge in the discipline by informing public health officials in Trinidad and Tobago, school administrators, and educators of the study's findings, which showed that an overall association between the number of bullying incidents in the past

30 days and family support exits. When I added family support to Model 2 in my study, it showed statistical significance of $p < .05$. As family support increases, the number of days a child gets bullied decreases (b = -.078, $p = <.001$). Therefore, the results of my study can be disseminated to families, teachers, and ancillary school staff, including social workers and administrators, educating them on the significance of family support in moderating bullying incidents.

Findings and Theoretical Framework

The SEM was used for the current study, and the levels of influence (i.e., the microsystem, mesosystem, and macrosystem) were used for the present study. Each level of influence has its characteristics and depicts how interaction occurs at each level, likely affecting the development and behavior of humans (Hayden, 2019). Individuals in the child's microsystem (i.e., parents, peers, teachers) play an instrumental role in their behavior development, influencing whether children accept being bullied or act as the aggressor (Swick & Williams, 2006). A child's ability to communicate freely, have trust-building relationships with parents, and receive family support decreases their chances of being bullied or accepting being victimized (Brazelton & Greenspan, 2009; Nunez-Fadda et al., 2020; Zhao & Chang, 2019). The current study's analysis revealed that despite family support not being significant in moderating the number of days an obese child is bullied in Trinidad and Tobago, family support has a simple direct effect on bullying. Therefore, family support is a predictor of students' bullying experiences, which aligns with previous studies and should be given consideration when addressing bullying, a public health issue in Trinidad and Tobago.

Considering the child's mesosystem, including the relationships between their home and school environment, is necessary when addressing bullying of obese children or overall bullying behaviors, which are findings of the current study. Since bullying is a public health issue in Trinidad and Tobago, where 7.9% of the sample population had bullying experiences during one or two days in the past 30 days (see Table 4), macrosystem interventions are necessary. Rigby (2013) noted that increasing parents' awareness about peer victimization is essential and that increased knowledge about the relationship children have with each other can aid in increased insight and early detection of issues associated with bullying. Using the SEM in the current study was appropriate since it addresses parents, home and school connections, and organizational context as essential factors in addressing bullying in Trinidad and Tobago.

Limitations of the Study

I intended to use the 2017 GSHS data to determine how the relationship between childhood obesity and the number of days an obese child is bullied in Trinidad and Tobago can be moderated by family support. The use of secondary data and the reliability of the anthropometric data used to calculate the children's BMI, significant in deciding overweight and obesity, were also limitations of the study. The use of secondary anthropometric data was a limitation since the accuracy of the collected data cannot be determined. Recall bias was also an issue; students may have forgotten previous bullying incidents, which may have attributed to inaccurately reporting their victimization experiences.

The current study included children ages 13 to 17 years, while the original study included students 11 or younger, 12 years old, and those 18 years or older. Physical fights account for 38.3% of bullying experiences in the Caribbean, while physical attacks are 33.8%, and 25% of Caribbean children are bullied (United Nations Educational, Scientific and Cultural Organization, 2019). The findings are best generalizable to the Caribbean region. Including the different age groups may have resulted in significant findings when I used the interaction term to determine the relationship between BMI and the number of days bullied within the past 30 days and whether family support moderates the relationship. Lumeng et al. (2010) found that obese 8- to 11-year-old third graders will likely experience bullying in sixth grade. Including the age group of all students completing the survey would allow the results to be more generalizable to the different age groups of students in Trinidad and Tobago. Self-reporting bullying incidents probably resulted in underreported experiences due to fear of retaliation. Finally, my model only addresses overall bullying; it does not empirically distinguish between direct and indirect bullying.

The measurement used in this study can be valued as trustworthy. Since the WHO initiated the dataset, the data have been previously used and cited extensively in the literature (Fan & Zhang, 2021; Guan et al., 2022; Pengpid & Peltzer, 2021). Similarly, to the extent that the WHO validated the data used, one can argue that the methods used in the study and, thus, its findings are valid. However, as previously mentioned, the generalizability and reliability of the result may be limited to the Caribbean region.

Recommendations

I aimed to examine the association between childhood obesity and the number of days bullied in the past 30 days in Trinidad and Tobago using the 2017 GSHS data set. The aim was also to determine whether family support moderates the relationship between the IV, childhood obesity, and the DV, the number of days bullied in the past 30 days.

The theory that the living environment plays a significant role in shaping a child's life is, to some extent, supported in this study. The SEM theory posits that one's family and friends influence their behavior and play a significant role in their experiences (CDC, 2022). Family-focused bullying prevention strategies and those aimed at strengthening parent-child communication are likely to be successful at preventing violence, such as bullying experiences, and should be considered by educators and government leaders in Trinidad and Tobago (CDC, 2022; Zhao & Chang, 2019).

Two limitations that need to be recognized are excluding students 11 or younger, 12 years old, and those 18 years or older. Also, age and gender were the covariates used for the study. The use of additional covariates may be necessary. Future researchers should consider using all age groups available in the data set. To analyze the relationship between childhood obesity and bullying and the influence of family support for a broader target population, providing results for a more significant analysis of childhood obesity and bullying and family support as a moderator. Including additional covariates in future studies will likely enhance the study's internal validity, controlling the influence of confounding and other extraneous variables (Burkholder et al., 2020; Gerstman, 2015).

Additionally, studies on bullying and risk factors in Trinidad and Tobago are needed, as evidenced by my extensive literature review that yielded minimal information on this significant public health issue. Further research is necessary to inform public health officials about factors relating to this public health issue.

<div align="center">**Professional Practice and Social Change Implications**</div>

Professional Practice

The current study's findings highlight the importance of the relationship between family support and the number of days a child is bullied. The study's findings that family support has a simple direct effect on bullying suggest the importance of having programs that educate parents about the significance of building supportive relationships with their children (see Rigby, 2013). Collaboration between public health officials, school administrators, and the Trinidad and Tobago Ministry of Education is needed nationally since bullying in Trinidad, and Tobago occurs nationally (Government of the Republic of Trinidad and Tobago [GRTT], n.d.). The Ministry of Education implemented methods to combat bullying, including a Parenting Academy, which has signification implications for addressing bullying. The Parenting Academy provides access to thousands of parents, providing educators, public health officials, and school administrators the opportunity to educate parents on the importance of family support in moderating bullying experiences (GRTT, n.d.). These teachings should be embedded in the Parenting Academy programs.

The importance of family support in moderating bullying has been noted in previous studies. Bullying prevention programs can improve parents' perceptions of their role in influencing their child's response when bullied (Lester et al., 2017). Minimal to no

research has been done on childhood obesity and being bullied in Trinidad and Tobago and the impact of family support in moderating the number of days a child is bullied. I aimed to add to the effort of public health officials, school administrators, and the Ministry of Education, which seeks to implement strategies to decrease bullying incidents in Trinidad and Tobago. Implementing programs that foster increased communication between students and parents can result in reduced bullying experiences, leading to positive social change (Espelage, 2014; Ho et al., 2022).

Positive Social Change

Bullying is a significant public health issue globally and in Trinidad and Tobago (Bernard et al., 2019; Johnson, 2020). The adverse effects of bullying include anxiety, depression, and decreased self-esteem. Students are also likely to develop mental and physical symptoms and substandard academic performance (American Psychological Association, 2017; De Sousa et al., 2012; Rankin et al., 2016; Uleanya et al., 2018). In this study's literature review, I highlighted the importance of family support in moderating bullying incidents in children. Similarly, I also found a direct effect of family support and decreased bullying in the current study. Increasing the awareness of educators, school administrators, public health officials, and parents of the importance of family support in mitigating bullying experiences is essential. Family support has been shown to impact bullying incidents in children (Ho et al., 2022; Lee et al., 2022; Zhao & Chang, 2019). Implementing programs that facilitate and encourage parent/student communication can make students resilient, leading to decreased bullying experiences and positive social change. The study's findings can be used to reduce bullying in

Trinidad and Tobago, addressing this significant public health issue. Decreasing bullying incidents in Trinidad and Tobago addresses children's security and safety, emotional and mental well-being, and can increase their ability to function in society, leading to positive social change.

Conclusion

Bullying is a public health issue globally, including in Caribbean nations such as Trinidad and Tobago. A knowledge gap exists concerning family support as a moderator for bullying experiences in Trinidad and Tobago. In an extensive literature review, I found no previous studies on the role of family support in moderating bullying experiences of obese children in Trinidad and Tobago. My Moderator Analysis model was low performing since the r-squared, which shows how well the data fit the regression model was low in models 1, 2, and 3. My R^2s were .002, .012, and .013 in models 1, 2, and 3, respectively. It only explained 0.2% to 1.3% of the variance; future studies should explore other causal relationships.

Although no significant findings regarding family support and the moderating effects on the number of days an obese child is bullied in the past 30 days, I determined that family support has a direct impact on bullying. The finding that family support directly affects bullying experiences in Trinidad and Tobago is significant. Bullying experiences leave children with many scars that are carried into adulthood. Addressing bullying in Trinidad is essential. Parents, educators, and public health officials must intervene, so that bullied children's ability to function in society equals that of children that do not experience bullying. Public health officials, school administrators, and the

Trinidad and Tobago Ministry of Education must develop interventions to increase

family support, achieved through improved communication between students and parents

(Nunez-Fadda et al., 2020). When family support exists, bullying experiences in Trinidad

and Tobago are likely to decrease, leading to positive social change.

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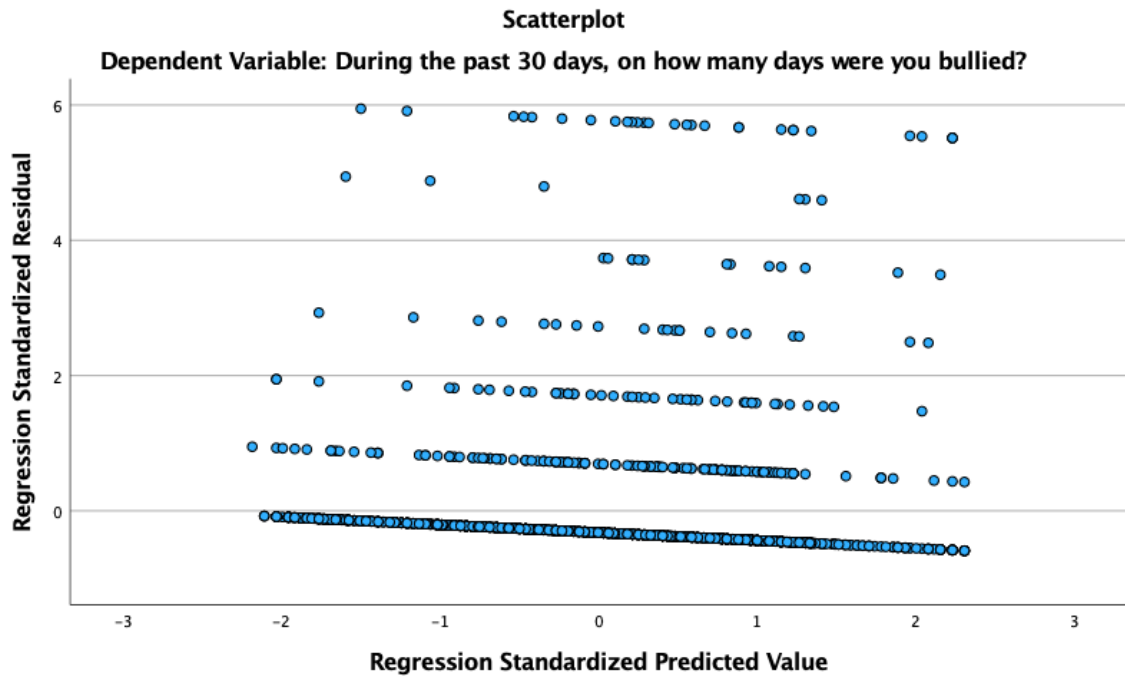   *Children and Youth Services Review*, *34*(12)*,* 2295-2303.

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Appendix A

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients			Collinearity statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.663	.284		5.864	<.001		
	UWT_D	.028	.089	.007	.314	.753	.959	1.043
	OWT_D	.115	.064	.043	1.794	.073	.939	1.065
	Obese_D	.022	.064	.008	.338	.735	.936	1.068
	FSupport	-.085	.018	-.110	-4.662	<.001	.955	1.047
	AGE_IN_YEARS	-.009	.018	-.011	-.475	.635	.963	1.039
	GENDER	-.022	.046	-.011	-.479	.632	.988	1.012

a. DV: BULLIED

Appendix B

Scatterplot

Dependent Variable: During the past 30 days, on how many days were you bullied?

Appendix C

Model Summary[d]

Model	R	R Square	Adjusted R Square	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
1	.042[a]	.002	.000	.002	.837	5	2373	.523
2	.109[b]	.012	.009	.010	24.521	1	2372	<.001
3	.116[c]	.013	.010	.002	1.206	3	2369	.306

a. Predictors (Constant), Obese_D, GENDER, AGE, UWT_D, OWT_D

b. Predictors (Constant), Obese_D, GENDER, AGE, UWT_D, OWT_D, FSupport

c. Predictors (Constant), Obese_D, GENDER, AGE, UWT_D, OWT_D, FSupport, UWT_X_FSUPPORT, OWT_X_FSUPPORT, OBESE_X_FSUPPORT

d. Dependent Variable: BULLIED