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PREVALENCE AND RISK FACTORS OF WEIGHT STIGMA AMONG OVERWEIGHT ADOLESCENT GIRLS IN JUNIOR AND SENIOR HIGH SCHOOLS IN SEKONDI-TAKORADI METROPOLIS

BY

ANTHONIETTE NANA AKYERE TURKSON

10935798

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DECLARATION

This thesis is composed of my original work .It is the result of an independent investigation under the supervision of Prof .Amos Laar and Prof. Richmond Aryeetey .Aside other research works which have been duly acknowledged. I declare that this work has not been submitted or accepted for any other degree

30TH October, 2023

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Anthoniette Nana Akyere Turkson Date

(Student)

30TH October, 2023

…… ……

Prof. Amos Laar Date

(Supervisor)

30TH October.2023

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Prof. Richmond Aryeetey Date

(Co-supervisor)

DEDICATION

I dedicate this work to the Almighty God for His grace and strength, to my dear parents Mr. Anthony Mark Turkson and Mrs. Emma Turkson and my siblings Emilia Turkson and Prince Charles Turkson.

I also dedicate this piece of work to all overweight adolescent girls in the Sekondi-Takoradi Metropolis aged 12-19 years at the time of the study.

ACKNOWLEDGEMENT

By the grace of God, this thesis owes this completion to generous contribution from both faculty and well-meaning family and friends.

First and foremost, I would like to express my sincere gratitude to my academic supervisors, Prof Amos Laar and Prof Richmond Aryeetey for all the support and efforts devoted to the realization of this dissertation, for their contributions and guidance.

To the Department of Population, Family and Reproductive Health accept my thanks for your assistance during my academic journey

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LIST OF ABBREVIATIONS

BMI	-	Body Mass Index
IWB	-	Internalized Weight Bias
JHS	-	Junior High School
LMICs	-	Low and middle income countries
NCDs	-	Non –communicable diseases
SHS	-	Senior High School
UNICEF	-	United Nations Children's Fund
WHO	-	World Health Organization
WBV	-	Weight-based victimization

DEFINITION OF TERMS USED

Body Mass Index is calculated by dividing weight in kilograms by height in meters squared (kg/m2) (GSS, 2015)

Dietary Habits/ Patterns is defined as the quantities, proportions, variety, or combination of different foods, drinks, and nutrients in diets, and the frequency with which they are habitually consumed (Chapter & Patterns, 2020)

Internalized Weight Bias or Weight Self-Stigma is "holding negative beliefs about oneself due to weight or size (WHO, 2018)

Non-communicable diseases (NCDs) are diseases having the tendency to last a long time and are brought on by a mix of genetic, physiological, environmental, and behavioral variable (WHO, 2020)

Nutrition Transition or shifts are changes in dietary intake that result from such factors as economic growth, shifts from rural to urban living, and the influence of globalized food production and advertising leading to a shift from traditional diets consisting of minimally processed foods high in grains, fruits and vegetables to highly processed, energy-dense diets akin to those in Western societies such as Europe and North America (Popkin, 2006)

Obesity is defined as abnormal and excessive fat accumulation that have negative health consequences (Chooi et al., 2019)

Overweight is defined as children whose Z- score values are +2SD above the median for weight-for height are considered as overweight (GSS, 2015)

Undernutrition denotes insufficient intake of energy and nutrients to meet an individual's needs to maintain good health (Maleta, 2006)

Weight-based victimization (WBV) that is weight-based teasing and bullying is experienced by youth and adolescents with overweight or obesity (Puhl, 2020)

Weight/Obesity Bias is having "negative attitudes towards and beliefs about others because of their weight (WHO, 2018)

Weight Stigma is the social sign or label affixed to an individual who is the victim of prejudice because of their weight. Common stereotypes attributed to people with overweight include that they are lazy, unintelligent, non-compliant, untrustworthy, unmotivated, and lack willpower (America & Zealand, 2021)

ABSTRACT

Background: Globally, there is widespread stigma and discrimination towards overweight people, which has negative effects on both their physical and mental health. Despite decades of scientific research on weight stigma, and its effects on public health, it is largely disregarded in policy and programs. Conversely, it is believed that overweight people are to blame for their weight, and that stigmatizing people for being overweight is acceptable and may encourage them to engage in better habits. This study aims to determine the prevalence and risk factors of weight stigma among overweight adolescent girls in the Sekondi-Takoradi Metropolis.

Methods: This study is a cross sectional survey conducted in the Sekondi-Takoradi Metropolis of Ghana. Using multi-stage stratified sampling, 200 in-school overweight adolescent girls between the ages 12-19 years were recruited from 8 schools –4 Junior High schools (2 private and 2 public) and 4 Senior High schools (2 private and 2 public) schools (n=8).

Data collection involved interviews using a structured questionnaire that collected information on the adolescents' socio-demographics, weight stigma experience, and anthropometric measurements. In-depth interviews were utilized to unearth perceptions of weight stigma.

Data Processing and Analysis: Data were entered into excel version 2016 cleaned and exported to STATA version 16 for statistical analysis. Both descriptive and inferential statistics were done. Continuous variables were presented as mean ± standard deviation while categorical variables were summarized as frequencies and percentages.Logistic regression analysis was done to assess the strength of association between weight stigma and selected categorical variables.

Results: Overall, the prevalence of weight stigma among overweight adolescent girls is (73%) in both Junior and Senior High School. Most of the study participants mentioned that overweight people are stigmatized with the perception that they are 'useless' and less active. One third (33.0%)

of the girls worried about being stigmatized because of their body weight. Adolescent girls 10-14 years, the odds of ever experiencing weight stigma is 1.940 times higher than other age category, 95% CI (0.372 to 10.114)

Conclusion: Weight stigma is prevalent among overweight adolescent girls in both Junior and Senior High Schools in the Sekondi-Takoradi Metropolis

Recommendation: Sensitization campaigns regarding overweight, and public health, and policy communication may help to lessen the stigma associated with being overweight and change the focus of public discourse away from victim-blaming or weak discipline

CHAPTER ONE

1. 0 INTRODUCTION

1.1 Background

Undernutrition is a major concern for governments, particularly in low- and middle-income countries (LMICs). In many LMICs, infectious disease and parasitic disease remain serious unresolved health problems. However, non-communicable diseases (NCDs) linked to diet, lifestyle, and overweight/obesity have been rising over the past few decades in LMICS (Ofori-Asenso et al., 2016).

The disease spectrum today differs significantly from that of 40 years ago. This is due to recent changes in the epidemiological and demographic landscape (World Health Organization (WHO) & [UNICEF], 2018). In addition to continuing its rapid economic growth, Ghana, like many other lower-middle income country, is expected to undergo a rapid "nutrition shift" as stated by (Ecker & Fang, 2016). Nutrition Transition is the change from traditional diets of minimally processed foods high in grains, fruits, and vegetables to highly processed, calorie-dense diets similar to those in Western societies like Europe and North America. It results from factors like economic growth, migration from rural to urban areas, and the influence of globalized food production and advertising (Popkin, 2006).

Due to these dietary changes, there are now additional nutritional issues, such as overweight/obesity and associated non-communicable diseases (NCDs). Although the prevalence of overweight and obesity is increasing internationally, developing nations are experiencing some of the most pronounced increases in the number of those affected as compared to more industrialized nations (Chooi et al., 2019)

In a recent study among young people in developing countries, obesity prevalence was estimated to range from 2.3 to 12 percent, while overweight prevalence was reported to be as high as 28.8% (Tuoyire, 2020). Children whose Z- score values are +2SD above the median for weight-for height are considered overweight (GSS, 2015). Body mass index (BMI), a proxy for fat mass percentage, is used for public health and clinical diagnosis for overweight (Chooi et al., 2019).

Even as obesity rates approach new heights ,the societal stigma associated with being overweight is spreading globally and expanding (Brewis, 2014). Adolescent weight and its complications have received less attention, the social context tolerates stigma associated to overweight, and body shame makes decreasing weight challenging (Brewis & Bruening, 2018).

Many individuals who face weight stigma are subjected to it throughout their lives, but particularly in their formative years of childhood and adolescence, when their development is most vulnerable. Weight stigma can have tremendously negative impacts on young people that can have a long-lasting negative impact on their emotional and physical health. Bullying and weight-related mocking are the most frequent examples of weight stigma among young people. Generally speaking, weight stigma affects females more than it does boys, as seen by the higher incidence of weight taunting among girls as opposed to boys (Puhl, 2020).

The term "weight stigma" refers to behaviors and viewpoints that stigmatize people based on their size and weight. Weight stigma arises from bias towards weight. Weight bias refers to the prejudicial beliefs about obesity (World Obesity). We refer to the social rejection and devaluation experienced by people who do not conform to the accepted social norms of an appropriate body size and shape as "weight stigma" (Tomiyama et al., 2018).

A pervasive culture of fat stigmatization encourages weight gain or reinforces excessive body weight, which ultimately contributes to obesity on a population-wide scale. These include the structural effects of discrimination, the psychosocial stress brought on by stigmatization, the direct behavioral changes brought on by feeling judged, and the indirect social network changes (Brewis, 2014). One of the factors is ingrained cultural standards that are rarely addressed, which notably blame weight growth for failure, personal responsibility, and failure (Tomiyama et al., 2018). Body shaming due to weight encompasses verbal and physical abuse from family, peers, and teachers (Puhl, 2020)

1.2 Problem Statement.

According to Brewis & Bruening, (2018), adolescent weight (overweight or obesity) is rising in many countries. However, the obesity epidemic is not just affecting adults but children and adolescents are becoming overweight and obese at alarming rates across the world, with some countries reporting prevalence rates between 20 and 35 percent. Adolescents are more likely than adults to be overweight or obese (West et al., 2018).

In Ghana, being slim is much less of a problem than being overweight or obese, which affects 40% of women (25 percent are overweight, and 15 percent are obese). Rates vary depending on the age group, with rates for women aged 15 to 19 ranging from 9% (GSS, 2015).

From the 2020 population and housing census report, Sekondi-Takoradi Metropolis is an urban setting with most of its populace resides in urban communities. With a regional overweight prevalence (30.1%) among women aged 15-49 (GSS, 2015) predisposing women most especially adolescent girls to weight stigma.

Culturally, overweight is seen as a sign of affluence and prosperity in many African countries, this attitude affects food and physical activity patterns which in turn affects the prevalence of overweight (Arday et al., 2020).

Being overweight is stigmatized and discriminated against frequently, which has detrimental effects on both their physical and mental health (Puhl & Heuer, 2010). Young people who are overweight frequently report being bullied and victimized due to their weight (Puhl & King, 2013). Overweight individuals are often stigmatized using uncomplimentary names such as cargo, obolo and so on in the Ghanaian context (Aryeetey, 2016).

According to a study among two low-income countries (South Africa: 73.3%, Brazil: 92.6%), female adolescent have experienced stigma due of their weight (Kataria et al., 2022). Adolescents who are overweight frequently endure rejection, disrespect, and mockery from their peers, which can lead to mental health issues. Adolescents who are overweight are more likely to experience bullying and social exclusion at school (Juvonen et al., 2017). The health and education of students are greatly impacted by weight stigma in educational contexts, among peers at school as well as in-service teachers (Nutter et al., 2019). In essence, stigmatization is utilized either intentionally or unconsciously to convince people to adopt better behaviors by subconsciously portraying weight gain as a choice (Klobodu et al., 2022).

Additionally, stigma and prejudice relating to overweight amounts to adverse social and economic outcomes including low self-esteem, depression, poor school performance (Aryeetey, 2016).

1.3 Justification of the study

There is a dearth of information from low- and middle-income nations (LMICs). Studies on bullying victimization in LMICs are significant because there is comparably little study on this

topic despite the fact that 90% of adolescents worldwide live in these countries. Also, due to changing lifestyles, childhood overweight and obesity are fast rising in this environment (eg, due to poor diet and lack of physical activity). Given that the majority of overweight or obese children reside in poor countries, developing countries experienced a greater relative increase in juvenile obesity between 1990 and 2010 (+65%) than developed countries (+48%) (Koyanagi et al., 2020).

Although less researched, weight stigma is more socially acceptable, severe, and in some situations, more pervasive than racism, sexism, and other types of bias. In fact, weight stigma has been referred to as the final kind of prejudice that is "acceptable" (Tomiyama, 2014a) .

In order to effectively address the obesity "epidemic," we also need to combat the parallel epidemic of weight stigma, which is a key finding from the science of weight stigma (Tomiyama et al., 2018).

1.4 Research Questions

1. What is the prevalence of weight stigma among adolescent girls in Junior and Senior High schools in Sekondi-Takoradi?
2. What is the perception about weight stigma among overweight adolescent girls in Junior and Senior High schools in Sekondi-Takoradi?
3. What are the risk factors associated with weight stigma among adolescent girls in Junior and Senior High schools in Sekondi-Takoradi?

1.5. General Objectives

- To examine the prevalence, risk factors and perceptions of weight stigma among adolescent girls in Junior and Senior High schools in Sekondi-Takoradi.

1.5.1 Specific Objectives

1. To determine the prevalence of weight stigma among adolescent girls in Junior and Senior High schools in Sekondi-Takoradi.
2. To explore the perceptions about weight stigma among overweight adolescent girls in Junior and Senior High schools in Sekondi-Takoradi
3. To determine the risk factors associated with weight stigma among adolescent girls in Junior and Senior High Schools in Sekondi-Takoradi.

1.6 Narrative of Conceptual Framework

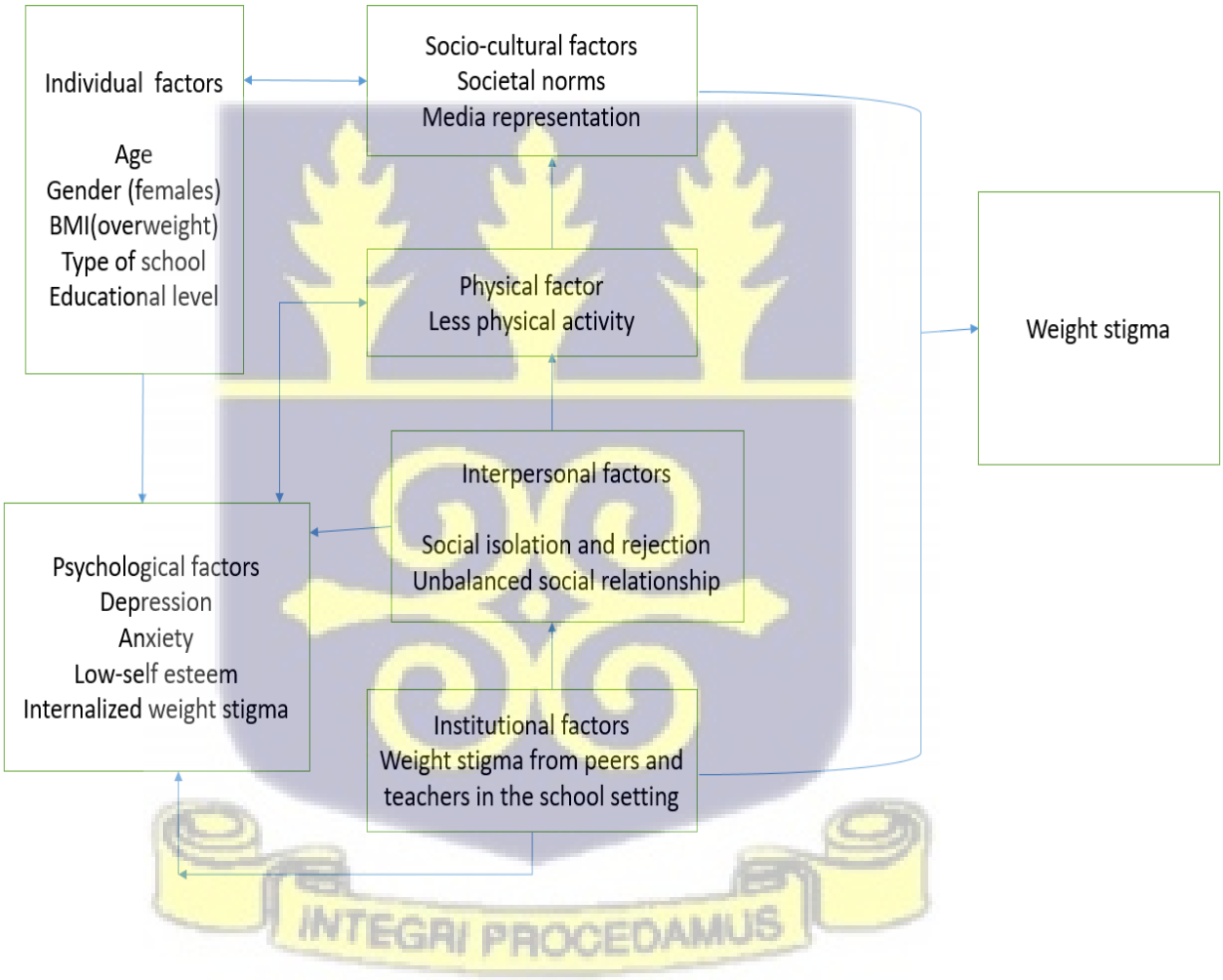
Individual factors such as age, gender, BMI (overweight), type of school, and educational level are associated with weight stigma. Weight stigma is highly prevalent among youth with high body weight, who are targets of weight-based victimization from peers, parents, and teachers (Puhl, 2020). It is more common for women and girls to experience weight stigma and weight discrimination. Significantly, most vulnerable to this situation (Brewis, 2014).

In some cultures, body weight and size may be linked with cultural norms and expectations of appearance as well as risky behaviors. It is known that community perceptions can influence choices about diets and physical inactivity, which are the key direct determinants of overweight, which predisposes one to weight stigma (Aryeetey, 2016). Even in content aimed at children and adolescents, media depictions of overweight people spread a number of harmful preconceptions, which subtly reinforce stigma against those who are overweight or obese (Ata & Thompson, 2010). Stigma related to being overweight may contribute to depression, and bullying during childhood is a known lifetime risk factor for depression, with females again appearing to be more vulnerable (Brewis, 2014). In contrast, girls were more frequently afflicted with anxiety than boys. This may

be the outcome of weight-related stigmatization, discrimination, and taunting, which may be quite upsetting for the young girls, particularly during the adolescent stage of personality development when they are creating their sense of self (Uleanya et al., 2018).Weight stigma may be demotivating. To the degree that weight stigma makes it less likely for people to adopt effective weight-management practices (Vartanian et al., 2014)

Social exclusion, bullying based on weight, body dissatisfaction, and body-based mockery may all occur at this point. Again, this must be the result of poor body image and unhappiness with one's looks caused by bullying based on weight, insults from peers, teachers, and parents, violent behavior, and stereotyping (Uleanya et al., 2018).

Figure1: Conceptual Framework of Weight stigma



Source: Author's conception based on review literature 2023

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

For the purpose of the study objectives, this chapter contains relevant literature. Thematic areas covered include: Weight stigma: concept, definitions and dimensions, risk factors of weight stigma among adolescent girls, prevalence of weight stigma among adolescent girls and perceptions of weight stigma.

2.2 Weight stigma: concept, definitions and dimensions.

This subsection comprised of the definition of stigma, the concepts underlying weight stigma, dimensions, sources and modes, and domains of weight stigma.

2.2.1 Definitions

Weight stigma is defined as "the social sign or label affixed to an individual who is the victim of prejudice" because of his or her weight, and having "negative attitudes and views towards others because of their weight" is referred to as weight bias (America & Zealand, 2021). In other words, the term "weight stigma" describes the prejudiced behaviors and attitudes that people experience as a result of their size and weight. Weight stigma is a result of weight bias (WHO, 2018).

One of the final forms of discrimination still permitted by society is the stigmatization of those who are overweight or fat (Vartanian et al., 2014).Weight stigma is defined as the social devaluation and denigration of people perceived to carry excess weight and leads to prejudice,

negative stereotyping and discrimination toward these people. In reality, there is more social acceptance of weight stigma. According to Tomiyama (2014b), the Department of Psychology at the University of California even refers to weight stigma as the last form of bias that is "acceptable" Weight-related stigma is described by the Institute of Psychology, Faculty of Social Sciences, University of Silesia, as the experience of verbal or physical abuse as a result of being overweight or obese (Jach & Kryston, 2021).

2.2.2 Dimension of weight stigma

Self-perception of being overweight triggers social rejection concerns and the internalization of weight stigma, which in turn induce psychological distress and negatively impact health-promoting lifestyle behaviors (Robinson et al., 2020). The persistent conviction that one is failing to meet social norms, including those related to what is viewed as an acceptable body, is deeply shaming and thus can contribute to a depressed mood. Shame is one of the most unpleasant, intense, and uncomfortable emotions, and when internalized, it is also a potentially depressing emotion (Brewis & Bruening, 2018). Recent data indicating that people who are overweight are perceived as less human and involved due to their higher body weight highlights the extent to which overweight is stigmatized (Robinson et al., 2020) Adolescents with excessive body weights are socially stigmatized, which exposes them to multiple forms of weight-related discrimination and mistreatment (such as teasing and rejection) (Brewis & Bruening, 2018). Negative perceptions of people due to their heavier weight or larger stature can be expressed through language, imagery, behavior, and policies (America & Zealand, 2021). Individuals with excess weight may internalize the stigma and acquire a negative body image if they experience long-term stigmatization in a variety of social circumstances (Jach & Kryston, 2021). A small but rising body of research from

the US demonstrates that people with larger bodies are less likely to be chosen as friends. This trend may be seen beginning in the schoolyard and continuing through adolescence and adult relationships, including romantic ones. In other words, body weight indicates various friendship options or choices (Brewis & Bruening, 2018).

2.2.3 Drivers and modes of weight stigma

Close relationship partners are found to be the most drivers of weight stigma (World Obesity Federation,2019). Youth with high body weight experience significant levels of weight stigma and are frequently the victims of bullying because of their weight from peers, parents and instructors (Puhl, 2020). A few examples of this stigma are bullying based on weight, disparaging remarks from peers, teachers and parents, aggressive behavior, and stereotyping (Uleanya et al., 2018)

2.2.4 Domains of weight stigma

There is ample proof of weight discrimination in a variety of spheres of life, such as employment (hiring, pay, promotions, and termination), health care, education, and the media (Tomiyama, 2014b). There has been evidence of discrimination against overweight people in a variety of contexts, including employment settings, hospital settings, and personal relationships (Vartanian et al., 2014). For instance, family members, partners, and academics may send out stigmatization signals (Jach & Kryston, 2021). An increased risk of bullying and social exclusion in schools exists for overweight and obese youth (Juvonen et al., 2017). These children are prone to negative attitudes in a variety of spheres of life, including schools, their homes, and interpersonal relationships, and are frequently the targets of bullying, prejudice, social exclusion, and teasing (Uleanya et al., 2018).

2.3 Prevalence of Weight Stigma among Overweight Adolescent Girls

In accordance with weight stigma, a strong and persistent culture of weight stigma exists. For instance, conclusive data shows that weight-related discrimination is more prevalent than prejudice based on race or ethnicity (Tomiyama et al., 2018). Even though being overweight was connected to instances of weight-related stigmatization, many females reported encountering it (Jach & Kryston, 2021). A thorough analysis of studies from the past two decades revealed that, in comparison to peers who are of normal weight, youth who are heavier (overweight or obese) frequently experience unfavorable stereotypes, social exclusion from their peers, and higher levels of depression (Juvonen et al., 2017).

According to a large sample of ethnically diverse adolescents, girls were more likely to be bullied for their weight or physical appearance than for their race or ethnicity, sexual orientation, or status as a person with a handicap in the USA. In recent prevalence estimates, between 25 and 50 percent of all adolescents have experienced bullying because of their weight, and between 13 and 32 percent of young people claim to have experienced weight-based discrimination (Puhl, 2020).

According to a study among two low-income countries (South Africa: 73.3%, Brazil: 92.6%), female adolescents have experienced stigma due to their weight (Kataria et al., 2022).(Klobodu et al., 2022) reported that, the prevalence of weight bias observed was 53%, indicating it is an issue of concern.

2.4 Risk Factors of Weight Stigma among Adolescent Girls.

It is more common for women and girls to experience fat stigma and weight discrimination. Significantly, more vulnerable to these techniques (Brewis, 2014).Women are frequently

stigmatized due to their prevalence in a multitude of contexts, including the workplace, the media, and intimate relationships, among others (Tomiyama et al., 2018).

Although it poses a serious danger to illness and mortality in adolescents ,being overweight is a behavior that is changeable (Lisa et al., 2018). Tomiyama *et al*, (2018) stated that the adverse effects of weight stigma may include all-cause mortality. In all scenarios, it seems that women and girls are more in danger.

According to several cross-sectional studies, stigma related to being overweight may contribute to depression, and bullying during childhood is a known lifetime risk factor for depression, with females again appearing to be more vulnerable (Brewis, 2014). Social interactions reduce the negative effects of body shame on depression at all stages of the school year. Young people who are overweight have more immediate negative effects on their mental health, such as depression. Body shame predicts the severity of depressive symptoms for all students over the course of the academic year, but overweight youth are at significantly higher risk (Brewis & Bruening, 2018).

2.4.1 Eating behaviors

Brewis, (2014) premise that stigma directly influences people's decisions of what, when, and how to eat, including risky methods of dieting, is supported by parallel findings from experimental and naturalistic investigations. Adolescents reported that when body weight was taken into account, girls were more likely to frequently diet. Research on decision-making and behavior, both quantitative and qualitative, indicates that people who believe others are criticizing their body size are less motivated to exercise (Brewis, 2014). Also, survey results demonstrate a link between feelings of weight stigma and exercise avoidance (Tomiyama et al., 2018).

2.4.2 Physiological wellbeing

Although middle school is a time when students must reestablish their social networks and concerns about fitting in grow, "fitting in" may be particularly challenging for overweight adolescents because social standing is connected with physical attractiveness. Several studies contend that the bullying, disdain, and marginalization that overweight adolescents frequently endure at the hands of their classmates is a contributing factor to their mental health issues (Juvonen et al., 2017).

Fourth, in accordance with research demonstrating that emotional adjustment and peer bullying based on weight are more strongly related to girls than boys. Our study shows that adolescents who are larger in the first year of middle school are more likely to encounter rude, excluding, and demeaning conduct from peers. As a result, by the end of middle school, they are experiencing greater levels of body insecurity, social anxiety, and loneliness. In addition, by the eighth grade, the prevalence of somatic symptoms was higher in girls who reported being bullied by their peers (Juvonen et al., 2017). According to studies, adolescent depression is predicted by body dissatisfaction and peer victimization. Given that relationships and marriages are created in this setting throughout late adolescence, depression among these young women may be substantially severe (Uleanya et al., 2018).

In contrast, girls were more frequently afflicted with anxiety than boys. This may be the outcome of weight-related stigmatization, discrimination, and taunting, which may be quite upsetting for the young girls, particularly during the adolescent stage of personality development when they are creating their sense of self. According to this study, which is in line with other studies, women's anxiety disorders may be more strongly correlated with obesity than men's (Uleanya et al., 2018).

According to sex and pubertal state, the literature has frequently shown a correlation between overweight and self-esteem, showing that pubertal females have higher levels of negative self-esteem. This finding is therefore confirmed (Uleanya et al., 2018).

2.4.3 Physical health

According to studies, physical education (PE) settings already include discriminatory incidents that stigmatize people who are overweight. PE instructors frequently treat overweight students differently from those who are of normal weight. Not to mention, children who are overweight typically have a harder time finding playmates than kids who are of normal weight (Thiel et al., 2020). At the formative stage, where peer attachments perform crucial developmental tasks, adolescents who are worried about being rejected by their peers and feeling alone may purposefully retreat from social events and circumstances. Given the data indicating that being socially isolated from peers in early adolescence is linked to more severe physical health issues by early adulthood (Juvonen et al., 2017).Research that is currently available implies that encounters with weight stigma may be demotivating. To the degree that weight stigma makes it less likely for people to adopt effective weight-management practices (Vartanian et al., 2014)

2.4.4 Body shaming or Body dissatisfaction

Internalized weight prejudice and body image avoidance have been linked in existing literature. Adolescents who are overweight are more likely to develop eating disorders because they are unhappy with their appearances (Marshall et al., 2020). Binge eating, which is by itself a risk factor

for weight gain, has been linked in several cross-sectional studies to feelings of body dissatisfaction (Sonneville et al., 2013)

This is similar to what Bodiba found. Yet, this might have occurred as a result of them becoming more aware of their bodies and shapes in late adolescence. Social exclusion, bullying based on weight, body dissatisfaction, and body-based mockery may all occur at this point. Again, this must be the result of poor body image and unhappiness with one's looks caused by bullying based on weight, insults from peers, teachers, and parents, violent behavior, and stereotyping (Uleanya et al., 2018).

2.4.5 Internalized weight stigma

It is hypothesized that those who identify as overweight suffer from the pervasive and socially acceptable stigmatization of a heavier body weight. Individuals who label themselves as "overweight" are aware that they have a trait that is stigmatized by society, and this awareness may have a negative impact on their physical and mental well-being. Research employing this paradigm has revealed that making participant feel overweight worsens self-control, increases negative effect, and, in four out of five experiments, increased negative effects (Robinson et al., 2020).

Also, other studies have shown a significant, favorable correlation between IWB and the desire to be skinny (Gitau et al., 2014). An important behavioral manifestation of body image disturbance that, according to past research, is positively correlated with IWB is body image avoidance (Marshall et al., 2020)

2.5 Perceptions of Weight Stigma.

Adolescent weight and its complexities have gotten less attention, the social environment permits weight-related stigma and body shame, which makes losing weight difficult (Brewis & Bruening, 2018). There are widespread beliefs that stigmatizing people for their weight is appropriate (and

maybe necessary) since overweight people are personally responsible for their weight, and that stigma may even be a valuable tool for encouraging overweight people to embrace healthier lifestyle behaviors (Puhl & Heuer, 2010).

Weight stigma is the moral devaluation or "social death" that people go through as a result of the unfavorable societal connotations associated with being overweight or obese. Typical descriptors include inability to comply, lack of intelligence, poor will, dishonesty, and laziness (Brewis, 2014). Since obesity is frequently viewed as a sign of lack of self-discipline, incompetence, laziness, and sloppiness, adolescents who are overweight or obese may be more likely to experience bullying for their physical appearance (Koyanagi et al., 2020). Contrarily, to that claim. The belief that stigmatizing people who are overweight and using social pressure to encourage weight loss is beneficial to public health is shared by certain medical ethicists and common knowledge.

According to the most recent scientific findings, weight stigma can cause physiological and behavioral changes that are connected to poor metabolic health and increased weight gain (Tomiyama et al., 2018). Weight stigma is likely to drive weight gain and poor health. Reviews indicate that people who are obese have fewer friends overall and less social support within their networks (Brewis, 2014). Individuals with stigmatizing diseases that received high ratings for personal responsibility, such as obesity and drug addiction, were despised, elicited little sympathy and a lot of wrath, and had poor ratings for helping tendencies (Puhl & Heuer, 2010).

CHAPTER THREE

3.0 METHODS

3.1 Introduction

This chapter describes how the study was carried out. It describes the study area, study design, sampling procedure, sample size determination, data collection techniques and tools, data analysis and ethical consideration and confidentiality.

3.2 Study Area

One of the twenty-two (22) districts in the Western Region is the Sekondi-Takoradi Metropolis. It is situated in the southernmost part of the Western Region. Shama District and Ahanta West District form the eastern and western boundaries of the Metropolis, respectively. The Atlantic Ocean is to the south, and the Mpohor-Wassa East District is to the north. Sekondi-Takoradi serves as the regional administrative center and the capital of the Metropolis, which has a total land area of 191.7 km2s. Shama District and Ahanta West District form the eastern and western boundaries of the Metropolis, respectively. The Sekondi-Takoradi Metropolis is the most urbanized of the 22 districts in the area, although it is the smallest in terms of land area. Four (4) sub-metros, Sekondi, Takoradi, Effia-Kwesimintsim, and Essikado-Ketan, make up the Metropolis.

From the 2020 population census, the region's population is 2,060,585 with male and female population of 1,045,227 and 1,015,358 respectively. Sekondi-Takoradi Metropolitan is an urban setting with a population estimate of about 245,382. This reflects the fact that most of the populace resides in urban communities. About 63.9% of the population is economically active, with 89.1% employed and 10.9% unemployed. Although the Metropolis has coastal and fertile land where

skilled agriculture and fisheries could be a source of employment, only 6.2% of males and 4.2% of females are in this sector. Almost half (47.2%) of the working population are self-employed without employees, and almost 70% of the working population are in the private informal sector, with the private formal sector accounting for 15.3% followed by the public sector 14.1% (Ghana Statistical Service, 2014). The economy is driven by the service sector, which includes the following services: shipping/forwarding, Hotel/Hostel/Restaurant, Bulk Oil Storage and Distribution, Transportation services, Harbor and Port services, and Commerce.

(Basic District Profile - 2020 / 2021 School Year Data) recorded that the Metropolis has 99 public Junior High Schools and 59 private Junior High School with overall school enrollment of 26,353 for both public and private for Junior High School. With 7795 female students enrolled in public Junior High School and 1446 in private Junior High School respectively.

There are 10 public, 10 private, and 3 technical and vocational Senior high schools in Sekondi-Takoradi Metropolis as recorded by *SHS / GES (TVET) District Parameters - 2019 / 2020 School Year Data*. Overall enrollment of girls in Senior high school is 14,202. Public schools of female enrollment of 14,192, TVET 0, and private schools 10, as recorded by the (*SHS/GES(TVET) District Profle-2019/2020*, 2021)

3.3 Study Design

The study used a cross-sectional design to examine weight stigma among in –school adolescent girls in Sekondi-Takoradi Metropolis. It offered a rapid and simple data collection strategy with

regards to the limited time allocated for the study to take place. In accordance with the study's defined objectives, this design offers a way to gather the data needed for analysis.

3.4 Study Population

The study population was in-school adolescent girls aged 12-19 years in the Sekondi-Takoradi Metropolis. Students in the Junior High and Senior High school of both private and public schools were my study participants.

3.4.1 Inclusion Criteria

Adolescent girls, aged 12-19 years attending private and public Junior and Senior High schools in Sekondi-Takoradi Metropolis who were overweight (BMI 25-<30) and indicated their willingness to participate in the study after being explained the details and procedure of the study.

3.4.2 Exclusion Criteria

Adolescent girls 12-19 years who met the inclusion criteria but had any physical or mental deformity that would interfere with anthropometric measurements, Body Mass Index (BMI) and accurate responses to the questions being asked.

3.5 Sample Size Calculation

Sample size for the study was calculated using the Cochran's formula. This was based on prevalence of weight stigma among youth 13-32% by (Puhl, 2020) an expected prevalence of weight stigma was set at 13% and margin of error set at 5% for the entire metropolis.

Sample size (n) was calculated based on the following values:

- Expected prevalence= 13%
- Z= 1.96 at 95% confidence interval
- d=margin of error of 5%
- Addition of 10% minimum sample size (n) to correct for non-response rate

$$n= (z^2pq)/d^2): n= \frac{1.96^2 *0.13*0.87}{0.05^2}=174$$

The estimated sample size at a 95% confidence level was 174. The overall sample size required for the study was 191 students, assuming a non-response rate of 10% (=17.4) students.

3.6 Sampling Procedure

The study made use of a multi-stage stratified sampling strategy. The study population was in-school adolescent girls aged 12-19 years in the Sekondi-Takoradi Metropolis, attending private and public Junior and Senior High schools who were overweight (BMI 25->30) and indicated their willingness to participate in the study after being explained the details and procedure of the study.

The Metro Directorate of Education provided a list of junior and senior high schools in the Sekondi-Takoradi Metropolis. Prior to the start of the study, it was decided to replace schools that declined to participate in the study by another school with similar administrative type in terms of student enrollment.

The schools were then stratified into public and private institutions. From the total number of schools (public Junior High School 99 and private Junior High School 59) and (public SHS 10, TVET 3, and private SHS 10) registered and accredited in the Metropolis.

Random sampling technique such as a random generating number was used to select the schools. 4 Junior high schools (2 private and 2 public) and 4 Senior high schools (2 private and 2 public) were chosen out of the list of schools provided by the Metro Directorate of Education.

Considering the enrollment differences between public and private schools for both Junior and Senior High, the public had 60 students in each class compared to the private schools minimum of 36 students in a class. To enable the selection of a representative sample from each school, the streams from JHS 1, 2, and 3 as well as SHS 1, 2, and 3 were used and had to be combined.

Senior high schools offering various courses where adolescent girls were mostly found was the Home Economics, General Arts and Science departments.

In the various classes, adolescent girls were approached if they appeared to be overweight to the researcher and discreetly invited to participate in the study. Class registers were used to validate their ages (12-19 years) to be included in the study. Anthropometric measurements including weight and height was done and recorded, Body Mass Index (BMI) was calculated using the weight and height measurement. After the BMI calculation, and an adolescent girl of ages 12-19

years fall within the category for overweight (BMI 25->30) is included in the study after having had explanation of the study procedures and shown willingness to participate in the study. This procedure was used in the various classes and in the selected schools until the required sample size for the study (200) was obtained.

3.7 Data Collection Instruments:

In collecting data, three instruments were be utilized

3.7.1 A structured questionnaire

Adolescent girls who agreed to participate in the study were asked to complete a standardized questionnaire to collect the pertinent data needed to satisfy the study's objectives. The questionnaire was divided into three main sections, A to C, asking for details on sociodemographic background information. Weight stigma assessment and anthropometric measurements. The information gathered comprised the following: name of school, type of school, sex, completed age (years), educational attainment of both parents, occupations of both parents, type of housing, and residence location.

3.7.1.2 Anthropometric measurements

On the questionnaire, anthropometric measures of height (in centimeters) and weight (in kilograms) were taken. All measurements were performed on adolescents when they were in their regular school uniform, wearing shoes, no other bulky clothes, such as a jacket or sweater,

and emptying their pockets. The WHO's recommended method was used for this measurement. The lead researcher and another research assistant received training to measure the students' bodies.

Weight measurement: A seca weighing scale was used to estimate body weight to the nearest 0.1 kg. The reading was obtained and recorded on each questionnaire while each student stood steady on the scale with their feet slightly apart.

Using a portable stadiometer, height was measured to the nearest 0.5 cm. The stadiometer was to be touched by the back of each student's head, shoulder blade, back buttocks, calf, and heels while they stood upright with their feet together. The head was positioned parallel to the board. At eye level, the reading was taken and recorded. A head board was placed firmly and gently on top of each student's head after they were instructed to take a deep breath.

3.7.1.3 Weight Stigma Assessment

To determine the prevalence of weight stigma among overweight adolescent girls, a questionnaire adapted from the Universal Measure of Bias-Fat Scale, Beliefs about Obese Person (BAOP) scale, and Anti-Fat Attitude Questionnaire (AFA) was used.

3.7.1.4 Perceptions of Weight stigma

Qualitative data collection techniques were utilized to unearth the perceptions related to weight stigma. Study participants were selected using purposive sampling. In-school adolescent girls were approached if they appeared to be overweight to the researcher, discreetly invited to participate in the study after meeting the inclusion criteria of the study. 200 in-school overweight adolescent girls aged 15-19 years were sampled. Face to face in-depth interviews were conducted

using semi-structured, open-ended questionnaire. There was no record of drop-out or refusal to participate in the study. Interviews lasted for 45 minutes each.

3.8 Training of Research Assistants

The research assistants received two days of instruction. Giving them the prerequisite skills they need to do their task is the training's goal. The lead investigator conducted the training. The training's curriculum included a thorough explanation of the study's major concepts and methodology. The following subjects were discussed:

- Study's objectives
- Ethical Concerns
- Interviewing techniques and information gathering from research participants
- Proper translation of the survey into their native languages (Fante and Twi)
- Training on how to accurately measure weight and height using the weighing scale (Seca), the stadiometer, and the responses from the questionnaire's parts

3.9 Data Quality Control

Two schools that weren't among the chosen schools had pre-testing conducted there. Students in junior high and senior high schools between the ages of 12 and 19 were given questionnaires. To ensure clarity and dependability of responses, certain questions in the questionnaire were removed and others were amended. While conducting interviews, the research assistant was continuously supervised. To guarantee that all the information had been properly gathered and the questionnaires had been appropriately completed, the collected data was regularly verified given.

To ensure clarity and dependability of responses, certain questions in the questionnaire were removed and others were amended. While conducting interviews, the research assistant was continuously supervised. To guarantee that all the information had been properly gathered and the questionnaires had been appropriately completed, the collected data was regularly verified. Every morning, prior to the start of the weighing, the scales were checked and adjusted.

3.10 Ethical Considerations

Ethical approval was obtained from the 37 Military Hospital Institutional Review Board. Before making any personal contact with the students, approval was obtained from the Ghana Education Service Metropolitan Education Director and the heads of the chosen schools. The students, adolescent girls between the ages of 12 and 17, were given consent forms to take home and ask permission from their parents to participate in the study. These forms included information about the study's goals, methods, confidentiality, benefits, and voluntary nature. In order for their wards to take part in the study, parents and guardians had to complete a supplementary consent form as well. Before participating in the study, each student was required to sign or thumbprint an assent form after parental agreement. The only participants in the study were students who had both their own consent and parental or guardian consent. The students (adolescent girls, ages 18–19) agreement was also requested once the study's objectives, protocols, confidentiality, advantages, and voluntary nature had been explained. The adolescent girls who participated in the study gained knowledge about their nutritional status (overweight), the risk factors for weight stigma (mental and physical health), and the most effective ways to address this issue, especially in the school setting. Students' participation in this study entailed no risks. When taking part in this study, participants didn't skip any lectures, assignments, or tests.

When they felt uncomfortable, students could leave the study at any time. Participants' personal information was protected during interviews in terms of privacy and confidentiality. Codes on the questionnaires used to identify the participants were stored electronically on a password-protected computer and in hard copies, with only the researcher having access. The dissemination of the study's findings was done in a way that prevented participants' identities from being linked to any data.

3.10.1 Confidentiality

To make sure that study participants were at ease enough to give candid responses to the questions posed, interviews with each student were conducted concurrently but separately. As much as possible, the research assistant conducted interviews at a distance from other students.

3.11 Actual data collection

Between December 2022 and January 2023, data was gathered from students and teachers at all eight of the chosen schools. According to timetables and dates decided upon with the heads of institutions and the principal investigator, the study team went from one school to the next. At their school, 200 students were questioned and had their bodies measured. The crew had to divide into two to tour other schools on the same day because vacation day was drawing near. The length of student interviews ranged from 25 to 50 minutes.

3.12 Study Variables

3.12.1 Dependent variable

The primary dependent variable is weight stigma among adolescent girls aged 12 to 19.

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3.11.2 Independent variables.

This includes:

- ✓ Individual factors: (age, gender, Body Mass Index (BMI) category for overweight (25-<30), type of school and educational level).
- ✓ Socio-cultural factors: (societal norms and media representation).
- ✓ Psychological factors: (depression, anxiety, low-self-esteem, internalized weight stigma).
- ✓ Physical factor: (less physical activity)
- ✓ Interpersonal factors: (social isolation and rejection, unbalanced social relationships)
- ✓ Institutional factors: (weight stigma from peers and teachers in the school setting)

3.12 Data Processing and Analysis

Data was entered in Microsoft Excel 2016 and exported into STATA version 16 for analysis. Descriptive statistics such as means and standard deviation were used to summarise continuous variables, while frequencies and percentages were used to summarise categorical variables. Participants' height in meters squared and weight in kilograms were used to estimate their BMI score. The absolute scores of the participants were used to categorize their nutritional status based on the WHO cut-off points (25-29.99 = overweight). For the purpose of this study, all participants had BMI score 25-29.99 and were categorized as overweight and presented using

simple proportion. Weight stigma were categorized into ever stigmatized and never stigmatized. Participants with experience of weight stigma was coded one (I), and those with no such experience was coded zero (0). Hence, percentages were used to report the prevalence of weight stigma to complete the analysis for objective one.

Also, perceptions of weight stigma were assessed using themes and reported using frequencies. Linear logistic regression analysis were also done to assess the factors associated with weight stigma. P-value less than 0.05 were considered statistically significant. Logistic regression analysis was also used to assess strength of association between weight stigma and selected categorical variables.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter presents the results of the study. These results are presented based on the objectives of the study preceded by Socio-demographic characteristics of study participants.

4.2 Socio-Demographic Characteristics

Table 4.1 provides a description of the study participants' background characteristics. A total of 200 participants were interviewed. Out of this, 120 were enrolled in public schools, while 80 were in private schools. The mean age of the participants was (15.30 ± 2.04) years, with those in the private schools being about one year younger than their counterparts in the public schools. Most participants were either in early adolescence (41.5%) or middle adolescence (43.5%) with the remaining (15%) in late adolescence.

Table 4.1: Socio-Demographic Characteristics of Study Participants (N=200)

Variables	Public School (n=120) n (%)	Private School (n=80) n (%)	Total (N=200) n (%)
Age Categories			
10-14 years	39 (32.50)	44 (55.00)	83 (41.50)
15-17 years	59 (49.20)	28 (35.00)	87 (43.50)
18-19 years	22 (18.30)	8 (10.00)	30 (15.00)
BMI Classification			
Overweight	120 (100.00)	80 (100.00)	200 (100.00)
Educational Level			
JHS	59 (49.20)	52 (65.00)	111 (55.50)
SHS	61 (50.80)	28 (35.00)	89 (44.50)
Mother's Occupation			
Not Employed	5 (4.20)	9 (11.30)	14 (7.00)
Informal Employment	109 (90.80)	42 (52.50)	151 (75.50)
Formal Employment	6 (5.00)	29 (36.30)	35 (17.50)
Mother's Education			
No Formal Education	20 (16.70)	22 (27.50)	42 (21.00)
Primary	58 (48.30)	8 (10.00)	66 (33.10)
Secondary	34 (28.30)	25 (31.30)	59 29.50)
Tertiary	4 (3.30)	22 (27.50)	26 (13.00)
Vocational	4 (3.30)	3 (3.80)	7 (3.50)
Father's Occupation			
Not Employed	19 (15.80)	6 (7.50)	25 (12.50)
Informal Employment	73 (60.80)	29 (36.30)	102 (51.00)
Formal Employment	28 (23.30)	45 (56.30)	73 (36.50)
Father's Education			
No Formal Education	25 (20.80)	19 (23.80)	44 (22.00)
Primary	34 (28.30)	7 (8.80)	41 (20.50)
Secondary	43 (35.80)	16 (20.00)	59 (29.50)
Tertiary	17 (14.20)	36 (45.00)	53 (26.50)
Vocational	1 (0.80)	2 (2.50)	3 (1.50)

Table 4.1 Continued: Socio-Demographic Characteristics of Study Participants (N=200)

Variables	Public School (n=120) n (%)	Private School (n=80) n (%)	Total (N=200) n (%)
Type of Housing			
Own House	35 (29.20)	48 (60.00)	83 (41.50)
Rented House	52 (43.30)	19 (23.80)	71 (35.50)
Family	31 (25.80)	12 (15.00)	43 (21.50)
Government / Company	2 (1.70)	1 (1.30)	3 (1.50)
Location			
Peri-Urban	33 (27.50)	30 (37.50)	63 (31.50)
Urban	87 (72.50)	50 (62.50)	137 (68.50)

4.3 Prevalence of Weight Stigma

Figure 4.1 illustrates the prevalence of weight stigma among the study participants. The majority of the study participants have ever experienced some sort of weight stigma, with an overall prevalence of (73%) reported for both Junior and Senior High Schools respectively. In the Public school, (77.5%) of the adolescent girls reported to have been ever stigmatized due to the weight and (66.2%) in the Private schools

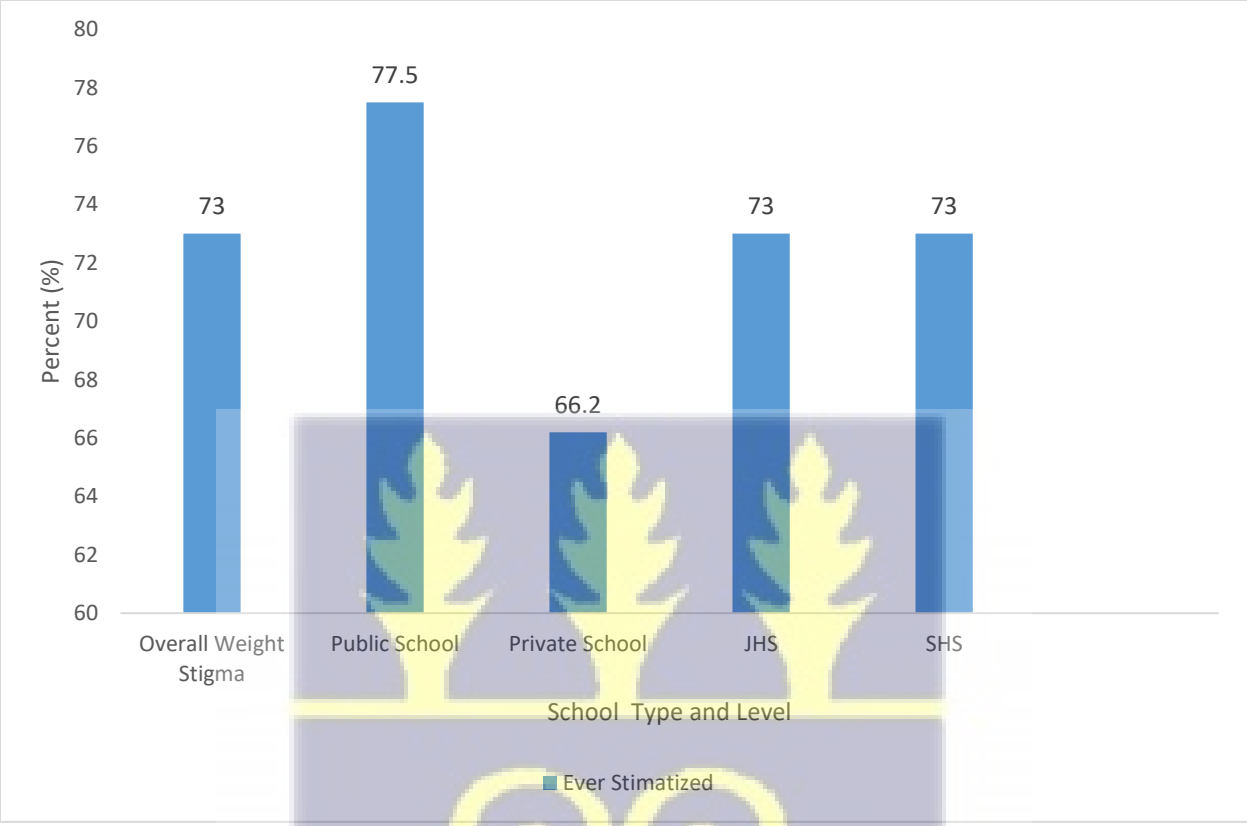

Figure 4.1: Prevalence of weight stigma stratified by school type, educational level and overall prevalence

4.3.1 Sources, Mode and Location of Weight Stigma.

This section highlights on sources of weight stigma, mode of weight stigma and location of weight stigma.

The majority were sometimes stigmatized by peers (44%) and multiple sources (21%). The major mode of weight stigma sometimes reported was verbal (58%) and multiple modes (7%). Sometimes, weight stigma mostly occur in school (32.5%) as well as higher proportions of the girls experience weight stigma at multiple locations (30%).

Table 4.2: Distribution of the source, mode and location of weight stigma among study participants

Variables	Total (n=200)	Never (n=54) n (%)	Sometimes (n =146) n(%)
Source of stigmatization			
None	54	54 (27%)	0(0)
Parent	5	0(0)	5(2.5%)
Peers	88	0(0)	88 (44%)
Siblings	9	0(0)	9 (4.5%)
Teachers	2	0(0)	2 (1%)
Multiple sources (parents & peers, parents &siblings, peers &teachers,parents,peers and teachers)	42	0(0)	42 (21%)
Mode of stigmatization			
None	54	54 (27%)	0(0)
Verbal	116	0(0)	116 (58%)
Body language	8	0(0)	8 (4%)
Physical Abuse	8	0(0)	8 (4%)
Multiple modes (verbal and body language, verbal and physical abuse,verbal,body language and physical abuse)	14	0(0)	14 (7%)
Location of stigmatization			
None	54	54(27%)	0(0)
Home	16	0(0)	16 (8%)
School	65	0(0)	65 (32.5%)
Public	3	0(0)	3 (1.5%)
Church	2	0(0)	2 (1%)
Multiple locations(home& school,home&public,school&public,school&church, Home&church)	60	0(0)	60 (30%)

4.4 Weight Stigma Experience Of Girls In The Past 12 Months.

This section highlights the results of weight stigma experience of the girls in the past 12 months. Table 4.5 shows the weight stigma experience by overweight adolescent girls. (18%) sometimes felt lonely because of being stigmatized due to their body weight. One third (33.0%) of the girls sometimes felt worried about being stigmatized because of their body weight. Adolescent girls reported feeling sad or hopeless almost every day for two weeks because of being stigmatized due to their body weight (21.5%).

Table 4.5: Frequency of weight stigma experience

Variables	Frequency	Percentage
Felt lonely because of weight stigmatization?		
Never	153	76.5
Rarely	2	1.0
Sometimes	36	18.0
Most of the time	4	2.0
Always	5	2.5
Worried about being stigmatized?		
Never	125	62.5
Rarely	0	0.0
Sometimes	66	33.0
Most of the time	1	0.5
Always	8	4.0
Felt so sad or hopeless almost every day because of being stigmatized due to your body weight?		
Yes	43	21.5
No	157	78.5

4.5 Perceptions of Weight Stigma among Overweight Adolescent Girls.

4.5.1 Perceptions of Weight Stigma.

This is a sub-section focusing on the perceptions of weight stigma among overweight adolescent girls. Themes emerging from the study results comprise: negative stereotypes, positive attributes, weight control measures, natural (hereditary), unnatural (eating habits) and diseases (hypertension and stroke).

Most of the participants in the study (50) said weight stigma is directed at overweight people because they are somehow useless and less active. Here is a quote from an interview participant describing her view regarding why people stigmatize overweight people:

"People do that to us because they think we cannot control our self so to make us active and that we are lazy that is why we are fat" (WSS 056).

According to the study participants (20), they also mentioned that people do that out of envy and jealousy, especially when the mode of the weight stigma is not a verbal comment but a body language or gesture such as eye rolling:

"Because they are jealous of our beauty and greedy of us that we are growing bigger than them" (WSS 123)

Also, 10 participants highlighted that overweight people are seen as abnormal or ugly people. Here are some quotes from a respondent describing her view on why she thinks people stigmatize her, especially with verbal comments such as "you are too fat ".

"Sometimes, because they have not been in our shoes or they think being fat is disgusting. Is like God did not create as well" (WSS 013)

"Skinny people are perceived to have nice bodies so if are fat, you are ugly and it is funny with big tummy" (WSS 156)

Society's perceptions of ideal body size (30), also featured as being slim, are the ideal body size, so people stigmatize overweight people with various modes (verbal comment, body language, or gesture) to bring to their attention that they need to work on their body size and want overweight people to be slim:

"This is because they want everyone to become skinny but not everyone is the same and to me it does not make any sense to make mockery out of us" (WSS125)

"Sometimes they do that jokingly to bring the one being bullied attention to the fact that he/she is oversized and needs to work on it" (WSS 093)

"This is because society has normalized being skinny as a beauty standard hence people who are out of that league are bullied and stigmatized" (WSS 08)

Also, respondents (15) who mentioned that they were never stigmatized for the past month also shared their belief that it is a source of motivation for overweight people to engage in physical activity, such as exercise so in a way, it is a good habit. Here is a quote from one of the participants:

"Everybody says being fat is not good and when you are fat you cannot go anywhere unless you do exercise. So it is good for people to say you are too fat so that they will be doing some exercises everyday" (WSS 020)

Respondents (30) also shared their thought about overweight in relation to weight stigma. Here is a quote from the study participants:

"Overweight is hereditary so people should be not blamed for their body size" (WSS 065)

"Overweight is fat and is not good for the body, it sometimes gives pressure and early stroke" (WSS 073). A statement from one of the study participants (25)

Another respondent mentioned (20) that "*being overweight is all about eating a lot of food or being obsessed with food so teasing overweight person will help them change their eating habits" (WSS 087).*

4.6 Risk Factors of Weight Stigma

Table 4.3 reveals that there is no association between weight stigma and selected variables such as age category, educational level and school type in this study.

Table 4.3. Association between weight stigma prevalence and selected variables

Variables	Never Stigmatized (n=54) n (%)	Ever Stigmatized (n=146) n (%)	Total (N=200) n (%)	P-Value
Age Categories				0.99
10-14 years	23 (42.60)	60 (41.10)	83 (41.50)	
15-17 years	21 (38.90)	66 (45.20)	87 (43.50)	
18-19 years	10 (18.50)	20 (13.70)	30 (15.00)	
Educational Level				0.99
JHS	30 (55.60)	81 (55.50)	111 (55.50)	
SHS	24 (44.40)	65 (44.50)	89 (44.50)	
School Type				0.08
Public	27 (50.00)	93 (63.70)	120 (60.00)	
Private	27 (50.00)	53 (36.30)	80 (40.00)	

4.6.2 Regression Analysis on Prevalence of Weight Stigma

The table 4.4 shows that the odds of ever experiencing weight stigma is 3.027 times higher in a public school than in a private school, 95% CI of 1.385 to 6.615. In early adolescence, the odds of ever experiencing weight stigma is 1.940 times higher than other age category, 95% CI of 0.372 to 10.114

Table 4.4: Logistic Regression analysis of age, school type and educational level on the prevalence of weight stigma (ever stigmatized).

Variables	Ever stigmatized		
	Odds Ratio	(95% CI)	
School Category (JHS)	0.810	0.237	2.768
School Type (Public)	3.027	1.385	6.615
10-14 years	1.940	0.372	10.114
15-17 years	1.800	0.567	5.709
18-19 years	0.6011	0.299	1.631

CHAPTER FIVE

5.0 DISCUSSION

The objective of the study was to determine the prevalence, risk factors and perceptions of weight stigma among overweight in-school adolescent girls in the Sekondi-Takoradi Metropolis. This chapter provides a thorough overview of the study's findings, which are arranged according to the study's goals:

- Prevalence of weight stigma among overweight adolescent girls.
- Perceptions and knowledge about weight stigma among overweight adolescent girls.
- Risk factors associated with weight sigma among overweight adolescent girls.

5.1 Prevalence of Weight Stigma among Overweight Adolescent Girls

This study result recorded a prevalence of weight stigma (73%) among adolescent girls. According to a study among two low- and middle-income countries, stigmatization of overweight female adolescents has been documented in South Africa (73.3%) and Brazil (92.6%) (Kataria et al., 2022).In other studies, 71% of adolescents reported experiencing bullying because of their weight in the previous year (Statement, 2017). This can be explained by a recent analysis of a study involving young people in underdeveloped countries which found that the prevalence of overweight was as high as 28.8% (Tuoyire, 2020). Compared to more developed nations, developing countries are witnessing some of the most significant increases in the number of people affected by overweight and obesity, despite the fact that the problem is becoming more widespread worldwide (Chooi et al., 2019). In other studies establishing the fact that being overweight predisposes one to weight stigma among adolescent girls (Haqq et al., 2021).

In this present study, the prevalence of weight stigma among adolescent girls in both JHS and SHS was 73 %. This finding can be explained by a study by (Juvonen et al., 2017) which shows that, starting from elementary school, overweight adolescent girls are more likely to be rejected by peers than those of normal weight. During the beginning of puberty, concerns about peer approval increase, and beauty norms become more significant to young individuals.

5.1.1 Sources, Mode and Location of Weight Stigma.

Adolescent weight-based victimization (WBV), including those in young populations who are most susceptible to these events and the most prevalent interpersonal sources of WBV (peers, family members, and teachers (Puhl, 2020) explained the study results as reported by peers (44%), siblings (4.5%) and teachers (1%).

Weight bias among educators has also been shown in the literature. From a recent survey of middle and high school teachers in the US (N = 246), more than half supported the notion that people who are overweight are "slow" and "lack endurance." They themselves clearly realize such an overt weight bias. Adolescent females who are overweight do, in fact, say that their physical education (PE) teachers make them feel ignored and unsupported (Puhl, 2020) describing the result in this study as teachers being one of the main source of weight stigma.

In this present study, it was reported that peers (44%) are the main sources of weight stigma among adolescent girls. This finding can be explained by a study by (Juvonen et al., 2017) which shows that, starting from basic school, overweight adolescent girls are more likely to be rejected by peers than those of normal weight. During the beginning of puberty, concerns about peer approval increase, and beauty norms become more significant to young individuals

From the study, it was recorded that siblings (4.5%) are one of the major sources of weight stigma. About half (54.6%) of adolescents in the USA who identify as LGBTQ (lesbian, gay, bisexual, questioning, or transgender) reported experiencing weight-related teasing or made fun of from family members. Parents (2.5 %), are also a source of weight stigma. This clarifies the finding in this study as similar to a study conducted by (Statement, 2017), which reported that it is concerning because parents have also been implicated in weight-based victimization of overweight adolescents. In a survey of adolescents attending weight-loss camps, 37% said their parents had ridiculed or made fun of them for being overweight. The primary cause of youth's weight stigma has been identified as parents reported by another study by (Puhl, 2020)

From the results in this study recording verbal comments (58 %) and multiple modes (7%). This finding is similar to this study which describes that multiple modes and also verbal comments are the major modes of weight stigma. According to our study's finding regarding the most common form of bullying, adolescents who are overweight or obese are more likely to experience verbal bullying than physical or relational bullying. This is consistent with earlier studies that discovered that verbal bullying in young people are not the only mode of weight stigma and that are related. Specifically, being made fun of for one's appearance (Koyanagi et al., 2020).

The study findings recorded that a higher proportion of the adolescent girls experienced weight stigma at school setting (32.5 %) and multiple locations (30 %). Explaining the study results ,they are prone to negative views in a variety of spheres of life, including schools, their homes, and interpersonal interactions, and are frequently the targets of bullying, prejudice, social exclusion, and taunting (Uleanya et al., 2018). This also describes the study findings by (Nutter et al., 2019) among a sample of adolescents with obesity, 71% indicated experiencing weight-based

victimization (e.g., teasing) at school within the previous year. Adolescents who are overweight are at an elevated risk for being bullied social marginalization in school.

5.2 Perceptions about Weight Stigma among Overweight Adolescent Girls.

This forms the qualitative aspect of the study using themes to explore the perceptions of weight stigma among overweight adolescent girls.

5.2.1 Perceptions of Weight Stigma.

The emerging themes from the perceptions includes: negative stereotype, positive attributes, weight control measures, natural factor (hereditary), disease (hypertension and stroke) and unnatural factor (eating habits).

The study revealed that, the majority of the participants stated that weight stigma is done towards overweight people because they think they are 'useless' and less active emerging from the theme negative stereotype. This can be explained by (Tomiyama, 2014b) who states that overweight individuals are negatively stereotyped, and commonly perceived as lazy, lacking in willpower and control. They are perceived by individuals and society as being lazy and sloppy people, lacking the willpower and self-discipline which is why they are overweight (Almutairi et al., 2021). Research in psychology consistently demonstrates that overweight persons are stigmatized because their weight is perceived to be caused by factors within personal control (e.g., overeating and lack of exercise) (Puhl & Heuer, 2010).

Another emerging theme was positive attributes. In some African cultures, being overweight is associated with positive attributes. Leanness is not necessarily viewed as attractive in South

African women; instead, being plump (overweight) is viewed as attractive, healthy, having a higher social position, and showing "excellent" parental care for overweight children. (Gitau et al., 2014).Similarly, in the context of a country like Ghana, growing big or fat is known as a sign of wealth and good living, so if an adolescent girl becomes big or fat and is stigmatized by people, especially when it is not a verbal comment but by a body language such as eye rolling, then that person is jealous or envious of them:

Because they are jealous of our beauty and greedy of us that we are growing bigger than them (WSS 123)

Weight stigma as a weight control measure was also featured in the study results as a theme. In fact, some have proposed using weight stigma to combat overweight , even suggesting that it could be a valuable strategy for encouraging overweight people to adopt healthier lifestyle habits (Puhl & Heuer, 2010). Consequently, empirical data supports the notion of using the stigma associated with obesity as a motivator for weight loss among those who are obese (Brown et al., 2022).This describes the study findings: *Sometimes they do that jokingly to bring the one being bullied attention to the fact that he/she is oversized and needs to work on it (WSS 093).*

From the study, respondents provided a variety of natural (hereditary) and unnatural (eating habits) reasons why adolescent girls become overweight and, as a result, are stigmatized based on their body weight. According to the in-depth interview, being overweight among some women is an inherited condition. In making a case for heredity, it was mentioned by the participants that some women were overweight because being overweight was part of their families. Based on this knowledge, the weight gained by such women is considered “natural.” Some even stated that “nothing can be done about it” when overweight is inherited, so people should be stigmatized or blamed for it (Aryeetey, 2016) .This explains the finding of this study.

Overweight is hereditary so people should be not blamed for their body size (WSS 065)

Being overweight was also linked with an increased risk of disease. In particular, high blood pressure and stroke were mentioned as outcomes of being overweight, and due to that, women who are overweight are stigmatized (Aryeetey, 2016). When individuals or groups are held accountable for their illnesses because they are seen as immoral, filthy, or indolent, disease stigma occurs (Puhl & Heuer, 2010).This describes this study finding from a quote of the respondents:

Overweight is fat and is not good for the body, it sometimes gives pressure and early stroke (WSS 073).

The perception that diet plays a role in being overweight was also widely held by the IDI respondents. The association between diet and overweight was explained in terms of the types of foods that adolescent girls ate and also their eating habits and patterns (Aryeetey, 2016). Research in psychology consistently demonstrates that obese people are stigmatized because their weight is perceived to be caused by factors within personal control (e.g., overeating) (Puhl & Heuer, 2010) .This is similar to the finding in this study: *Being overweight is all about eating a lot of food or being obsessed with food so teasing overweight person will help them change their eating habits (WSS 087).*

5.3 Risk Factors Associated With Weight Stigma among Overweight Adolescent Girls

According to the study results, adolescent girls 10-14 years are more likely to experience weight stigma. This can be explained by the fact that concerns about peer approval are heightened and appearance norms are increasingly important for young people during the onset of puberty, as well

as the fact that adolescent girls who are overweight are less liked and are more rejected by friends than girls with normal body weight (Juvonen et al., 2017).

Findings from the study reported that adolescent girls in the public schools are more likely to experience weight stigma. This can be described as overweight being seen as a condition among the rich, but things have changed and it can be found more among the poor with the fact that being overweight predisposes one to being stigmatized due to their weight looking at the income levels among study participants in the public schools which is linked to overweight.

From the study results, 18% of the adolescent girls reported feeling lonely. This can be clarified by findings from the National Longitudinal Study of Adolescent Health, which demonstrated that compared with students without overweight, adolescents with overweight or obesity are significantly more likely to experience social isolation and are less likely to be nominated as friends by peers (Statement, 2017). Weight-based peer discrimination in seventh grade was related to increased loneliness more strongly for girls (Juvonen et al., 2017) .

In this present study, 33% of the adolescent girls recorded feeling worried due to being stigmatized because of their body weight. This describes the study results by (Uleanya et al., 2018), among the sexes, worry was more frequently linked to females. This might have happened as a result of weight-related stigmatization, discrimination, and taunting, which might have been quite upsetting for the young girls, especially during their formative adolescent years when they are creating their own sense of self. This result is consistent with recent studies showing that obesity may have a stronger association with anxiety problems in females than in males.

The study results show that 21.5% of the adolescent girls felt depressed. Similarly, weight stigma is associated with depression. Weight teasing in particular has been shown to increase adolescents likelihood of experiencing depressive symptoms (Romano, 2021). The persistent conviction that one is falling short of social expectations, including those relating to what is considered an acceptable body, is extremely humiliating and can therefore exacerbate a depressive mood (Brewis & Bruening, 2018). For instance, in the English Longitudinal Study of Aging, perceived weight discrimination accounted for around 40% of the relationship between obesity and depressive disorders and the corresponding rises in cortisol (Brown et al., 2022).

5.4 Limitations of the Study

1. One major bias of this study is that it involved only overweight adolescent girls. This could have resulted in the high level of awareness recorded by the study since all respondents in the study were overweight.
2. The study was limited in that, due to the free Senior High School, most private Senior High Schools were out of business, so I could not get enough adolescent girls attending private Senior High Schools.
3. The study was limited in that perceptions of weight stigma were sought from only overweight adolescent girls not from other categories of adolescent girls in terms of body size(underweight and obese) and also other perpetrators of weight stigma such as teachers and parents.
4. These limitations notwithstanding, they could not have significantly influenced the outcomes and main conclusions of the study. However, further examination of these findings is recommended in future studies.

5.5 Strengths of the study.

1. Research on weight stigma will raise awareness on the issue, leading to advocacy and support for individuals affected by it.
2. Understanding weight stigma's effects on physical and mental health can inform public health initiatives and policies.
3. This study can contribute to the promotion of body positivity and acceptance, which can have a positive impact on individuals' well-being.
4. Weight stigma studies can empower individuals to challenge stereotypes and advocate for themselves and advocate for themselves and others.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

This chapter is the concluding chapter that finalize the study findings. It also contains recommendations for policy development and future research. Both sections are structured according to the objectives of this study.

6.1 Conclusions

1. Weight stigma is prevalent (73%) among overweight adolescent girls in both Junior and Senior High Schools.
2. Perceptions of weight stigma was more in the emerging theme negative stereotype such as overweight people are 'useless' and less active.
3. Adolescent girls 10-14 years are more likely to experience weight stigma.
4. Weight stigma is more prevalent in the Public schools.

6.2 Recommendations

Recommendations for policy makers

1. Advocate for training and education about weight stigma and empower families, teachers and students to address weight stigma in the home and school settings.
2. Public health and public policy messages about obesity may also be in order to help to reduce stigma and shift public discourse away from emphasizing weak discipline or blaming the victim.
3. It would be useful for healthcare professionals and pediatricians to perceive the urgency of creating school, university and post-university training projects to spread knowledge about stigma and try to reduce it in all fields. We must start in our clinical environment to improve the quality of care and maybe obtain better results on care acceptance, care adherence and health improvement.

Recommendations for Future Research

1. Since the study participants involved only overweight adolescent girls in both Junior and Senior High Schools in the Sekondi-Takoradi Metropolis, it is recommended that future studied should be conducted among underweight and obese adolescent girls.
2. Perceptions of weight stigma were sought from only overweight adolescent girls not from other categories of adolescent girls in terms of body size(underweight and obese) and also other perpetrators of weight stigma such as teachers and parents thereby it is recommended future studies should be conducted in that aspect of weight stigma.

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APPENDIX I CHILD ASSENT FORM

Introduction

My name is Anthoniette Nana Akyere Turkson and I am from the Department of Population, Family and Reproductive Health at University of Ghana. I am conducting a research study entitled Prevalence and Risk factors of weight stigma among overweight adolescent girls in Junior and Senior High Schools in Sekondi-Takoradi Metropolis

I am asking you to take part in this research study because I am trying to learn more about Prevalence and Risk factors of weight stigma among overweight adolescent girls. This will take at least 1 hour of your time

General Information

If you agree to be in this study, your BMI (Body mass Index) will be taken that is height and weight measurement. The interviewer will aid you during the procedure. You will be asked to stand in an upright position with their feet together, with the back of their head, shoulder blade, back buttocks, calf and heels touching the stadiometer. The head position will be perpendicular to the board. The reading will be taken at an eye level and recorded. You will be asked to take a deep breath and head board pressed firmly on the top of the head. You will be asked to stand still on the scale with their feet positioned slightly apart and the reading will be taken and recorded. Each student will be interviewed once during the data collection period to assess socio-demographic background

information, weight stigma assessment and anthropometric measurements. The interview will take a total at least an hour

Possible Benefits

Your participation in this study will result in receiving a pen worth an amount of (GHC2) as a small token for your participation.

Possible Risks and Discomforts

There are no anticipated serious risk from participating in this study.

Due to the current pandemic, your interaction with the field workers may increase your exposure to the Covid -19virus.Apart from these, we do not think there are any other foreseeable major risks associated with your involvement in the study.

To prevent the spread of covid-19, we will do the following to protect you:

1. Before data collection, field workers will be check the temperature of all participants using the thermometer gun before they are interviewed. He or she will ask whether the participant has cough, cold, difficulty breathing or sore throat. The field workers will not interview any participant who shows any symptoms of Covid-19 or symptoms of any sort of illness.
2. All field workers must wear a face mask during all research-related activities.
3. Provide a face mask for the study participants during the data collection period if they do not have masks.
4. If a person becomes sick during the data collection, the person will be referred immediately to the health authority in the study facility for appropriate care.
5. Interviews will be conducted in a well-ventilated place (open windows to allow for the maximum fresh air circulation, if possible, avoid confined air-conditioned rooms) as much as possible.
6. Field workers must wash their hands regularly or use FDA approved alcohol-based hand sanitizer regularly during the data collection.
7. Ensure no handshakes, no hugging, and no spiting policy at all times.
8. Participants will be taught to wear and remove face masks.
9. Emergency response unit will be notified if anyone develops fever, cough and difficulty in breathing during the data collection.
10. All Covid-19 related questions, comments and complaints will be directed to the Principal Investigator.

Likewise, we will do the following when a field worker is visiting you:

All field workers engaged in the data collection must wear a face mask. Face masks should be worn throughout the period of the interaction with participants.

Re-schedule any interview, if a participant shows any flu-like symptoms such as cough, difficulty breathing when you visit them.

1. Interviews should be conducted in a place with adequate ventilation (i.e., open windows to allow for the maximum circulation of fresh air, if possible, avoid confined air-conditioned rooms) as much as possible.
2. Displays approved health promotion materials on Covid-19 at vantage points to remind study field workers and participants to keep to social distancing protocols, wearing of the masks, regular hand washing, coughing and sneezing etiquettes.
3. Avoid body contact with participants during data collection. No handshaking, no hugging.
4. Politely ask the participants to wear a mask for the period of interaction.Expalin to them the need to do so.If participant does not have, give him or her a mask to wear before you start talking. After giving a participant a mask, if he or she does not wish to wear it, do not interview them.
5. Politely explain to the participants that because of the Covid-19, you will want to sit at a distance from them, so that they do not feel offended. Insist on this and maintain at least 1m distance between yourself and the other person.
6. All field workers must have sanitizers with them when meeting participants. Sanitize hands regularly preferably before and after every interview. Be discreet.
7. Use a tissue or elbow to cover your face (nose and mouth) when you cough or sneeze.
8. Inform participants to do same as well when they want to cough or sneeze at any point during the interaction.
9. Avoid touching your face (nose, eyes, mouth) while in the field.
10. Wash hands with soap under running water immediately you get back to the office from the field.
11. Shared items such as pens should be properly disinfected.

Voluntary Participation and Right to Leave the Research

You can stop participating at any time if you feel uncomfortable. No one will be angry with you if you do not want to participate.

Confidentiality

Your information will be kept confidential. No one will be able to know how you responded to the questions and your information will be anonymous.

Contacts for Additional Information

You may ask me any questions about this study. You can call me at any time or talk to me the next time you see me. Anthoniette Nana Akyere Turkson, the Principal Investigator in charge of this study on 0553980145 or email address: efeturkson3@gmail.com.

Please talk about this study with your parents before you decide whether or not to participate. I will also ask permission from your parents before you are enrolled into the study. Even if your parents say "yes" you can still decide not to participate.

Your rights as a Participant

This research has been reviewed and approved by the 37 Military Hospital Institutional Review Board (37MH-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 7:30 am-2:00pm through the office mobile phone: 0591759506 or email addresses: irbmilhosp@gmail.com

VOLUNTARY AGREEMENT

By making a mark or thumb printing below, it means that you understand and know the issues concerning this research study. If you do not want to participate in this study, please do not sign this assent form. You and your parents will be given a copy of this form after you have signed it.

This assent form which describes the benefits, risks and procedures for the research titled "Prevalence and Risk factors of weight stigma among overweight adolescent girls in Junior and Senior High Schools in Sekondi-Takoradi Metropolis" has been read and or explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate.

Child's Name:…… **Researcher's Name:……**

Child's Mark/Thumbprint…….. **Researcher's Signature:……**

Date: …… Date: ……

APPENDIX II: PARENTAL CONSENT FORM

Title: [Prevalence and Risk factors of weight stigma among overweight adolescent girls in Junior and Senior High Schools in Sekondi-Takoradi Metropolis]

Name and address of the investigator/ student

Anthoniette Nana Akyere Turkson

[MPH student, University of Ghana]

Tel: 0553980145

Email: efeturkson3@gmail.com

General Information about Research

The study aims to determine the prevalence and risk factors of weight stigma among overweight adolescent girls in Junior and High Schools in the Sekondi-Takoradi Metropolis. In total, 204 adolescent girls (12-19 years) will be interviewed. Also, your child's BMI (Body mass Index) will be taken that is height and weight measurement. The interviewer will aid her during the procedure. She will be asked to stand in an upright position with their feet together, with the back of their head, shoulder blade, back buttocks, calf and heels touching the stadiometer. The head position will be perpendicular to the board. The reading will be taken at an eye level and recorded. Each student will be asked to take a deep breath and head board pressed firmly on the top of the head. She will be asked to stand still on the scale with their feet positioned slightly apart and the reading will be taken and recorded. Each student will be interviewed once during the data collection period to assess socio-demographic background information,weight stigma assessment and anthropometric measurements. The interview will take a total of at least an hour.

Possible Risks and Discomforts

There are no anticipated serious risk from participating in this study.

Due to the current pandemic, your child's interaction with the field workers may increase your exposure to the covid -19virus.Apart from these, we do not think there are any other foreseeable major risks associated with your involvement in the study.

To prevent the spread of covid-19, we will do the following to protect you:

1. Before data collection, field workers will be check the temperature of all participants using the thermometer gun before they are interviewed. He or she will ask whether the participant has cough, cold, difficulty breathing or sore throat. The field workers will not interview any participant who shows any symptoms of Covid-19 or symptoms of any sort of illness.
2. All field workers must wear a face mask during all research-related activities.
3. Provide a face mask for the study participants during the data collection period if they do not have masks.
4. If a person becomes sick during the data collection, the person will be referred immediately to the health authority in the study facility for appropriate care.

5. Interviews will be conducted in a well-ventilated place (open windows to allow for the maximum fresh air circulation, if possible, avoid confined air-conditioned rooms) as much as possible.
6. Field workers must wash their hands regularly or use FDA approved alcohol-based hand sanitizer regularly during the data collection.
7. Ensure no handshakes, no hugging, and no spiting policy at all times.
8. Participants will be taught to wear and remove face masks.
9. Emergency response unit will be notified if anyone develops fever, cough and difficulty in breathing during the data collection.
10. All Covid-19 related questions, comments and complaints will be directed to the Principal Investigator.

Likewise, we will do the following when a field worker is visiting you:

All field workers engaged in the data collection must wear a face mask. Face masks should be worn throughout the period of the interaction with participants.

Re-schedule any interview, if a participant shows any flu-like symptoms such as cough, difficulty breathing when you visit them.

1. Interviews should be conducted in a place with adequate ventilation (i.e., open windows to allow for the maximum circulation of fresh air, if possible, avoid confined air-conditioned rooms) as much as possible.
2. Displays approved health promotion materials on Covid-19 at vantage points to remind study field workers and participants to keep to social distancing protocols, wearing of the masks, regular hand washing, coughing and sneezing etiquettes.
3. Avoid body contact with participants during data collection. No handshaking, no hugging.
4. Politely ask the participants to wear a mask for the period of interaction.Expalin to them the need to do so.If participant does not have, give him or her a mask to wear before you start talking. After giving a participant a mask, if he or she does not wish to wear it, do not interview them.
5. Politely explain to the participants that because of the Covid-19, you will want to sit at a distance from them, so that they do not feel offended. Insist on this and maintain at least 1m distance between yourself and the other person.
6. All field workers must have sanitizers with them when meeting participants. Sanitize hands regularly preferably before and after every interview. Be discreet.
7. Use a tissue or elbow to cover your face (nose and mouth) when you cough or sneeze.
8. Inform participants to do same as well when they want to cough or sneeze at any point during the interaction.
9. Avoid touching your face (nose, eyes, mouth) while in the field.

10. Wash hands with soap under running water immediately you get back to the office from the field.
11. Shared items such as pens should be properly disinfected.

Possible Benefits

Your child will directly benefit by learning of their BMI (body mass index) as a screening tool to assess their nutritional status. Adolescent girls with high BMI (body mass index) will be referred to healthcare providers at the nearest healthcare facilities for proper attention. The findings will be disseminated with the expectation that they can improve policies on non-communicable disease (hypertension and diabetes) which are the risk factors among overweight adolescent girls as they enter adulthood and the risk factors associated with weight stigma.

Confidentiality

We will protect information about your child to the best of our ability. Your child will not be named in any reports. All data will be stored in cloud-based password protected server or computers and files. Only the Principal investigator and the Research assistant will get access to research records and may sometimes look at your child's research records .All data will be summarized and reported for the entire group of the adolescent girls who contributed to the research. No name or identifying details will be used in any of the publications that will come out of this study. Her consent will be sought before a photograph is taken of her and her surroundings. The photograph will be taken and processed to protect or hid her identity.

Compensation

Your child will be given a pen worth an amount of (GHC2) as a small token for participating in the study.

Voluntary Participation and Right to Leave the Research

You are free to decide if you want your child to part in the survey. Participation is entirely voluntary. During the interview, your child may choose not to answer a question at any time without any penalty and without having to give any reasons

Contacts for Additional Information

If you have any questions about the study, you are welcome to call Anthoniette Nana Akyere Turkson, the Principal Investigator in charge of this study on 0553980145 or email address: efeturkson3@gmail.com.

Your rights as a Participant

This research has been reviewed and approved by the 37 Military Hospital Institutional Review (37MH-IRB). If you have any questions about your rights as a research participant you can contact the IRB Office between the hours of 7:30am-2:00pm through the Office mobile phone: 0591759506 email addresses: irbmilhosp@gmail.com

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title Prevalence and Risk factors of weight stigma among overweight adolescent girls in Junior and Senior High Schools in Sekondi-Takoradi Metropolis has been read and explained to me. I have been given an opportunity to have any questions about the research answered to my satisfaction. I agree to participate as a volunteer.

_____ _____

Date Name and signature or mark of volunteer

If volunteers cannot read the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____ _____

Date Name and signature of witness

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____ _____

Date Name Signature of Person Who Obtained Consent

APPENDIX III: QUESTIONNAIRE

PREVALENCE AND RISK FACTORS OF WEIGHT STIGMA AMONG OVERWEIGHT ADOLESCENT GIRLS IN JUNOIR AND SENOIR HIGH SCHOOLS IN SEKONDI-TAKORADI METROPOLIS.

A. SOCIODEMOGRAPHIC AND ECONOMIC BACKGROUND INFORMATION

1. Name of School: _____

2. School type 1.Private 2. Public ☐

3. Sex ☐ Female

4. Age ___ ___ yrs.

5. Mother/Guardian's occupation 1.Artisan or petty trader 2.Professional 3.Office worker

4.Don't know ☐ 5.Unemployed Other: _____

6. Educational level of mother/guardian 1.Primary/Elementary 2.Secondary 3.Tertiary

4.Vocational ☐ 5.None 6.Don't know

7. Father/Guardian's occupation 1.Artisan or petty trader 2.Professional 3.Office worker 4.Don't know ☐ 5.Unemployed Other: _____

8. Educational level of father 1.Primary/Elementary 2.Secondary 3.Tertiary 4.Vocational ☐

5.None 6.Don't know

9. Type of housing 1.Own house 2.Rented house ☐ 4.Company/Gov't house 3.Family house

5.Other _____

10. Where do you live? 1. Peri-urban 2. Urban ☐

B.ANTHROPOMETRIC MEASUREMENTS

Weight……..

Height……

C.WEIGHT STIGMA ASSESSMENT

1. During the past 30 days, how often were you stigmatized because of your body size?
   A. Never
   B. Rarely
   C. Sometimes
   D. Most of the time
   E. Always

Table 1. Sources of weight stigma.

Perpetrator	Daily experiences	
Empty Cell	***Yes***	**No**
Parent		
Siblings		
Friends		
Teachers		
Media/advertising		
Customer service representative		
Physical environment		
"Other"		

Table 2. Modality of weight stigma.

Modality		
Empty Cell	***Yes***	*No*
Verbal comment		
Physical abuse		
Body language/gesture		
E-mail/text message/social networking website		
Physical barrier		
Other forms of written communication		
Exclusion		
"Other"		

Table 3. Location of weight stigma episode.

Location	Daily experiences	
Empty Cell	***Yes***	**No**
Home/domestic setting		
Combined public places		

Location	Daily experiences	
Empty Cell	***Yes***	**No**
Street/public place		
Public transportation		
School/educational setting		
Shop		
Restaurant		
"Other"		
Medical setting		

2. During the past 12 months, how often have you felt lonely about being stigmatized due to your body weight?
   A. Never
   B. Rarely
   C. Sometimes
   D. Most of the time
   E. Always

3. During the past 12 months, how often have you been so worried about being stigmatized due to your body weight?
   A. Never
   B. Rarely
   C. Sometimes
   D. Most of the time
   E. Always

4. During the past 12 months, did you ever feel so sad or hopeless almost every day due to your body weight?
   A. Yes
   B. No

5. What is your perception about weight stigma? .....

APPENDIX IV: ETHICAL CLEARANCE

Institutional Review Board
37 Military Hospital
Neghelli Barracks
ACCRA

Tel: 059 1759506
Email: irbmilhosp@gmail.com

19 December 2022

ETHICAL CLEARANCE

37MH-IRB/MP/IPN/656/2022

On 15 December 2022 the 37 Military Hospital (37MH) Institutional Review Board (IRB) approved your protocol.

TITLE OF PROTOCOL: Prevalence and risk factors of weight stigma among overweight adolescent girls in Junior and Senior High Schools Sekondi-Takoradi Metropolis

PRINCIPAL INVESTIGATOR(s): Anthonicite Nana Akyere Turkson

Please note that a final review report must be submitted to the Board at the completion of the study.

Please report all serious adverse events related to this study to 37MH-IRB within seven (7) days verbally and fourteen (14) days in writing.

This certificate is valid till 14 December 2023.

DR EDWARD ASUMANU
(37MH-IRB, Vice Chairman)

INSTITUTIONAL REVIEW BOARD
19 DEC 22
37 MILITARY HOSPITAL, ACCRA

Cc: Brig Gen AG Bugri
Commander, 37 Military Hospital