Unhealthy Weight Control Practice and Related Factors among Female High School Adolescents in Addis Ababa, Ethiopia

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UNHEALTHY WEIGHT CONTROL PRACTICE AND RELATED FACTORS AMONG FEMALE HIGH SCHOOL ADOLESCENTS IN ADDIS ABABA, ETHIOPIA

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This thesis, by Tigest Ajeme is accepted in its present form by the board of examiners as fulfilling for the degree of masters of public health in public health nutrition.

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List of Abbreviations

AACAEB	Addis Ababa City Administration Education Bureau
AOR	Adjusted Odds Ratio
BAZ	BMI for Age Z-score
BMI	Body Mass Index
CI	Confidence Interval
COR	Crude Odds Ratio
CSA	Central Statistics Agency
EDHS	Ethiopian Demographic Health Survey
OR	Odds Ratio
PHQ-9	Patient Health Questionnaire
TV	Television
UWCP	Unhealthy Weight Control Practice
WHO	World Health Organization

Abstract

Background: Weight control strategies are increasing in both developed and developing countries. Female adolescents tend to engage in various unhealthy weight control practices. These practices are considered to have association with psychological factors such as body weight misperception and socio-cultural factors like peer influences. However little is known about such practices among female high school adolescents in Addis Ababa.

Objective: The aim of this study was to determine the magnitude of unhealthy weight control practice and related factors among female high school adolescents in Addis Ababa.

Methods: A school based cross-sectional study was conducted among 721 female high school adolescents who were randomly selected from both private and government schools. A stratified multi-stage sampling procedure was followed. A pre-tested self-administered questionnaire was used. Anthropometric measurement was taken to calculate Body Mass Index-for-age. Depression was measured using patient health questionnaire-9 depression measurement scale. Body part satisfaction scale was translated in to the local Amharic language and tested for face validity. Internal consistency was estimated using Cronbach‟s alpha. EPI data version 3.1 and STATA version14 were used to enter, clean and analyze data.

Result: - We have found that 378 (57.1%) of female high school adolescents were engaged in unhealthy weight control practice. Perceived over weight [AOR=5.7, 95% CI: 1.17-27.90], being overweight [AOR=5.22, 95% CI: 1.42-19.23], peer influence [AOR=1.9, 95% CI: 1.05-3.28] and middle torso dissatisfaction [AOR= 1.4, 95% CI: 1.05-1.89] were found to have significant association with unhealthy weight control practice.

Conclusion: - The study showed that unhealthy weight control practice is prevalent among female high school adolescents in Addis Ababa. Peer influence, dissatisfaction of the middle torso (the abdomen and waist area), overweight perception and being overweight were found to have association with unhealthy weight control practice. Therefore preventive intervention designs that address body image misperception, body part dissatisfaction, overweight/obesity and peer influence problems should be warranted in light of the high prevalence of unhealthy weight control practice.

1. Introduction

1.1. Background

Adolescence is a period of marked physical changes involving a transition from childhood dependency to adult self-sufficiency with significant developments in physical growth, cognition, identity, family, peers, and sexuality in order to achieve emancipation, identity formation, and assumption of functional roles (1, 2). This time of turbulence that tests young people‟s coping with life events, changing body images, and issues of belonging and acceptance within peer groups are determined by the adolescents‟ perceptions and handling resources (3).

Unhealthy weight controls are strategies aimed at controlling weight, commonly characterized by extreme calorie restriction and nutrition imbalance that lead to short-term weight loss, increasing the risk to developing anemia, osteoporosis, absent or irregular menstruation and dehydration (4).Those strategies also include skipping meals, use of diet pills, purging, fasting, use of laxatives or diuretics, and cigarette smoking (5). Such practices are found to be no more confined to western countries as their prevalence is also increasing in low and middle income countries(6, 7).

Increased body dissatisfaction(8),body weight misperception(1, 4, 9), socio-economic status(10), media, family and peer influence, low self-esteem and depressive symptoms (4, 5, 11) were common factors identified.

Engagement in unhealthy and extreme weight control practice, which is believed to serve as a clinical indicator of an impending eating disorder, particularly among healthy weight and underweight girls, is found to have a relationship with inaccurate perception of body weight (1, 9, 12-15).

Unnecessary weights lose attempts and poor nutritional status, which are consequently associated with psychological malfunctions have also been found to be attributed by unjustified weight dissatisfaction (4, 8). Thus, it is very important to understand the

magnitude of unhealthy weight control practice and its association with predicting factors among female high school adolescents in Ethiopian context. Since for public health programs and intervention designs to be more effective, female adolescents should be understood in the context of the influence of peer, culture, family, socio-economic status, and other associated factors that are believed to have an effect on female adolescent‟s engagement in unhealthy weight control practice.

1.2. Statement of the problem

Studies conducted in Addis Ababa(16) and Gonder (17) on the prevalence of overweight and obesity among high school adolescents shows that the issue of overweight and obesity is becoming a double burden problem for Ethiopia. Increased prevalence of overweight and obesity was found among females and adolescents in both public/government and private schools(16, 17). Following the emergent problem of overweight and obesity among high school adolescents, it is true that healthy weight management is necessary.

The very high pressure from parents and being teased by friends among overweight and obese adolescents (2), is found to lead adolescents to get engaged in unhealthy weight control practice(18, 19). Such engagement in unhealthy weight control practice mainly among female adolescents is a serious concern with clinical relevance as a possible risk factor for disordered eating behavior (6, 7). In addition to that, inaccurate perception of body weight, body image dissatisfaction, socio-economic status and depressive symptoms are found to be associated with engagement in different unhealthy weight control practices in both developed and developing countries (1, 6, 9, 12).

Weight loss strategies such as vigorous exercise, restriction of calorie intake, using laxatives, using diuretics, skipping meals, self-medication and purging are identified among females with wrong perception of being overweight (1, 11). Such failure to consume an adequate diet or over consumption during adolescence disrupt normal growth and development, resulting in undesirable weight change leading to further engagement in unhealthy weight control practices (6). It is also critical that unhealthy weight control practice through extreme calorie

restriction and nutrition imbalance lead to short-term weight loss. This increases the risk to developing anemia, osteoporosis, and absent or irregular menstruation and dehydration (4).

Studies showed that there is change in eating attitude and engagement in both healthy and unhealthy weight control practices in low and middle income countries (6, 15, 20). However, as my knowledge engagement in weight loss attempt, magnitude of unhealthy weight control practice and related factors among female adolescent‟s hasn‟t been yet studied in Ethiopia or been given little or no attention.

This study was therefore, aimed at assessing the magnitude of unhealthy weight control practice and related factors among female high school adolescents in both private and government schools of Addis Ababa. The study was also able to identify main sources of information that could have contributing effect for engagement in unhealthy weight control practice.

1.3. Significance of the study

The findings of this study could be used as a baseline to understand female adolescent‟s risk behaviors in relation to unhealthy weight control practice .It also helps to develop tailored prevention strategy that could address individual-level factors and socio-cultural factors affecting female adolescents engagement in unhealthy weight control practice and promote female adolescent‟s health. Furthermore the results of this study could also be used for policy makers and relevant stakeholders to design and implement an effective prevention strategy to keep unhealthy weight control practice at the grass root level.

2. Literature Review

This section includes important information that deals about prevalence of unhealthy weight control practice, individual level and socio-cultural factors of unhealthy weight control practices. In addition to this; it tries to describe conceptual framework in relation with predicting factors of unhealthy weight control practices.

2.1. Prevalence of Unhealthy Weight Control Practice

Weight control practice is a mechanism to lose, gain or maintain weight and is divided in to healthy, unhealthy and extreme weight control practices(20).Unhealthy weight control behaviors are commonly characterized by extreme calorie restriction and nutrition imbalance that lead to short-term weight loss. It later increases the risk of developing anemia, osteoporosis, and absent or irregular menstruation and dehydration(4).It includes fasting, eating small amounts of food, using a food substitute (powdered substitutes or a special drink),skipping meals and excessive smoking. On the other hand extreme weight control practices include using appetite suppressants, induced vomiting, using laxatives and using diuretics (20).

The prevalence of weight control practice is different in different countries and is more common in developed countries with increased prevalence of overweight and obesity. However there are also studies suggesting an increased prevalence of both healthy and unhealthy weight control practice in lower and middle income countries(6, 10, 14, 20).

Prevalence of unhealthy weight control practice among adolescents and adults in lower and middle income countries ranges from 30.8%-77% of whom girls were more likely to get engaged in it (6, 9, 20-22). These studies showed that the western norms of thinness as an ideal body image is becoming more common with an increase in weight loss attempt and developing eating disorders.

The undesirability of overweight and obesity by most woman and the stigma using uncomplimentary names has also found to lead Ghanaian women to get engaged in unhealthy

strategies such as skipping meals, avoiding carbohydrate-based foods and drinking herbal teas (23). In India, three quarters (77.7%) of overweight or obese youth engage in at least one unhealthy weight control behavior being more common among girls(7).Population-based cross sectional research conducted have also showed that 12.8% of woman in Brazil used substances for weight-loss ,teas being the most frequently used methods(24).

From the above Studies it is possible to conclude that female adolescents are highly engaged in unhealthy weight control practice than male adolescents both in developed and developing countries. Even though no published studies were found concerning unhealthy weight control practice in Ethiopia, studies conducted in low and middle income countries have showed that those problems are no more limited to the western population. This showed the need for conducting a research on weight control practice among female adolescents .This study as a beginning was able to investigate the occurrence of unhealthy weight control practices and related factors among female adolescents in selected high schools of Addis Ababa.

2.2. Factors Associated with Unhealthy Weight Control Practice

Having the knowledge of possible predicting factors associated with unhealthy weight control practice is fundamental. It will be helpful to have a better understanding about the reality, address those who are at risk and design an intervention program. It will guide the development of prevention strategies and raise awareness regarding truly efficacious practices and risks associated unhealthy weight control methods.

According to different studies weight control practice have a strong relationship with individual level (biological and psychological factors) and socio-cultural factors (socio-demographic and cultural factors). The focus of this part of the study is on those major individual and socio-cultural factors that have a role in the occurrence of unhealthy weight control practices.

2.2.1. Individual Factors

2.2.1.1. Body Weight Misperception

Different studies came up with a conclusion that there is a great variation in body weight perception among adolescents which is found to be a major predicting factor of weight control practice (2, 20, 25, 26).

The agreement between BMI-for-age and perceived weight was poor in females among secondary school adolescents in Hong Kong(1). It showed a relationship between perceived weight and weight control behavior with the highest discrepancy being more visible in females with perceived overweight(1). In addition to the discrepancy between BMI-for-age and perceived body weight, weight control behaviors are found to be highly influenced by body weight misperception.(14). Perception of body weight status is found to be associated with weight loss attempt in south India which showed unnecessary weight loss attempt to be three times more likely higher among those who are normal weight but perceived themselves to be overweight/obese(15).

In United States(27), inaccurate weight perception is found to lead to a significantly greater chance of engaging in unhealthy weight controlling behavior compared to those with an accurate perception. Overestimation of the body weight among girls were also found to have significant relationship with inappropriate weight control practice among Korean adolescents(28). A cross sectional study done in central Delhi, India among medical school students have shown significantly higher proportion of females(57.2%) with overweight perception. Similar to other studies, they showed poor agreement between actual BMI and perceived body mainly among females and concluded that those who are overweight or obese but failed to perceive themselves as such often don‟t engage in weight control practices (29).
In addition to the high discrepancy between perceived body weight and BMI-for-age, body weight misperception is found to be predicting factor in weight control practice(5). Furthermore, various studies showed that normal weight female adolescents tend to overestimate their weight and engage in unhealthy weight control practice (1, 4, 15, 29-31).

2.2.1.2. Body Weight Dissatisfaction

Another common predicting factor according to many studies involves body weight di satisfaction which according to John Ogden as written on his book “the psychology of eating” body weight dissatisfaction can be conceptualized as body size distortion involving a comparison with an objective measure of size, as a discrepancy between ideal and perceptions of actual body size, or simply as feelings of discontent with the body‟s size and shape (32).

The author also summarized that though researches in early days generally believed that body dissatisfaction was a problem only shown by those with eating disorders, much researches conducted in recent times showed that women are more dissatisfied by their body with weight concerns being apparent in different age groups which vary in ethnicity and social class (32).

Most women show different aspects of body weight dissatisfaction. This was revealed through the discrepancy between their real and ideal weight, their engagement in both safe and dangerous food restriction strategies, their participation in organized weight loss programs and preference to be slim (5, 20, 33). The result from a study conducted among west indies university students have showed that body dissatisfaction is significantly associated with increased risk for depression, lower self-esteem, disordered eating and other weight related behaviors (34).

On the other hand, a study conducted in South Africa revealed that adolescent girls are dissatisfied about their body image and link thinness with beauty followed by many unhealthy weight control practices (20). Similar study among Iranian adolescents have found a higher rate of body weight dissatisfaction (over 75%) and significant relationship between BMI-for-age, body image perception and body dissatisfaction (35). A study conducted among Turkish adolescents have also found similar result in that females are more likely to have body dissatisfaction and engagement in weight loss practice than males (36). In the study conducted in Ghana, a significant positive relationship between body image satisfaction and psychological well-being moderated by Afrocentric values were found and females were found to be more dissatisfied with their body image than males(37).

On the other hand, a research on weight-related concerns and weight-control behaviors among overweight adolescents were conducted in India showing half of overweight/obese youths and one-quarter of the non-overweight adolescents to have low body satisfaction being common among girls than boys(7) leading them to engagement in UWCP.

2.2.1.3 Low Self-Esteem and Depressive Symptoms

Studies suggest that low self-esteem and depressive symptoms among adolescents are also the other major predicting or mediating factors for engagement in unhealthy weight control practice (5, 34, 38).

In a study done on the association between Weight Misperception Patterns and Depressive Symptoms female adolescents with perceived overweight despite their normal weight were found to have depressive symptoms than those with accurate weight perceptions (39). This has also been observed in Turkish adolescents. It showed that females with perceived over weight are more related to low self-esteem and depression and are more likely to have body dissatisfaction (36) which is one of the reasons for female adolescents to get involved in unhealthy weight control practice (34).

Furthermore similar study in Korea has found a significant association between body mass index, unhealthy weight control behavior and depressed mood(40). Significant association between Body image distortion, being female, sadness, suicidal ideation and employment of unhealthy weight control practice has been observed among high school adolescents in South Korea (4).A school based study done among adolescents in urban turkey have showed that psychological well-being of adolescents is more related to body satisfaction than actual and perceived weight status (36). On the other hand, concerning body mass index and perceived body weight, a study showed that women with perceived overweight than actual BMIs and those with distorted body weight perception appeared more likely to be at greater risk for depressed mood and engage in unhealthy weight control practice(40).On the other hand, Perception of having either underestimation or overestimation regardless of BMI were found to predict the likelihood and extent of depression leading them to unhealthy weight control behavior (38). Similarly a study among Chinese adolescents (41) also showed that those with

perceived overweight were more likely to experience depressive and anxiety symptoms than those who perceived themselves as normal and/or underweight. The significant association between psychological distress and weight perceptions which deviate from the societal ideal (overweight and underweight) were found to put individuals at increased risk of psychological morbidity (26) leading them to unhealthy weight control practice.

In conclusion, regarding psychological well-being, depressive symptoms and self-steam, studies revealed that woman have higher levels of depression and lower self-esteem than men in relation to dissatisfaction with body image (36, 37),which are found to be the other major predicting factor in unhealthy weight control practice.

2.2.2. Socio-Cultural Factors

2.2.2.1. Socio-Economic Status

There are different ideas among researchers on the effect of socio economic status on body weight perception, body weight dissatisfaction and engagement in both healthy and unhealthy weight control practice(10, 33, 42). Some found that adolescents from high socio economic status are more likely to be exposed to media influence and culture of westernization which in turn leads them to body weight misperception, body part dissatisfaction and depressive symptoms. on the others hand, other researchers argue that adolescents from high socio economic status are more likely to get the right information on body weight perception and healthy weight control practice, since they will have access to the right information through different mechanism.

A study done among youths in Poland have revealed that those from families of high socio-economic status were slightly more often estimated their weight status correctly than students with average and low status. The difference was statistically significant only in the case of the factor “mother‟s education” (33).

Perceived overweight was also observed in Seychelles, among persons with high socio-economic status. It also showed that overweight/obese individuals of high SES were more

likely to have an appropriate perception of their excess weight(10). Similarly, a study conducted among high school students on body weight perception and associated factors showed female students with higher income and those with overweight perception were more likely to reduce their weight and engage in weight control practice (25). A tendency to misperceive their body weight have also been observed among adolescents in high socio-economic status in turkey(36).

Among those with body weight misperception in South Korea, girls were found to have a higher overestimation rate (33.0% vs. 21.3%) and this overestimation was found to be higher in high-income families and Well-educated parents (42). On the other hand, an opposite finding have been reported on a research done in south India showing those in lower socioeconomic groups and overweight/obese children to be more likely to attempt weight loss (15).

Most of the studies reviewed shows that adolescents from high socio economic status are more likely to misperceive their weight status correctly and are more likely to engage in unhealthy weight control practice. This study will be able to see if socio economic status could be a predicting factor for unhealthy weight control practice among adolescents in our context.

2.2.2.2. Peer Pressure, Family Pressure and Media Influence

Qualitative study conducted in south Africa revealed that most of the factors that influence adolescents to engage in unhealthy weight control practices are imposed by family members and their peers, which is the most determinant factor for adolescent lifestyle (20). On the other hand, media (62%) followed by parents (24%) and peers (14%) (9) were the major source of information for engagement in unhealthy weight control practice among Teenagers in Mauritius. And Adolescents in turkey have also been found to prefer adults (parents, family members, and teachers) and the TV/internet rather than health professionals as information sources for losing weight and engage in weight loss practice (43).

John Ogden, on his book of the psychology of eating wrote that the most commonly held

belief in both the lay and academic communities is that body dissatisfaction is a response to representations of thin women in the media .since magazines, newspapers, television, films and even novels predominantly use images of thin women (32).

2.2.2.3. Race, Culture and Ethnicity

Though there are studies which relate race, culture and ethnicity with body weight perception and weight control practice, it is believed that these also have a significant effect on unhealthy weight control practice. Despite the increasing prevalence of overweight and obesity, stigmatization of obesity is becoming visible at school places, work environments and even in public domains mainly in urban area. Studies reveal the crucial role that culture has on the way we perceive our body and engage in different weight control practices (37).

A Cross-sectional population-based survey conducted among multiethnic sample of early adolescents in London suggested that high levels of dieting for weight control and inaccurate perception of body mass were found to be common across all ethnic groups. However , dieting history and the associations of obesity with self-esteem and psychological distress were found to vary between ethnic groups (44). Similarly, a varying area of concern in dietary intake, weight, and weight-related concerns and behaviors among adolescents in all ethnic groups were observed among Hispanic, Hmong, and Somali adolescents in comparison to whites in United States. The study also showed a higher percentage of Hmong and Somali adolescents being engaged in unhealthy weight control behaviors and low body satisfaction among all Hmong adolescents compared to whites (45).

Taking the above study findings on the fact that race, culture and ethnicity in diversified society might has an effect on weigh related concerns and weight control practices

Conceptual Framework

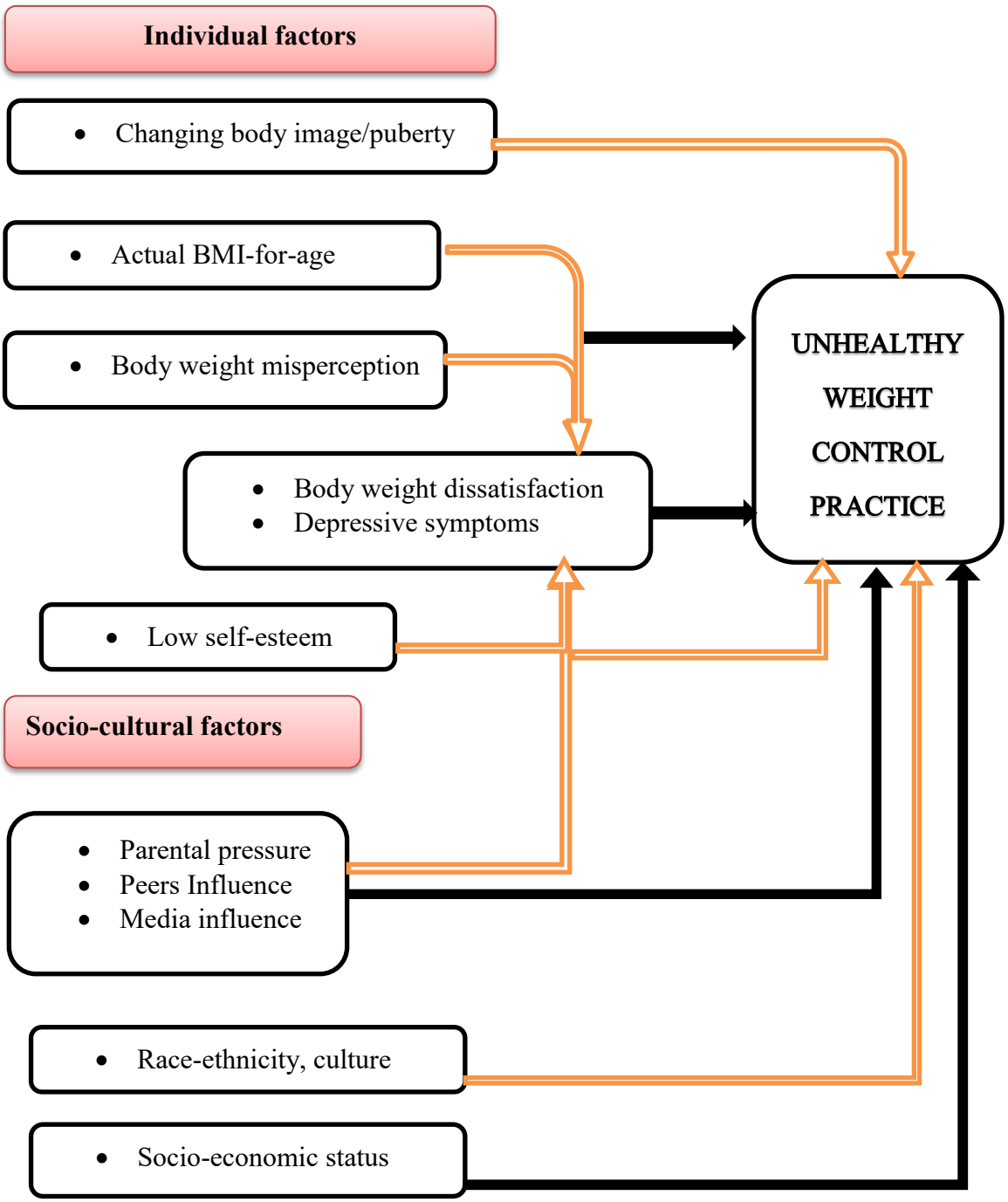


Figure.1.Conceptual Framework for the Development of Unhealthy Weight Control Practice

(Developed from different literatures)

3. Objectives of the Study

3.1. General Objective: -

- To investigate magnitude of unhealthy weight control practice and related factors among female high school adolescents in Addis Ababa.

3.2. Specific Objective:-

- To examine the magnitude of unhealthy weight control practices among female high school adolescents in Addis Ababa, Ethiopia.

- To determine association between psychological factors and unhealthy weight control practice among female high school adolescents in Addis Ababa, Ethiopia.

- To determine association between socio-cultural factors and unhealthy weight control practice among female high school adolescents in Addis Ababa, Ethiopia

4. Methods and Materials

4.1. Study Area

The study was conducted in Addis Ababa, the largest historical and capital city of Ethiopia which lies 9°1′48″N latitude and 38°44′24″E longitude with total area of 540 Sq.Km2 .the city was established in 1887 by emperor Menilik II and has a complex mix of highland climate zones, with average temperature differences of up to 12.2°C, depending on elevation and prevailing wind patterns and its time zone is categorized in East Africa Time (UTC+3).

Addis Ababa has the status of both a city and a state. It is the capital of Federal Government and a chartered city where the African Union and its predecessor, the OAU are based. The city is divided in to ten sub-cities which are the second administrative units next to city administration. In terms of area coverage Bole is the largest sub-city followed by Akaki-Kality and Yeka. Addis ketema is the smallest and followed by Lideta and Arada Sub-cities. The sub-cities are also divided in to wereda‟s, which are the smallest administrative unit in the city. There are 116 woreda‟s in the city administration. The number of woreda‟s varies based on their size. A 2004 E.C Annual report showed that there were a total of 2,221 schools in the city of which 1,050 kindergarten, 760 primary schools, 310 secondary schools (9-12), 265 alternate basic education centers and one College of Teacher Education (46).

4.2. Study Period

The study was conducted from mid-February through March 2017

4.3. Study Design

A School based cross sectional study design was conducted among high school adolescent students who have been learning in both private and government schools in Addis Ababa.

4.4. Population

4.4.1. Source Population

The source populations for the study were all female regular high school adolescent students in Addis Ababa who were attending high school in the academic year 2009/2017.

4.4.2. Study population

The study population for the study included all regular female high school adolescent students in selected private and government schools of Addis Ababa who were attending high school in the academic year 2009/2017.

4.4.3. Exclusion criteria

- Female high school adolescents with visible physical deformity

4.5. Sample size calculation

For the first objective

Sample size was determined using single population proportion formula

$$n = \frac{Z(\alpha/2)^2 P(1-P)}{d^2}$$

Z (Standard normal distribution) with C.I of 95% and (α =0.05)	**P** (expected prevalence of unhealthy weight control practice) (6)	**d** (Absolute precision or tolerable marginal error)	Deign effect	Non-response rate	**n** (minimum sample size)
1.96	0.308	0.05	1.5	10%	721

For the second objectives

For the first factor

Sample size was calculated using double population proportion formula for two determinants (predicting factors) of unhealthy weight control practice.

$$n = \frac{[z\,\alpha/2\,\sqrt{(1+1/r)} + z\beta\sqrt{p1\,(1-p1) + p2\,(1-p2)/r}]^2}{(p1 - p2)^2}$$

By considering body weight misperception as an exposure

P1 (proportion of unhealthy weight practice (food restriction) among females with overweight perception)(1).	P2 (proportion of unhealthy weight control practice (food restriction) among females without overweight perception(1).	P (pooled proportion)	r	ß	α	Design effect	Non-response rate	n
68.4%	37.2%	0.528(52.8%)	1	20%	0.05	1.5	10%	249

For the third objective

For the first factor

By considering presence of weight teasing or influence by family members as an exposure

P1 (proportion of UWCP (dieting) among females being teased by family members(18).	P2 (proportion of UWCP (dieting) among females not teased by family members(18).	P (pooled proportion)	r	ß	α	Design effect	Non-response rate	n1= minimum sample size required for the study
40%	20%	0.3(30%)	1	20%	0.05	1.5	10%	590

Since the sample size calculated for the first objective using single population proportion formula yield the largest sample size which is 721, it was taken as a final sample size.

4.6. Sampling Procedures

To obtain a representative sample, sampling procedure followed a stratified three stage random Sampling procedure. The total sample schools were all private and government schools with secondary and preparatory education (9-12) who were 310.

Among the total sample schools, 232 were private and 78 were government/public secondary and preparatory schools(47). A total of 20 schools, 15 private and 5 governmental schools were randomly selected. A total sample size of 721 study subjects were allocated proportionally for each selected private and government school. Four sections from each selected school at which one section from each grade level was selected randomly by lottery method. Students were allocated proportional to the size of students in each selected sections. Finally students list was obtained from room teachers and used to randomly select study subjects from each section. Figure 2 presents the schematic presentation of sampling procedure used.

4.6.1. Schematic Presentation Sampling Procedure

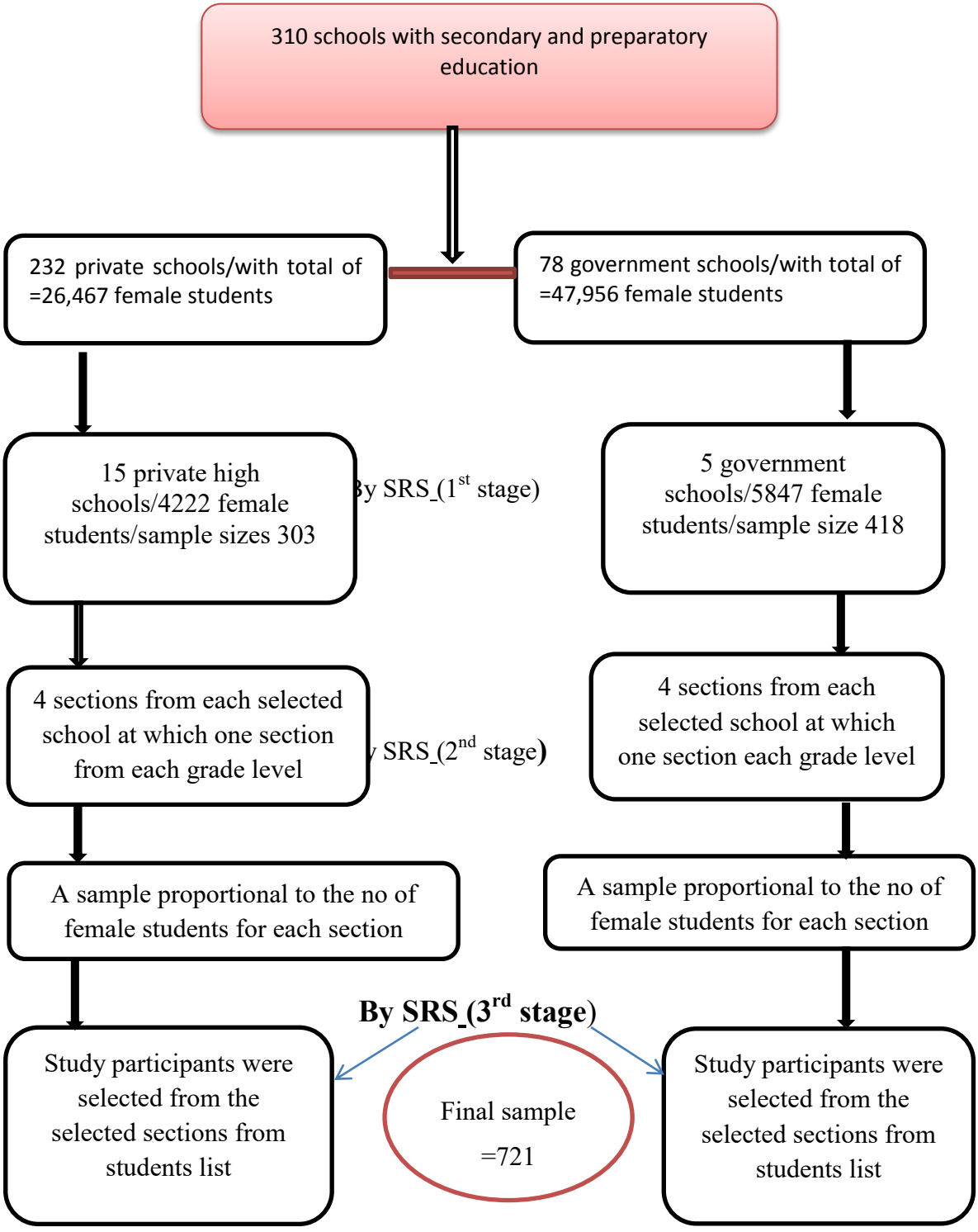


Figure 2.Schematic Presentation of Sampling Procedure, Addis Ababa, 2017

4.7. Study Variables

4.7.1. Outcome Variable

The outcome measure of this study is unhealthy weight control practice. The survey questionnaire included the self-reported weight control attempts of the subjects in the last 30 days. To answer the unhealthy weight control attempt questions, the subjects were first checked one of two options: 1) doing nothing to control weight, 2) making an effort to lose/maintain weight(43).

Unhealthy weight control practices consisted of 9 items: 1) doing vigorous exercise (>1hour per day) 2) long hour fasting (fasting≥24 hour), 3) eating less food than usual, 4) skipping meal, 5) taking laxatives/diuretics /diet pill, 6) self-induced vomiting, 7) eating a one-food diet only 8) taking slimming tea and 9) eating food substitutes (e.g., powder or other special drink). The items request how often respondents have been engaged in those methods, with response categories of "never", "occasionally" ,"once a week", "2-3 times a week", "more than 5 times a week" and "daily/always". Engagements in at least one weight control behavior within the last 30 days were considered as unhealthy weight control practice(22) .

4.7.2. Independent Variables

Demographic and Socio-Economic Characteristics

Socio-demographic characteristics such as age, religion, grade level and school type was included. Education levels of their fathers and mothers using scales ranging from: 1) illiterate, 2) read and write, 3) primary education 4) secondary education 5) some college and technical school 6) college graduate and above were assessed. The subjects‟ school types were categorized into two groups 1) Private /Missionary /International /Community and 2) Government /Public

Perceived Body Weight

Female adolescents‟ subjective perception of body weight was asked using "How do you perceive your body weight status?" Four alternative answers "underweight", "normal," "overweight" and "obese" were listed (43).

Body Part Satisfaction Scale

Body part satisfaction scale is composed of 8 item including face, upper torso, middle torso, lower torso, height, body weight; muscle tone and overall appearance satisfaction were asked. It is used to assess subjective appraisal of body image. The scale was scored with 6-point from 1 = extremely dissatisfied to 7 = extremely satisfied. Negatively worded items were scored in a reversed way. A higher score is considered to reflect more satisfaction with that aspect of the body(48).

Depressive Symptoms:-

Adolescents‟ depression was measured using Patient Health Questionnarrie-9(PHQ-9) for adolescents. It is a self-report measure used to screen depressive disorders. The PHQ-9 is a nine item questionnaire asked with a recall period of two weeks. The items request how adolescents have been bothered by depressive symptoms ,with response categories of 0 “not at all”,1 “several days”, 2 “more than half the days”,4 “nearly every day”(49).

Anthropometric Measurement

Weight was measured to the nearest 0.1 kg using an electronic portable scale (Seca). To ensure measurement accuracy the scale was checked for zero reading before each weighing. It was also calibrated with a metal every morning before data collection. Height was measured in the standing position, to the nearest 0.5 cm using a portable stadiometer. Female adolescents were asked to stand without shoes back against the scale, heels together and head in the upright position. The movable headboard were lowered until it touches the upper part of the subjects head firmly(16, 17).

Socio-cultural factors

Socio-cultural influence was measured by asking if they have ever been influenced by any of those listed options to get engaged in weight control practice?” options include social medias (such as Facebook), mass medias (TV) written materials (newspaper & magazines), school teachers, families, peers, dating partners ,with response categories “yes” or “no”(2, 20).

Source of Information:-

source of Information for engagement in any those weight control practices were assessed using “what are your sources of Information to get engaged in weight control practices?” and possible sources of information such as family members, peers, health professionals ,dating partners, mass media (TV, radio),social media (Facebook) and written materials/magazines were included in the answer option (9, 43).

4.8. Data collection tools and procedures

Self-administered questionnaire including questions on socio demographic status, body weight perception, body satisfaction, depressive symptoms, engagement in unhealthy weight control practice and source of information were used. Anthropometric measurement was also taken. Since the study participants were Amharic speakers, the questionnaire was first prepared in English and it was translated in to Amharic. Two days training were given for data collectors. Data collection was done after pretest and face validity was conducted on a sample of students taken from other school which were not included in the study.

Data collection takes a total of one month duration which was conducted from February up to March. Four diploma nurses and one degree nurse has participated in the data collection process. The principal investigator has also taken the responsibility to control quality of data collected and proper taking of anthropometric measurement. The school teachers explained the main purpose and benefit of the study and Informed consent was taken. Female adolescents enrolled in selected sections were invited to complete anonymous, self-reported questionnaires following that anthropometric measurement was taken.

4.9. Data quality management

Before data collection, a three day theoretical and practical training was given for the data collectors and supervisor on weight and height measurement, data collection techniques and procedures based on the questionnaires and also about the main purpose of the study. The training was given by the principal investigator.

Face validity was then conducted for the 8 item body part satisfaction scale. Two focus group discussions with a total of 20 female high school adolescents, 10 students per each focus group discussion was conducted with the aim of clarity of wording and for likelihood of the target audience to be able to answer the questions intended. As a discussion point "how to best structure the 8 items in a way that could be understood in the context of the country without missing the main intention of the questions" During the focus group discussion, from the total of 20 female adolescents 5 of them were not clear with table instruction and scoring. On the other hand 3 students were also confused with the local Amharic terms in item 3 and 4. The table‟s instruction and the two items were then modified and rephrased. The remaining items were kept in their original form since there was no challenge or no confusion to understand the items.

Technical error of measurement (TEM) was calculated and it was found that the Intra observer technical error of measurement for height were found to be 0.03 and for weight were found to be 0.23.on the other hand the inter observer technical error of measurement for height were found to be 0.02 and for weight were 0.31.in all cases the technical error of measurement were within the acceptable range.

Pre testing of the whole questionnaire was also made. On the spot checking and review of completed questionnaires to ensure completeness and consistency of the information was done and immediate action were taken. To keep accuracy of data, data entry was done by the principal investigator. Non-respondents were re-contacted twice and Students who return forms with missing information were asked to complete the questionnaire. In addition, while taking weight and height measurements students were asked to wear light closes (school uniform) and to be on bare foot. Weight was measured using standard digital balance with a precision of 0.1 kg and height using a measuring board with a precision of 0.1 cm. Measurement scales was carefully handled and calibrated every day by placing 2 kilogram iron bars before the beginning of data collection and data collectors check whether the scales are at 0.00 reading before taking each measurement. After data collection data, data was entered and cleaned using EPI DATA version 3.1 and completeness were checked.

Anthropometric measures

Weight: weight was measured without shoes and with minimum clothes and was recorded to the nearest 0.1 kg. Measurement scales was carefully handled and calibrated every day by placing 2 kilogram iron bars before the beginning of data collection and data collectors check whether the scales are at 0.00 reading before taking each measurement. Each participant was standing on the scale and the researcher recorded the weight reading.

Height: Height was also measured by using a stadiometer, which has been fixed to the wall after the body meter is rested on the ground and placed against the wall with the visual display facing the researcher. Participants were asked to stand straight with heels where weight was distributed evenly on both feet, buttocks and back touching the wall. The head were positioned so that the line of vision could be at right angles to the body and the arms hang freely by the sides‟ then measurement were recorded to the nearest 0.5 cm. All measurements were recorded on the questionnaire.

4.10. Data Analysis

Data were coded, entered and cleaned using Epi data version 3. 1. All statistical tests were performed using STATA version 14.

The World Health Organization (WHO) 2007 growth reference was used as a standard reference for classifying adolescents based on BMI-for-age using WHO Anthro plus software version 1.0.4. BMI for age Z-score (BAZ) ≤ -2 were classified as severely thin, > -2 and ≤ -1 as thin, >-1 and < +1 as normal weight, ≥ +1 and < +2 as overweight and ≥ + 2 as obese. However due to small number of observation in severely thin and obese categories, it is regrouped as "underweight", "normal weight" and "overweight".

Data were cleaned for outliers and corrected by transforming in to categorical variable if they were numeric or by omitting extreme values (highest and lowest value).The dataset on WHO Anthro plus software has been merged with STATA dataset using unique variable (identification number).

Socioeconomic index were categorized as follows: first all study participants were asked on the questionnaire about the family ownership of fixed assets in their house with a score "1" given to those who own the asset and score of "0" given to those who did not own. Then, all the items asked were assessed for internal consistency. Principal component analysis were used to generate wealth index from fixed assets, including ownership of house and housing condition, equipment, electronics and other local indicators of wealth such as car and motor cycle. Wealth index was rank ordered into quintiles to give poorest, poor, medium, wealthy and wealthiest status.

Depression was categorized using the standard PHQ-9 category. A person ranging between 0-4 was considered to be in "no depression", 5-9 as "mild depression, 10-14 as "moderate depression", 5- 19 as "moderately severe depression" and those ranging 20 or higher were considered to be in "severe depression". However, those in severe depression range have been merged with moderately severe ones due to small observation.

Body satisfaction scale was categorized in to two categories. A person is ranging between 1-3 as “dissatisfied” and those ranging between 4-6 “satisfied”.

Female adolescents who answered “never” for any of those mentioned weight control methods were grouped as “No” .on the other hand, those who answered “occasionally-always” were grouped as “Yes”. Engagement in at least one weight control method within the last 30 days was considered as “unhealthy weight control practice”.

Weight control methods were also grouped in to two categories. Adolescents engaged in using laxatives, diuretics, diet pill and those engaged in self-induced vomiting were categorized as having “purging behavior”. On the other hand, adolescents engaged in other than those methods mentioned earlier were categorized as having “non-purging behavior”.

Cross-tabulation and Kappa statistics has been performed to examine the agreement between perceived body weight and BMI-for-age. Descriptive data was presented as mean, percentage, standard deviation and frequencies. To see the effect of each independent variable on the outcome variable, binary logistic regression was used and the strength of the associations was assessed by computing Odds ratios.

Variables with p-value<0.2 in the bivariate analyses were included in the multivariate models. Multivariate logistic regression was run and the differences between variables were explored, variables which are statistically significant were considered as predicting factors. In all cases, differences were considered significant if $p<0.05$.

4.11. Operational definitions

Unhealthy weight control practice – Engagement in one or more strategies within the last 30 days, aimed at controlling weight. Those weight control methods. which include taking laxatives and diuretics, self-induced vomiting, taking diet pills, skipping meals, fasting and excessive training/doing vigorous exercise, eating less amount of food than the usual, taking other food substitutes, eating only one type of diet. Engagement in at least one of the above methods

Perceived body weight: - self-evaluation of one‟s weight as "underweight," "normal weight" or "overweight" irrespective of its formal classification by body mass index (BMI).
Body weight misperception- inaccurate perception of being overweight, underweight, obese or normal compared with BMI-for-age.

Fasting/long hour fasting: - not taking any kind of meal for more than 24 hour with the intention of losing or maintaining body weight.
Use of a food substitute:-taking powder or a special drink in every meal time with an intention of losing weight.

Skipping meals: is not eating food at least once per day or avoid eating breakfast, lunch or dinner with an intention to lose weight, keep from gaining or maintain weight.

Purging behavior: - are compensatory inappropriate weight control behaviors such as self-induced vomiting, use of laxatives and diuretics, use of diet pills and non-prescribed medications with an intention to lose or maintain weight.

Non-purging behavior:-are compensatory inappropriate weight control behaviors such as skipping meals, fasting and excessive training/doing vigorous exercise, eating less amount of food than the usual, taking other food substitutes, eating only one type of diet with an intention to lose or maintain weight

4.12. Ethical consideration

Ethical clearance was obtained from Addis Ababa University School of Public Health ethical clearance committee and Addis Ababa City Administration Educational Bureau. The main purpose of the study and its public health significance was explained to respective school directors and permission was cleared from the sample schools to conduct the study. Both written and verbal Informed consent was obtained from adolescents greater than 18 years old and from parents/school administration for under 18 years‟ female adolescents.

The benefit of the study and the fact that it has no invasive physical harm was explained for students; teachers and families‟ .Female adolescents with depressive symptoms were counseled and linked to school clinic. Not only that those with extremely dangerous weight control strategies such as induced vomiting who contact the principal investigator in person or on the phone has been counseled on the consequences of engagement in unhealthy weight control practice and also tried to recommend them to see a physician.

Respondents were also informed that they could refuse or discontinue participation at any time and they were informed the fact that Information was recorded without their name being mentioned. Only codes were used to keep it anonymous and maintain confidentiality and privacy of respondent. School officials and education bureau responsible bodies were also informed that the results of the study will be disseminated.

4.13. Dissemination of Results

The result of this study was defended to the School of Public Health, Addis Ababa University, and College of Health Sciences as partial fulfillment of master‟s degree in public health Nutrition. Furthermore, it will be shared with Addis Ababa city administration educational bureau for the information to be distributed for all secondary schools in Addis Ababa. Attempts will also be made to publish the information on reputable peer review journals.

5. Result

5.1. General characteristics of the study participants

From a total of 721 sampled female high school adolescents, 690 had participated resulting in 95.7 % response rate. Analysis was done after 4 observations were excluded because of age and above 19 years.

The general characteristic of the study participants is presented in table 1. In this study, 71.6% of the respondents were Orthodox Christian followed by Muslim (15.2%) and Protestant (11.9%).The mean age of the study participants was 16.77(SD±1.32) years.

Table.1. Characteristics of female high school adolescents participated in the study, Addis Ababa, 2017

Variables	Number	%
Age (year)		
Middle adolescent (14-16)	278	40.8
Late adolescent (17-19)	404	59.2
Religion		
Orthodox Christian	490	71.6
Muslim	104	15.2
Protestant	82	11.9
Other	8	1.1
Father's educational status		
No formal education	121	17.7
Primary education	86	12.6
Secondary education	141	20.6
Technical school and above	336	49.1
Mother's educational status		
No formal education	171	25.0
Primary education	99	14.5
Secondary education	190	27.8

Technical school and above	223	32.6
Grade level		
9th grade	161	23.5
10th grade	171	24.9
11th grade	184	26.8
12th grade	170	24.9
School type /owner		
Private/missionary/community	300	43.7
Government /public	386	56.3
wealth quintile		
Poorest	149	21.8
Poor	131	19.2
Medium	130	19.0
Wealthy	138	20.2
Wealthiest	135	19.8

5.2. Weight Control Methods and Prevalence of Unhealthy Weight Control Practices

The overall characteristics of weight control methods and frequency of being used is presented in table 2. The result showed that the items “skipping meal” 73(18.2%), “eating less food than usual” 365(12%) and “doing vigorous exercise” are weight control methods which were practiced every day.

Table 2.Overall characteristics of weight control methods and the frequency of being practiced within the last 30 days among female high school adolescents, Addis Ababa, 2017

Weight control Methods	Never	Yes				
	N (%)	Occasionally N (%)	Once a week N (%)	2-3 * a week N (%)	>5 * a week N (%)	Daily/ always N (%)
Use laxative /diuretics	383(96.0)	12(3.0)	1 (0.25)	1 (0.25)	0	2 (0.5)
Self-induced vomiting	365(91.0)	30(7.5)	6 (1.5)	0	0	0
Do vigorous exercise	207(51.6)	134(33.4)	26 (6.5)	21 (5.2)	4(1)	9 (2.24)
Skipping meal	83(20.7)	182(45.4)	4 (1)	34 (8.5)	25(6.2)	73(18.2)
Long hour fasting	271(67.6)	68 (16.9)	15 (3.7)	17 (4.2)	14(3.5)	16 (4.0)
Eat less food	91(22.7)	227(56.6)	13 (3.2)	11 (2.7)	10(2.5)	49(12.2)
Eat one type diet only	268(67.5)	96(24.2)	13 (3.3)	11 (2.8)	6(1.5)	3 (0.8)
Taking slimming tea	326(81.7)	59(14.8)	3 (0.7)	5 (1.25)	1(0.25)	5 (1.3)
Eat food substitute	298(74.3)	80(20.5)	5(1.3)	7 (1.7)	1(0.25)	8 (2.0)

***multiple answers were possible**

In this study the affirmative responses to the nine weights control practices among female adolescents who are engaged within the past 30 days is presented in table 3. The result indicated that affirmative responses for the items ranged from 4-79.3%.We found that the highest affirmative response given was for the item “skipping meal” 318(79.3%) followed by the item “eating less amount of food than usual 310(77.3%)” and “doing vigorous exercise”194(48.4%) which are non-purging behaviors. On the other hand the lowest affirmative response given was for the items “taking laxatives, diuretics and diet pill” 16(4%), which is purging behavior.

Table 3.purging and non-purging behaviors among female high school adolescents in the last 30 days, Addis Ababa, 2017

Weight control Methods	Yes		No	
	N	%	N	%
Purging behavior				
Take laxative /diuretics	16	4.01	383	95.9
Self-Induced vomiting	36	8.9	365	91.1
Non-purging behavior				
Doing vigorous exercise	194	48.4	207	51.6
Skipping meal	318	79.3	83	20.7
long hour fasting	130	32.4	271	67.6
Eat less amount of food than usual	310	77.3	91	22.7
eat one type diet only	129	32.5	268	67.5
take slimming tea	73	18.3	326	81.7
eat food substitute/powders	103	25.7	298	74.3

*multiple answers were possible.

Furthermore, among the total participants 329 (48%) wants to lose weight, 259 (37.8%) wants to keep or maintain their current body weight and 97(14.2%) wants to gain weight.

On the other hand, among the total participants 402(68.4%) have weight loss attempt at least once in their life time. The overall prevalence of engagement in unhealthy weight control practice within the last 30 days was 57.1%. Among those who were engaged in unhealthy weight control practice, 253(66.9%) prefers to lose weight and 125(33.1%) wants to keep their current body weight

In addition, engagement in unhealthy weight control practice among late adolescent age group was 58.3% and among those in middle adolescent group was 55.9%.On the other hand among those in moderately severe depression group 73.5% of them were engaged in unhealthy weight control practice.

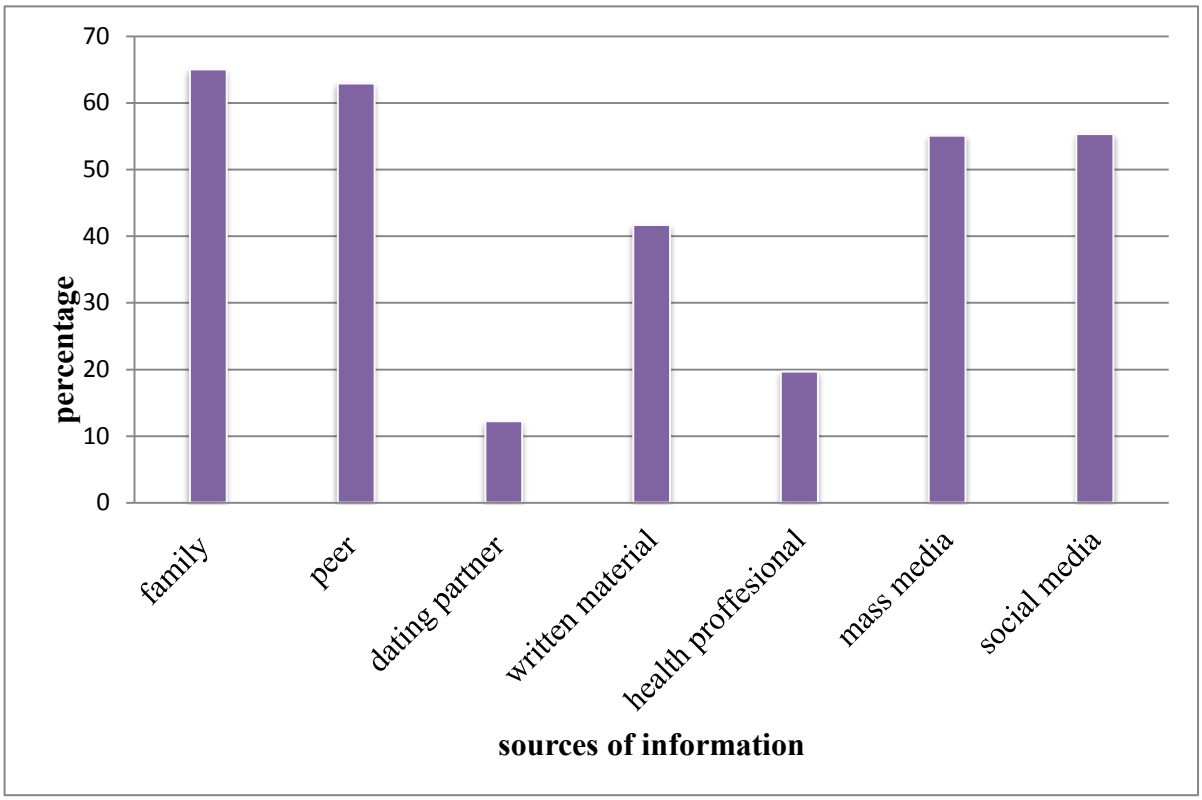
Table.4. Engagement in unhealthy weight control practice within the last 30 days based on age, school type, socio-economic status and depression status among female high school adolescents in Addis Ababa, Ethiopia, 2017.

Characteristics	Unhealthy weight control practice				p-value
	Yes		No		
	N	%	N	%	
Age					
Middle adolescent	151	55.9	119	44.1	-
Late adolescent	227	58.4	162	41.6	0.69
School type					
Private/missionary/community/	178	60.5	116	39.5	0.21
Government/public	200	54.4	168	45.6	-
Socio-economic status					
Poorest	74	51.4	70	48.6	-
Poor	68	53.5	59	46.5	0.71
Medium	70	56.4	54	43.6	0.47
Wealthy	88	65.7	46	34.3	0.01*
Wealthiest	77	59.2	53	40.8	0.22
Depression status					
No depression	99	48.8	104	51.2	-
Mild	104	61.8	168	38.2	0.03*
Moderate	78	56.9	59	43.1	0.33
Moderately severe	25	73.5	9	26.5	0.08

5.2.1. Engagement in weight control practice and source of information

Sources of information that are used by female high school adolescents to get engaged in weight control practice are presented on figure 3.

In this study Family (64.9%), peer (62.8%) and social media (55.3%) were referred as the most common sources of information for engagement in weight control practice.



*multiple answers were possible

Figure.3 Sources of information for female high school adolescents to get engaged in unhealthy weight control practice, Addis Ababa, Ethiopia, 2017

5.3. Body weight misperception and BMI-for-age

In this study, perceived normal weight and perceived overweight was prevalent among 78.5% and 14.2% of female high school adolescents, consecutively. On the other hand, 7.3% of female adolescents perceived their body as underweight. Among those who perceived themselves to be overweight 13.5% was normal weight on BMI-for-age. On the other hand among those who perceived themselves to be normal weight 49.4% were overweight.

The percentages of agreement between perceived body weights and BMI-for-age were tested by using Cohen‟s kappa test and it shows 62.7% agreement, kappa value indicating “none to slight agreement” (0.19). The difference between perceived body weight and actual BMI-for-age is presented on table 5.

Table.5.The differences between perceived body weight and BMI-for-age among female high school adolescents, Addis Ababa, 2017

Perceived body weight	BMI for age (actual BMI)			Overall agreement	Kappa value (95%CI)
	Underweight N (%)	Normal weight N (%)	Overweight N (%)		
Underweight	31(18.3)	17(3.9)	2(2.5)	62.7%	0.19
Normal weight	138(81.7)	360(82.6)	39(49.4)		
Overweight	0	59(13.5)	38(48.1)		

5.4. Body part dissatisfaction and BMI for age

In this study, 33.9% of female adolescents with weight dissatisfaction and 40.6% of female adolescents with middle torso dissatisfaction were found in normal weight group. Body part satisfaction status of female high school adolescents in terms of BMI-for-age is presented on table 6. Furthermore, among those in overweight group, 56(70.8%) were dissatisfied with their middle torso.

Table.6:-.Body part satisfaction in terms of BMI-for-age among female high school adolescents, Addis Ababa, 2017.

Body part satisfaction	**BMI -for –age**					
	Underweight		**Normal weight**		**Overweight**	
	N	**%**	**N**	**%**	**N**	**%**
Middle torso						
Satisfied	154	91.7	256	59.4	23	29.1
Dissatisfied	14	8.33	175	40.6	56	70.8
Lower torso						
Satisfied	132	78.6	337	77.7	51	64.6
Dissatisfied	36	21.4	97	22.3	28	35.4
Weight						

Satisfied	131	78.9	288	66.5	26	33.3
Dissatisfied	35	21.1	145	33.5	52	66.7
Overall appearance						
Satisfied	151	89.9	339	77.9	52	65.8
Dissatisfied	17	10.1	96	22.1	27	34.2

5.5. Unhealthy weight control practice and BMI for age

Table.7 presents the results of bivariate logistic regressions for associations between unhealthy weight control practice and BMI for age.

Among female adolescents in underweight group 49(29.5%) were engaged in unhealthy weight control practice. on the other hand among those who are overweight for BMI-for-age 65(85.5%) were engaged in unhealthy weight control practice.

Table.7 Distribution of unhealthy weight control practice in the last 30 days by BMI-for-age among female high school adolescents in Addis Ababa, Ethiopia, 2017

Characteristics	**Unhealthy weight control**		**p-value**
	Yes (N, %)	**No (N, %)**	
BMI for age			
Underweight	49(29.5)	117(70.5)	-
Normal weight	264(62.9)	156 (37.1)	0.000
Overweight	65(85.5)	11(14.5)	0.000

5.6. Unhealthy weight control practice and depression

Among female adolescents in mild depression group 168(61.8%) were engaged in unhealthy weight control practice. on the other hand among those in moderately severe depression

group 25(73.5%) were engaged in unhealthy weight control practice. table .8 presents prevalence of unhealthy weight control practice in terms of depression status

Table 8.Prevalence of unhealthy weight control practice in terms of depression status among female high school adolescents, Addis Ababa, Ethiopia, 2017

Characteristics	Unhealthy weight control		p-value
	Yes (N, %)	No (N, %)	
Depression status			
No depression	99(48.8)	104 (51.2)	-
Mild depression	168(61.8)	104 (38.2)	0.03
Moderate depression	78(56.9)	59 (43.1)	0.33
Moderately severe	25(73.5)	9 (26.5)	0.08

5.7. Multivariate Analysis Showing Association between Main Predicting Factors and Unhealthy Weight Control Practice

After controlling the effect of other predictor variables, the multivariate logistic regression analysis showed statistically significant association between perceived over weight, middle torso body part dissatisfaction, peer influence, BMI-for-age and unhealthy weight control practice with p-value<0.05. (Table.9)

In this study, the odds of getting engaged in unhealthy weight control practice were 5.7times higher among those within perceived overweight group than adolescents in perceived underweight group, [AOR =5.7; 95% CI =1.17-27.90].

Furthermore, female adolescents within dissatisfied group for middle torso had 1.4 times higher odds of getting engaged in unhealthy weight control practice than those within satisfied group, [AOR=1.4; 95% CI=1.05-1.89].

The odds of getting engaged in unhealthy weight control practice among those with peer influence were significantly higher than those with no peer influence, [AOR=1.86; 95%CI=1.05-3.28].

In addition to that, female adolescents within overweight group for BMI-for-age had 5.2 times higher odds of getting engaged in unhealthy weight control practice than those within underweight group, [AOR=5.2; 95% CI=1.42-19.23].

There is also 2.5 times higher odds of getting engaged in unhealthy weight control practice among female adolescents in actual normal weight group than those within underweight group, [AOR=2.5;95% CI= 1.64-3.85].

Table.9.Multivariate analysis showing association between socio-demographic factors, psychological factors, socio-cultural factors and BMI-for-age with engagement in unhealthy weight control practice within the last 30 days among female high school adolescents, Addis Ababa, 2017.

Characteristics	Unhealthy weight control		COR(95%CI)	AOR(95%CI)
	Yes (N, %)	No (N, %)		
mother's education				
No formal education	86(52.4)	78(47.6)	1.0	1.0
Primary education	47(48.4)	50(51.6)	.85[.57-1.25]	.94[.48-1.83]
Secondary education	112(61.2)	71(38.8)	1.43[1.04-1.95]	1.17[.80-1.72]
technical school & above	131(60.9)	84(39.1)	1.41[1.04-1.91]	1.02[.76-1.37]
With whom do you live?				
Both my father & mother	228 (58.3)	163 (42.6)	.91[.53-1.57]	1.03[0.54-1.98]
father /mother only	59 (47.2)	66 (52.8)	.58[.27-1.25]	0.61[0.24-1.54]
sisters/brothers	24 (66.7)	12(33.3)	1.30[.41-4.18]	1.64[.42-6.29]
relatives	66 (60.6)	43(39.4)	1.0	1.0
Quintile (wealth index)				
Poorest	74(51.4)	70(48.6)	1.0	1.0
Poor	68(53.5)	59(46.5)	1.09[.63-1.87]	1.04[.50-2.18]
Medium	70(56.5)	54(43.5)	1.22[.64-2.32]	1.06[.46-2.42]
Wealthy	88(65.7)	46(34.3)	1.80[1.24-2.62]	1.18[.57-2.41]
Wealthiest	77(59.2)	53(40.8)	1.37[.77-2.43]	1.06[.55-2.05]

Perceived weight				
Underweight	14(30.4)	32(69.6)	1.0	1.0
Normal weight	281(53.8)	241(46.1)	2.66[1.61-4.40]	2.24[.94-5.29]
Overweight	82(88.2)	11(11.8)	17.03[5.68-51.07]	5.73[1.17-27.9]*
Depression				
None	99(48.8)	104 (51.2)	1.0	1.0
Mild	168(61.8)	104 (38.2)	1.69[1.06-2.72]	1.36[.68-2.71]
Moderate	78(56.9)	59 (43.1)	1.38[.65-2.96]	1.11[.39-3.10]
Moderately severe	25(73.5)	9 (26.5)	2.91[.83-10.32]	2.73[.84-8.82]
Upper torso satisfaction				
Satisfied	286(54.7)	237(45.3)	1.0	1.0
Not satisfied	90(69.2)	40(30.7)	1.86[1.22-2.83]	.96[.64-1.46]
Middle torso satisfaction				
Satisfied	203(48)	220(52.0)	1.0	1.0
Not satisfied	173(73.6)	62(26.4)	3.02[2.48-3.67]	1.41[1.05-1.89]*
Lower torso satisfaction				
Satisfied	279(55.3)	226(44.7)	1.0	1.0
Not satisfied	98(63.2)	57(36.7)	1.39[.91-2.13]	0.95[.58-1.55]
Weight satisfaction				
Satisfied	219(50.5)	215(49.5)	1.0	1.0
Not satisfied	157(71)	64(29)	2.40[1.57-3.68]	1.33[.55-3.25}
Overall appearance				
Satisfied	280(53.3)	245(46.7)	1.0	1.0
Not satisfied	97(71.9)	38(28.1)	2.23[1.65-3.02]	.88[.54-1.44]
Family influence				
Yes	139(72.8)	52(27.2)	2.57[1.76-3.74]	1.59[.94-2.69]
No	239(51.0)	230(49.0)	1.0	1.0
Peer influence				
Yes	130(75.1)	43(24.9)	2.92[1.83-4.65]	1.86[1.05-3.28]*
No	247(50.8)	239(49.2)	1.0	1.0
Dating partner influence				
Yes	24(58.5)	17(45.5)	1.05[.318-3.521]	0.65[.19-2.13]

No	353(57.2)	265(42.9)	1.0	
Mass media influence				
Yes	80(66.1)	41(33.9)	1.58 [.90-2.77]	1.21[.60-2.44]
No	297(55.2)	241(44.8)	1.0	1.0
Social media influence				
Yes	94(70.7)	39(29.3)	2.06[.966-4.433]	1.32[.50-3.50]
No	283(53.8)	243(46.2)	1.0	1.0
BMI for age				
Underweight	49(29.5)	117(70.5)	1.0	1.0
Normal weight	264(62.9)	156 (37.1)	4.04[2.77-5.88]	2.51[1.64-3.85]**
Overweight	65(85.5)	11(14.5)	14.12[9.21-21.60]	5.22[1.42-9.23]**

***p-value <0.05, **p-value<0.01**

6. Discussion

The main aim of this study was to examine the magnitude of unhealthy body weight control practices among female high school adolescents and examine common predicting factors that could have significant relationship with unhealthy weight control practice. This study revealed that weight loss attempt is prevalent among female high school adolescents in Addis Ababa. In the present study the prevalence of engagement in unhealthy weight control practice within the last 30 days among female high school adolescents were 57.1%. Perceived overweight, being normal weight and overweight, middle torso body part dissatisfaction and peer influence were found to have significant association with engagement in unhealthy weight control practice. Family, peer, mass media and social media were the common sources of information.

Findings in the present study showed that weight loss attempt were prevalent among female high schools adolescents consistent with studies in other developing countries (9, 50-52). This implies that female adolescents not only give attention to their body image but also intend to lose or maintain their body weight. In the present study, the prevalence of engagements in unhealthy weight control practices within the last 30 days were found to be prevalent among 57.1% of female high school adolescents. In low and middle income countries the prevalence of unhealthy weight control practice among adolescents and adults ranges from 30.8%-77% of which girls were more likely to get engaged in such practices than boys (6, 9, 20-22). Even though our finding lies in the above mentioned range, possible explanation for the slight difference in the prevalence of UWCP with studies done in African countries could be due to the different cut-off points used classify adolescents engaged in UWCP. The time frame used such as whether their practice was measured within the last one year or one month could also be a possible reason. Overall the high prevalence of engagement in unhealthy weight control practice could be a sign which shows that the western concept of leanness as a sign of beauty and attractiveness is no more restricted to those countries any more.

On the other hand, in the present study skipping meal, eating less amount of food than usual and doing vigorous exercise were the most commonly used weight control methods. Similar

trend of using such weight control methods such as eating less amount of food than usual, skipping meal, long hour fasting and food restriction were observed in other studies (1, 4, 7, 22). The above methods are considered easy and quick ways to control body weight in a short period of time(4). However studies show that these practices could increase the risk of poor mental well-being (53). Possible explanation for this could be the fact that such weight control methods needs no finance and could be practiced easily. In addition to that they might expect it will bring an acute body change with no negative health and nutritional consequence. This implies that not only the pattern of food consumption that is changing but also a shift towards the concept of thin body image is being achieved. Furthermore, in this study purging behaviors such as the use of diet pills or laxatives and self-induced vomiting is less than non-purging behavior. However self-induced vomiting is the most commonly practiced purging behavior among female adolescents. This might be due to the fact those medications and weight loss pills have to be purchased with a relatively expensive price and should also be prescribed by a health professional. In addition to that adolescents might have been unable to get the chance to access those medications such as laxatives and diuretics. Yet, studies showed that even small percentage of adolescents getting engaged in purging behavior puts them at high risk of developing dietary disorder, increased level of appearance dissatisfaction, anemia, electrolyte imbalance, anxiety and depressive symptoms (4, 5, 54).

In the present study female adolescents were found to have inaccurate perception of being underweight, normal weight and overweight. However, inaccurate perception of being overweight was higher than inaccurate perception of being underweight. This perception of being overweight was found to have significant association with engagement in unhealthy weight control practice. Different studies conducted in both developed and developing countries showed a great variation in perceived body weight and BMI-for-age among adolescents(2, 20, 22, 25, 55). This suggests that whether it‟s accurate or inaccurate, perception of being overweight was found to have association with engagement in UWCPs (1, 52, 55-57). This might indicate that the body weight concern towards thinness is leading high school adolescents to have wrong perception about their weight even though they are in the normal weight range. Studies also showed Significantly higher weight loss attempt among those who perceived themselves as overweight (9, 50). Possible explanation for this could be the need to be thin and not having the right information on the difference between

underweight, normal weight and overweight. Trial to imitate the look of others, a model or a movie star, and comparing oneself with socially acceptable body images could also be another possible explanation. Furthermore, failure to perceive correctly might also be leading adolescents not to follow healthy weight control methods.

The other major finding in this study is body part dissatisfaction. It was found that body weight dissatisfaction was prevalent among 34.3% of female adolescents. However, middle torso dissatisfaction was 36.1% having significant association with engagement in unhealthy weight control within the last 30 days. This study was also able to show the existence of body part dissatisfaction even when adolescents were in the normal weight range. This implies that the intention of female adolescents is not only having a normal weight rather having unattainable ideal image. However, failure to achieve unrealistic and unattainable ideals thinness might be one possible reason for body part dissatisfaction. The vulnerability of girls to body dissatisfaction may also be attributed to comments made among each other. This could also be due to the influential nature of opinions about body fat and appearance and the important role of friends during adolescence. Body weight dissatisfaction in developing countries ranges from 52%-75.2% (18, 35, 58). This difference might be due to a different body satisfaction measurement (scale) being used. In other studies weight dissatisfaction not only were found to have association with unhealthy weight control but were also found to be affected by media influence (58). Adolescents who were teased by family members were also found to have association with abdomen and waist area dissatisfaction leading them to inappropriate weight control behaviors such as vomiting, dieting and use of laxatives (18). This implies body part satisfaction is influenced by different factors by itself. Adolescents who are bullied at school or at home and those with wrong perception about their body might be prone to have body part dissatisfaction. In addition overall body image dissatisfaction and engagement in unhealthy weight loss practices have been observed among those who links thinness with beauty (20, 34).

Apart from this, no significant association was observed between depression and engagement in unhealthy weight control practice. However, studies showed that most of body weight control strategies, including purging, and non-purging type were associated with depressive symptoms (59). This might be due to the gradual occurrence depression when compared with

engagement in unhealthy weight control practice. However this might need further research since in some studies depression was considered as an outcome measure that follows engagement in unhealthy weight control practice and in others it was found to be mediating the relationship between adolescent‟s perception of overweight and UWCP(5).

In the present study, peer influence was the only socio-cultural factor that has significant relationship with unhealthy weight control practice. It showed that 34.4% of female adolescents who were engaged in at least one unhealthy weight control method were found to have peer influence. According to a qualitative study conducted in South Africa ,most of the factors that influence adolescents to get engaged in different unhealthy weight control practices are mainly imposed by peers and family members(20). This concept has also been showed in a systematic review of research done in India. The review identified that peer pressure, mass media and culture are the main contributing factors influencing body weight, weight control concern and eating behavior of adolescent girls (60). Seeking for attention, the need to be attractive and searching for acceptance between peer groups is common in adolescence. In addition to that, since adolescence is a period of identity formation, to cope up with different change in life events, they might easily be influenced by societal opinions, mainly of peers. This could be a possible explanation why Peer influence not only affects female adolescent‟s engagement in unhealthy weight control, but also is the best predictor of unhealthy eating habits among adolescents (19). In addition to that, it is believed that female adolescents spend most of their time both in school and at home with their friends. During those times they might share information and discuss on different weight control methods and dieting mechanisms. Since parents in urban area often are at work adolescents get the chance to spend almost the whole day with friends (19, 20, 60), which gives them the opportunity to try different weight control methods.

In the present study approximately 85.3% of overweight, 62.86% of normal weight and 36.67% of thin female high school adolescents were engaged UWCP. Significant association was also found between BMI-for-age (normal weight and overweight) and engagement in UWCP. Similar trend of weight control attempt and engagement in unhealthy weight control practice among normal weight and overweight adolescents were found in other studies (50, 52, 61). However, a study conducted in Hong Kong was inconsistent with our finding and

showed no significant relationship between BMI for age and engagement in both unhealthy and healthy weight control practices.(1) This difference might be due to the problem in using self-reported data in the metric calculation of BMI on the study done in Hong Kong. Since there is a probability for adolescents to over-report their height and under-report their weight (1).

Furthermore, Family (64%) and peer (62.86%) were the two major sources of information in this study followed by information from social media (55.29%) and mass media (55.05%). Adolescents in other countries were also found to use mass media (TV, Radio), social Medias and written material as a source of information to get engaged in weight control practice (9, 43). The increase in weight loss concern, the changing culture of considering thinness as a symbol of beauty, the change in life style and the different weight loss products promoted in satellite televisions might be possible explanations for the use of those Medias as source of information. On the other hand, the fact that magazines, newspapers, television, films and even novels predominantly use images of thin models might have created a false interpretation among female high school adolescents to use those media‟s as a source of information.

7. Limitations and strength of the study

7.2. Limitations of the study

This study has several limitations that should be taken in account while doing generalizability. The first limitation of this study is that temporal relationship could not be identified on this study. Since, it is not possible to tell if there is a change in BMI after engagement in unhealthy weight control practice or if there is a change in body part satisfaction after getting engaged in unhealthy weight control practice. Even though face validity was done, body part satisfaction measurement scale was not a validated measurement in Ethiopia .on the other hand; female adolescents in early adolescent group were not included in this study.

7.3. Strength of the study

As a major strength, this research study tried to address a hidden but important public health concern of female adolescents. In addition to that, for the one who needs to conduct another assessment, as my knowledge this study is an original study in this particular study area which is expected to generate base line information. Possibilities of participants comparing and sharing responses has been avoided as the data was collected in the school‟s meeting hall or in the library, after informed consent was obtained. Face validity were conducted on a sample of adolescents before using measurement scale which is not validated in Ethiopia. Finally instead of self-reported weight and height measurement, actual BMI-for-age was calculated after taking anthropometric measurement.

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8. Conclusions and recommendations

8.1. Conclusions

The findings of this study gave insight on the high prevalence of unhealthy weight control practice among female high school adolescents in Addis Ababa.

The study also have got significant association between perceived overweight, middle torso dissatisfaction, Peer influence, BMI-for-age and engagement in unhealthy weight control practice within the last 30 days among female high school adolescents in Addis Ababa.

8.2. Recommendations

For school clubs

- Female Adolescents should be given attention and be informed on proper weight management strategies through different clubs in the school, such as girls club and school mini medias
- Guidance counselors and Schools clinics should be existent at all schools and should have preventive resources and interventions to assist those students who are in need.

For the Medias and the general public

- Adolescents with serious concern about their weight and those with preference to lose or maintain their weight should be provided with appropriate and effective guidance to attain desirable behavioral changes and achieve their goals.
- Overweight adolescents should be better informed and motivated to follow recommended weight loss strategies.
- Since Mass Medias and Social Medias are common sources of information next to family and peer, attention should be given on advertisements and information transmitted as it might lead to false interpretation in body image among female adolescents.

For health care authorities

- Health professionals at all level should be informed so that they could give attention and proper counseling on healthy weight management strategy.
- Intervention programs should consider giving attention for such hidden but important public health issues since the negative health and nutritional consequence could be minimized from the grass root level.

For researchers

- Studies accounting adolescents at early adolescents should be conducted.
- Community based longitudinal studies will better show the peak age where such engagement in unhealthy weight control starts among different age groups.
- Qualitative studies to further investigate what other weight control methods are being practiced among female adolescents.

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Annex 1: Informed Consent and/or Ascent Form (English version)

Addis Ababa University, School of public health

Subject Information Sheet

Hello,

My name is ———————————————— I am here on behalf of Tigest Ajeme, a student in Addis Ababa University School of public health nutrition unit. She is conducting a research on "unhealthy weight control practices and related factors" among female adolescents in selected high schools of Addis Ababa. She has received permission from Addis Ababa university school of public health and the respected sub city education bureau to conduct this study.

You are selected by multistage random sampling technique to participate in this study because you are currently attending in one of those selected high schools for the study purpose. Your participation on this study will only be on based on your willingness .You have the right to choose not to take part in this study. If you choose to take part, you have the right to stop at any time. If you are willing to participate or refuse or decide to withdraw later, you will not be subjected to any ill-treatment.

If you agree to participate in the study, your weight and height will be measured using standard measuring instruments. Only light closes will be wearing during weight measurement and height will be measured with bare foot. You will also be interviewed about your body weight perception, body satisfaction, symptoms of depression, your weight control practice and possible sources of information that could be associated with your weight control practice. You can stop at any time if you don‟t feel comfortable during an interview and measurement process. The measurement and filling the questionnaire will take about 30 minutes.

The study could provide base line data for policy makers and relevant stakeholders for designing and implementing effective healthy weight control programs and strategies. It could also give insight on the prevalence of unhealthy weight control practice among female adolescents and what major factors could be associated. The information that you provide will be kept confidential by using only code numbers and locking the data. Your name will not be written on the questionnaire. No one will have access to the non-coded data except the principal investigator and the data will not be used for purposes other than the study. Your willingness and active participation is very important for the success of this study.

Informed Consent and/or Ascent Form

Based on the understanding of the above information, are you willing to participate in this study?

A) Yes

B) No

If yes, I will continue and

If no I will skip to next participant after writing the reasons of refusal ———————————————————————————————

Respondent (For both under and above 18 years old)

Signature _____Date_____

Respondents Parent (for those under 18 years old)

Signature _____Date_____

Name of the person obtaining parental permission ———————————————————

Data collector

Name_____ Signature_____

Questionnaires ID number_____

Date of data collected_____

Result of data collected

A) Completed

B) Not completed

C) Partially completed

D) Refused

Checked by Supervisor: Name _____Signature_____

For further explanation use the Principal Investigator‟s Address;

Name: Tigest Ajeme Tuffa

Email: tgabysinia@gmail.com

Cell phone: +251 913641514

: +251938503356

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Annex 2: Survey Questionnaire (English Version)

Questionnaire ID Number _____

Addis Ababa University School of Public Health

Survey Questionnaire to assess unhealthy weight control practice among female high school adolescents in Addis Ababa

Respondent‟s grade/ no _____ .

Name of School _____.

Date of data collection ———————/DD/———————

/MM/———————/YR/

Data collector Name ———————————

signature ———————————

Checked by Supervisor Name ———————————

Signature ———————————

Part1. Background information

Please Circle your possible answer in the response box.

No.	Questions	Responses	Skip
101	Age of respondent		
102	What is your religion?	1. Orthodox 2. Catholic 3. Protestant 3. Muslim 4.Other (Specify) _____	
103	How much is your household family size including you?		
104	What is your father‟s educational Status?	1. Illiterate (can‟t read and write) 2. Can read and write 3. Primary school (grade 1-8) 4. Secondary school (grade 9-12) 5. Some college or technical school 6. College graduate or above 7. I don‟t know 8. Father is not alive	
105	What is your mother‟s educational status?	1. Illiterate (can‟t read and write) 2. Can read and write 3. Primary school (grade 1-8) 4. Secondary school (grade 9-12) 5. Some college or technical school 6. College graduate or above 7. I don‟t know 8. Mother is not alive	

107	With whom do you live now?	1. With both of my parents 2. With my mother only 3. With my father only 4. With brothers/sisters 5. With grandparents 6. With cousins 7. With mother/father and a stepfather or stepmother 8. With my friends 9. Others (specify) ————	
108	What grade are you now?		
109	School type?	1.private/ /community/ missionary 2.government./public	

Part2. Household socio-economic status (Wealth Index) The next questions ask about your household assets, services and housing conditions .please circle your possible answer within the response box.

No.	**Questions**	**Responses**	**Skip**
1. Household assets & services – In answering the questions below please think of assets & services available in your household			
201	Television	1. Yes 2. No	
202	Radio/tape recorder	1. Yes 2. No	
203	Mobile telephone	1. Yes 2. No	
204	Non-mobile/fixed telephone	1. Yes 2. No	
205	Electric stove	1. Yes 2. No	
206	Refrigerator	1. Yes 2. No	
207	Laundry machine	1. Yes 2. No	
208	Sofa	1. Yes 2. No	
209	Bicycle/motorcycle	1. Yes 2. No	
210	Car	1. Yes 2. No	
211	Domestic servant	1. Yes 2. No	

2. Housing Condition – please answer the following questions thinking about the housing condition of your household and circle your possible answer.			
212	Home ownership	1. Private 2. Government 3. Rent 4. Other (specify) ——	
213	Number of rooms		
214	Number of individuals per sleeping room		
215	Roofing material	1. Natural material 2. Corrugated iron 3. Tiles 4. Other (specify) ——	
216	Flooring material	1. Mud 2.Parquet/polished wood 3. Cement 4. Ceramic tiles 5. Carpet 6. Other (specify) ——	

Part3. Body weight perception assessment

No	Questions	Response	Skip
301	How do you Perceive your body weight status	1. Less than normal weight (underweight)	
		2. healthy/normal weight	
		3. more than normal weight (overweight)	
		4. much more than normal weight (obese).	

Part 4.Body part satisfaction scale

For the following measurement, write the number or put "√" signs for the way you feel about Parts of your body

	Extremely dissatisfied (1)	Quite dissatisfied (2)	Some-what dissatisfied (3)	Some-what satisfied (4)	Quite satisfied (5)	Extremely satisfied (6)
Face (facial features, complexion, hair)						
Upper torso (chest or breasts, shoulders, arms)						
Mid torso (waist, stomach)						
Lower torso (buttocks, hips, legs, ankles)						
Muscle tone						
Height						
Weight						
Overall appearance						

Part 5. PHQ-9/ validated tool to assess depressive symptoms in Ethiopia

1.Over the last 2 weeks, how often have you been bothered by any of the following problems?

No.		Not at all (0)	Several days (1)	More than half the days (2)	Nearly every day (3)
601	Little interest or pleasure in doing things.				
602	Feeling down, depressed, or hopeless.				

603	Trouble falling /staying asleep, sleeping too much.				
604	Feeling tired or having little energy.				
605	Poor appetite or over eating.				
606	Feeling bad about yourself or that you are a failure, or have let yourself or your family down.				
607	Trouble concentrating on things, such as reading the newspaper or watching TV.				
608	Moving or speaking so slowly that other people could have noticed. Or the opposite; being so fidgety or restless that you have been moving around more than usual.				
609	Thoughts that you would be better off dead or of hurting yourself in some way				

2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all □

Somewhat difficult □

Very difficult □

Extremely difficult □

Part 6.weight control practice assessment

No	Question	Response	Skip
701	What is your Preference about your body weight?	1. Gain weight…….→ 2.Lose weight 3.Maintain weight	704
702	Have you ever tried to lose weight, avoid gaining weight or maintain your body weight?	1.yes 2. No……..…….→	704

703	**If your answer is yes, have you tried to do any of the following things within the last 30 days in order to lose Weight, avoid gaining weight or maintain your body weight?**						
		Never	Occasionally	Once a week	2-3 times a week	More than 5times a week	Daily/always
1	Doing excessive exercise or >1hour per day						
2	Skipping meal/breakfast, lunch or dinner						
3	Fasting for ≥ 24 hr./long hour fasting						
4	Eating less food than usual						
5	Taking laxatives or diuretics						
6	Self-induced vomiting after taking meal						
7	Eating a one-food diet						
8	Taking slimming tea/diet pill						
9	Eating food substitutes (e.g.,						

	a special drink).						
704	**What are your sources of information to get engaged in weight control practice?**						
				Yes		No	
1	Families						
2	Peers						
3	Dating partners						
4	Written materials (newspapers and magazines)						
5	Health Professionals						
6	Mass medias (TV, Radio)						
7	Social medias (e.g. Facebook)						
5	**Have you ever been influenced by any of the following to get engaged in weight control practice?**						
		yes			No		
1	Families						
2	Peers						
3	Dating partners						
4	school teachers						
5	Mass medias (TV, Radio)						
6	Social medias(e.g. Facebook)						

To be recorded by data collector

Part 4.Anthropometric measurement /BMI assessment

No	Anthropometric indices	Result
401	Height	
402	Weight	

Thank you very much!

Annex 3፡ Informed Consent and/or Ascent form (Amharic version)

አዲስ አበባ ዩኒቨርስቲ ጤና ሣይንስ ፋኩልቲ የህብረተሰብ ጤና አጠባበቅ ትምህርት ክፍል

የተጠያቂው / መላሾች የመረጃ ቅፅ

ጤና ይስጥልን እንደምን ነዎት

ስሜ———————————— ይባላል፡፡ የመጣሁት በአዲስ አበባ ዩኒቨርስቲ የህብረተሰብ ጤና አጠባበቅ የስነ-ምግብ ትምህርት ክፍል ተማሪ የሆነችውን ትእግስት አጀመን ወክዬ ነው፡፡ ሴት ተማሪዎች በጉርምስና ወቅት ውፍረትን ለመቆጣጠር የሚተገብሯቸውን ጤናማ ያልሆኑ ተግባራትና ተያያዥ ምክንያቶችን ለማወቅ በአዲስ አበባ በሚገኙ የግልና የመንግስት ት/ቤቶች ላይ ጥናት እያደረገች ሲሆን ከአዲስ አበባ ዩኒቨርሲቲ ፣ አዲስ አበባ ት/ት ቢሮና ከተመረጡት ትምህርት ቤቶችም ፍቃድ አግኝታለች፡፡

እርስዎ በዚህ ጥናት ላይ እንዲሳተፉ የተመረጡት በተደጋጋሚ በተደረገ የአጋጣሚ የናሙና አወሳሰድ ስልት መሰረት ለዚህ ጥናት አላማ ከተመረጡት ትምህርት ቤቶች በአንዱ ውስጥ ስለሚማሩ ነው፡፡በጥናቱ ላይ ያለመሳተፍ ሙሉ መብት አለዎት፡፡ የእርስዎ ተሳትፎ ሙሉ በሙሉ በእርስዎ ሙሉ ፍቃደኝነት ላይ የተመሰረተ ነው፡፡ ለመሳተፍ ፈቃደኛ ከሆኑ በኋላም በፈለጉት ጊዜ ማቆም ወይም ማቋረጥ ይችላሉ፡፡ በጥናቱ ባለመሳተፎ የሚደርስቦት ምንም አይነት ችግር አይኖርም፡፡

በጥናቱ ለመሳተፍ ከተስማሙ ክብደትዎና ቁመትዎን ደረጃቸውን በጠበቁ መሳሪያዎች እንለካለን፡፡ ክብደት በሚለካበት ጊዜ ቀለል ያሉ ልብሶች እንዲሁም ቁመት በሚለካበት ጊዜ ደግሞ በባዶ እግር ይሆናል፡፡ በተጨማሪም የተወሰኑ ጥያቄዎችን እንጠይቆታለን፡፡ በዚህ መጠይቅ ስለ ሰውነትዎ ክብደት ያለዎት መረዳት ፤በሰውነት ክብደትዎ የሚሰማዎት እርካታ፤የድብርት ስሜት፤የሰውነት ክብደትን ለመቆጣጠር የሚተገብሯቸውን ተግባራትና ከዚህ ጋር በተገናኘ የመረጃ ምንጭ ሊሆኑ የሚችሉ ምክንያቶች የተመለከቱ ጥያቄዎች እጠይቅዎታለሁ፡፡ በመጠይቁ ጊዜ ጥሩ ስሜት ካልተሰማዎት በማንኛውም ጊዜ አቋርጠው መሄድ ይችላሉ፡፡ መጠይቁና ልኬቱ 30 ደቂቃ ይህል ይፈጃል፡፡

ይህ ጥናት ፖሊሲ አውጪዎችና የሚመለከታቸው አከላት ጤናማ ያልሆኑ ውፍረትን ለመቀነስ ከሚደረጉ ተግባራት ጋር ተያያዥ ችግሮችንና የመከላከያና መቆጣጠርያ መንገዶችን እንዲቀርፁና እንዲተገብሩ እንደ መነሻ ይሆናል የሚል ፅኑ እምነት አለን፡፡

በመጨረሻም ከእርስዎ የምንሰበስበው መረጃ ከስምዎ ጋር አይያያዝም፡፡ ስምዎት እንደማይጠቀስና ለማንም አካል ተላልፎ እንደማይሰጥ ልናረጋግጥልዎት እንወዳለን፡፡ የዚህ ጥናት ውጤት ግን ተጠርዞ እና ተዘጋጅቶ ጉዳዩ ለሚመለከታቸው የጤና ድርጅቶች ወይም ለሌሎች አካላት ሊሰጥ ይችላል፡፡

የስምምነት መጠየቂያ/ማረጋገጫ ቅፅ

ከላይ በሰጠዎት መረጃ መሰረት በጥናቱ ላይ ለመሳተፍ ፍቃደኛ ነዎት?

1. አዎ

2. አይደለሁም

ፍቃደኛ ካልሆኑ ምክኒያቱን ፅፈው ወደሚቀጥለው ተሳታፊ እለፍ———————————————————

የተሳታፊ ፊርማ (ከ 18 አመት በታችም በላይም ላሉ ልጆች) ፊርማ——————ቀን——————

የተሳታፊ ቤተሰብ ፊርማ (ከ 18 አመት በታች ለሆኑ ልጆች) ፊርማ—————— ቀን——————

የቤተሰብ ፍቃድ ያገኘው ልጅ ስም———————

የመረጃ ሰብሳቢ

ስም————————————ፊርማ—————

የመጠይቁ ቁጥር———————

መጠይቁ የተካሄደበት ቀን————----------

የመጠይቁ ውጤት

1. ሙሉ በሙሉ የተሞላ

2. በከፊል የተሞላ

3. ምንም ያልተሞላ

በተቆጣጣሪዎች ተረጋግጧል፡ ስም——————ፊርማ—————

ለተጨማሪ ማብራሪያ የዋና አጥኚውን አድራሻ ይጠቀሙ

ስም፡ ትእግስት አጀመ

ኢሜይል: tgabysinia@gmail.com

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ማሳሰቢያ፡ ተሳታፊዎች የሚሰጡትን መልስ ከተሰጡት አማራጮች ውስጥ ለይተው ያክብቡ

Annex 4:Survey questionnaires (Amharic version)

የመጠይቁ መለያ ቁጥር————

በአዲስ አበባ ዩኒቨርስቲ ህክምና ሣይንስ ፋኩልቲ የህብረተሰብ ጤና አጠባበቅ ትምህርት ክፍል ሴቶች በጉርምስና ወቅት ውፍረትን ለመቆጣጠር የሚተገብሯቸውን ተግባራትና ተያያዥ ምክንያቶች እንዲሁም የመረጃ ምንጭ ሊሆኑ የሚችሉ መንገዶች በተመለከተ የተዘጋጀ የጥናታዊ ፅሁፍ መረጃ መሰብሰቢያ መጠይቅ

የት/ቤቱ ስም	
የተጠያቂው መለያ ቁጥር (ክፍልና ቁጥር)	
መጠይቁ የተሞላበት ቀን	_____/ቀን/_____ /ወር/_____ /ዓ.ም/
በተቆጣጣሪው ተረጋግጦአል	ስም _____. ፊርማ _____.

ክፍል 1.መሰረታዊ መረጃን የተመለከቱ ጥያቄዎች

ለቀረቡት ጥያቄዎች መልስዎ የሆነውን በመልስ ሳጥን ውስጥ ያሉትን ቁጥሮች በማክበብ ይግለፁ፡፡

ተ.ቁ	ጥያቄ	መልስ	ወደሚቀጥለው ጥያቄ ይሂዱ
101	ዕድሜሽ ስንት ነው?		
102	ሐይማኖትሽ ምንድነው?	ኦርቶዶክስ……1 ሙስሊም……2 ፕሮቴስታንት……3 ካቶሊክ……4 ሌላ ካለ ይጠቀስ——----------	
103	በምትኖሪበት ቤት ውስጥ አንቺን ጨምሮ የቤተሰብ ብዛት ስንት ነው?		
104	የወላጅ አባት የትምህርት ደረጃ?	ያልተማረ(ማንበብና መፃፍ የማይችል) ……1 ማንበብና መፃፍ የሚችል……2 የመጀመሪያ ደረጃ (ከ1ኛ - 8ኛ ክፍል)……3 ሁለተኛ ደረጃ (ከ9ኛ-12ኛ)……4 የተወሰነ የኮሌጅ ወይም ቴክኒክና ሙያ ት/ት ያለው……5 ኮሌጅያጠናቀወይምከዛበላይ……6 አላውቅም……7 አባቴበህይወትየለም……8	
105	የወላጅ እናት የትምህርት ደረጃ ?	ያልተማረች (ማንበብና መፃፍ የማትችል)……1 ማንበብና መፃፍ የምትችል ……2 የመጀመሪያ ደረጃ (ከ1ኛ-8ኛክፍል)……3 ሁለተኛ ደረጃ (ከ9ኛ-12ኛክፍል) ……4 የተወሰነ የኮሌጅ ወይምየቴክኒክናሙያት/ትያላት……5 ኮሌጅ ያጠናቀቀች ወይም ከዛ በላይ……6 አላውቅም……7 እናቴ በህይወት የለችም……8	
106	ከማን ጋር ነው የምትኖረው/ሪው?	ከእናትና ከአባቴ ጋር……1 ከእናቴ ጋር ብቻ……2 ከአባቴ ጋር ብቻ……3 ከእህቶቼ/ወንድሞቼ ጋር……4 ከአያቶቼ ጋር……5	

		ከአክስቴ/አጎቴ ልጆች ጋር……..……..6 ከእናቴና ከእንጀራ አባቴ ወይም ከአባቴ እና ከእንጀራ እናቴ……...……..7 ከጓደኞቼ ጋር……..8 ሌላ ካለ ይገለፅ ————————	
107	ስንተኛ ክፍል ነሽ?		
108	የት/ቤቱ አይነት	የግል/የሚሲዮን/የሀይማኖት ተቋም..……1 የመንግስት/የህዝብ…...…….…..……2	

ክፍል2. የቤተሰብን የሀብት ደረጃ የተመለከቱ ጥያቄዎች

የሚቀጥሉት ጥያቄዎች የሚኖሩበት ቤት ውስጥ ስለሚገኙ ንብረቶችና የቤት አሰራር ሁኔታ ይመለከታል				
ተ.ቁ	**ጥያቄ**	**መልስ**		
1. የቤት ንብረት እና አገልግሎቶች ፡- እባክዎ የሚቀጥሉትን ጥያቄዎች ቤትዎ ውስጥ ስለሚገኙ ንብረቶችና አገልግሎቶች እያሰቡ ይመልሱ				
201	ቴሌቪዥን	1. አለ	2. የለም	
202	ራዲዮ/ቴፕ	1. አለ	2. የለም	
203	ሞባይል/ተንቀሳቃሽስልክ	1. አለ	2. የለም	
204	የቤት (የመስመር) ስልክ	1. አለ	2. የለም	
205	የኤሌክትሪክምድጃ (ስቶቭ)	1. አለ	2. የለም	
206	ማቀዝቀዣ (ፍሪጅ)	1. አለ	2. የለም	
207	የልብስማጠቢያማሽን	1. አለ	2. የለም	
208	ሶፋ	1. አለ	2. የለም	
209	ብስክሌት/ሞተርብስክሌት	1. አለ	2. የለም	
210	መኪና	1. አለ	2. የለም	
211	የቤትሰራተኛ	1. አለ	2. የለም	
2. የቤት አሰራር ሁኔታ፡- እባክዎ የሚቀጥሉትን ጥያቄዎች ስለሚኖሩበት ቤት አሰራርና ሁኔታ እያሰቡ ይመልሱ				
212	የሚኖሩበት ቤት ባለቤትነቱ የማን ነው?	የግል…….....…1 የመንግስት (የቀበሌ)…..……...…..……2 ከግለሰብ ኪራይ…...……...……...…3 ሌላ ካለ ይገለፅ----------		
213	የሚኖሩበት ቤት ስንት ክፍል አለው ?			
214	በቤትዎ ውስጥ በአንድ የመኝታ ክፍል ስንት ሰው ይጠቀማል?			
215	የሚኖሩበት ቤት ጣሪያው ምንድን ነው?	የተፈጥሮ ቁስ (ለምሳሌ ሳር ወይም እንጨት.....1 ቆርቆሮ……..……..…...2 ግንብ……..…..……3		

		ሸክላ……...…….……..……4 ሌላ ካለ ይገለፅ ……..	
216	የሚኖሩበት ቤት ወለል ምንድን ነው?	አፈር……..…….....……1 ጣውላ…….…….……..…..……2 ሲሚንቶ…….....……3 ሴራሚክ (ሸክላ)……...……...…4 ስጋጃ (ምንጣፍ)……..…….5 ሌላ ካለ ይገለፅ ……..	

ክፍል3. የሰውነት ክብደት መጠን አረዳድን የተመለከቱ ጥያቄዎች

የሰውነትሽን የክብደት መጠን ይገልፃል ብለሽ የምታቢውን ከተሰጡት መልሶች ውስጥ በማክበብ አሳዩ

ተ.ቁ	ጥያቄ	መልስ
301	**የሰውነትሽን የክብደት መጠን እንዴት ትረጂዋለሽ/ታይዋለሽ**	ከጤናማ የሰውነት ክብደት መጠን በታች ……...……...1
		ጤናማ የሆነ የሰውነት ክብደት መጠን…….……..…2
		ከጤናማ የሰውነት ክብት መጠን በላይ…….…….……3
		ከጤናማ የሰውነት ክብደት መጠን እጅግ በጣም ከፍ ያለ……...…....4

ክፍል4. የሰውነት አቋም እርካታ/የሰውነት አካላዊ እርካታመለኪያ

የሚከተሉትን መለኪያዎች በመጠቀም ከዚህ በታች የተጠቀሱትን የሰውነት ክፍሎቻችሁን በተመለከተ ለሚሰማችሁ ስሜት ተቀራራቢ የሆነውን ምረጡ ::

	እጅግ በጣም ደስተኛ አይደለሁም (1)	በጣም ደስተኛ አይደለሁም (2)	በመጠኑ ደስተኛ አይደለሁም (3)	በመጠኑ ደስተኛ ነኝ (4)	በጣም ደስተኛ ነኝ (5)	እጅግ በጣም ደስተኛ ነኝ (6)
ፊት (በፊት ቅርፅ፣በፊት ጥራት እና ፀጉር)						
የላይኛው የሰውነት ክፍል (ደረት ወይም ጡት፤ትከሻና እጅ)						
የመካከለኛው የሰውነት ክፍል (ሽንጥ (ወገብ) እና ሆድ (ቦርጭ))						
የታችኛው የሰውነት ክፍል (ዳሌ ፤ባት(ታፋ) ፤እግርና ቁርጭምጭሚት)						
የጡንቻ አካል ጥንካሬ						
ቁመት						

ክብደት						
አጠቃላይ የሰውነት ገፅታ (አጠቃላይ የሰውነት አቋም)						

ክፍል 5.የመደበት ስሜትን በሚመለከት/PHQ-9 የመደበት ስሜትን መለኪያ

ባለፉት ሁለት ሳምንት ጊዜ ውስጥ የሚከተሉት ችግሮች በየስንት ጊዜ አጋጥሞሽ ያውቃል

ተ.ቁ		አጋጥሞኝ አያውቅም (0)	ብዙ ጊዜ ያጋጥመኛል (1)	ከግማሽ ቀን በላይ (2)	በየቀኑ (3)
501	ነገሮችን ለማድረግ ምንም/ ጥቂት ፍላጎት ያለማሳየት				
502	ደስታ ማጣት፤መደበት እና ተስፋ ማጣት				
503	እንቅልፍ ማጣት ወይም ለረዥም ሰአት መተኛት				
504	የድካም ስሜት ወይም አነስተኛ አቅም መኖር				
505	የምግብ ፍላጎት መቀነስ ወይም በብዛት መመገብ/ መብላት				
506	ስለራስሽ የሚሰማሽ መጥፎ ስሜት ወይም የውድቀት ስሜት፤ራስን ወይም ቤተሰብን ለውድቀት የመዳረግ ስሜት				
507	ነገሮችን በተመስጦ የማድረግ ለምሳሌ በንባብ ወቅት/ቴሌቪዥን በምትመለከችበት ወቅት				
508	ንግግር ወይም እንቅስቃሴ በሚያደርጉበት ወቅት ከወትሮው በተለየ የሰዎችን ትኩረት ለማግኘት በቀስታ ማድረግ፤ድምፅን ከፍ አድርጎ መናገር ወይም እረፍት ማጣትና መንቀዥቀዥ				
509	በህይወት መኖሬ ትርጉም የለውም ብሎ የማሰብ ወይም ራስን የመጉዳት ስሜት				

ይህን መጠይቅ በሚሞሉበት ጊዜ በዚህ መጠይቅ ውስጥ ያጋጠምዎት ችግር ምን ያህል በስራዎት ላይ፤ በቤት ውስጥ በሚያከናውኗቸው ተግባራት ላይና ከሰዎች ጋር ባለዎት መግባባት ላይ ምን ያህል አስቸጋሪ አድርጎብዎታል?

ምንም አስቸጋሪ አላደረገብኝም ☐

በጥቂቱ/በትንሹ አስቸጋሪ አድርጎብኛል ☐

በጣም አስቸጋሪ አድርጎብኛል ☐

እጅግ በጣም አስቸጋሪ አድርጎብኛል ☐

ክፍል 6:- የሰውነት ክብደትን ለመቆጣጠር የሚደረጉ ተግባራትን በተመለከተ

ተ.ቁ	ጥያቄ	መልስ	ወደሚቀጥለው ጥያቄ ይሂዱ
601	የሰውነት ክብደት መጠንን በተመለከተ የትኛውን ትመርጫለሽ?	ክብደት መጨመር……..1 ክብደት መቀነስ……..…..…..2 አሁን ያለኝን ክብደት ጠብቆ መቆየት……...…...…3	→ 604
602	የሰውነትሽን ክብደት ለመቀነስ ፤ ላለመወፈር ወይም ባለሽበት ለማቆየት ሙከራ አድርገሽ ታውቂያለሽ?(ለምሳሌ ምግብ መዝለል/ቁርስ ፤ ምሳ ወይም እራት መዝለል፤ከባድ ወይም በቀን ከ 1 ሰአት በላይ የአካል ብቃት እንቅስቃሴ ማድረግ፤ለረዥም ሰአት መፆም ወይም ከ 24 ሰአት በላይ መፆም፤ ከወትሮው በተለየ አነስተኛ ምግብ መመገብ)	አዎን…….....1 አላውቅም…..……...……..…2	→ 604

603	**መልስሽ አዎን ከሆነ ባለፉት 30 ቀናት ከሚከተሉት ውስጥ የሰውነትሽን ክብደት ለመቀነስ ፤ ላለመወፈር ወይም ባለበት ለማቆየት ሞክረሽው ወይም አድርገሽው የምታውቂው ተግባር አለ?**						
		ሞክሬ አላውቅም	አልፎ አልፎ	በሳምንት 1ቀን	በሳምንት ከ2-3 ቀን	በሳምንት ከ 5 ቀን በላይ	በየቀኑ/ በየእለቱ
1	ከባድ ወይም በቀን ከ 1 ሰአት በላይ የአካል ብቃት እንቅስቃሴ ማድረግ						
2	ምግብ መዝለል/ቁርስ ፤ ምሳ ወይም እራት መዝለል						
3	ለረዥም ሰአት መፆም ወይም ከ 24 ሰአት በላይ መፆም						
4	ከወትሮው በተለየ አነስተኛ ምግብ መመገብ						
5	ምግብ ለማስወጣት ወይም ሽንት ለማሸናት የሚረዱ መድሀኒቶችን መውሰድ						
6	የተመገቡትን ምግብ ተመልሶ እንዲወጣ ማድረግ						
7	አንድ አይነት ምግብ ብቻ መመገብ						
8	ውፍረት ለመቀነስ የሚረዳ መድሀኒት መውሰድ ወይም የሚያከሳ ሻይ መጠጣት						
9	ምግብን የሚተኩ ሌሎች ነገሮችን ለምሳሌ እንደ መጠጥ ያሉ ነገሮችን መውሰድ						
604	**ከሚከተሉት ውስጥ የሰውነት ክብደት ለመቆጣጠር የሚረዱ መንገዶችን ተግባራዊ ለማድረግ የመረጃ ምንጭ የሆነሽ አለ?**						

1	ቤተሰብ	1. አለ	2. የለም	
2	የት/ቤት ጓደኛ	1. አለ	2. የለም	
3	የፍቅር ጓደኛ	1. አለ	2. የለም	
4	የፅሀፈት ውጤቶች፤ጋዜጣና መፅሄት	1. አለ	2. የለም	
5	የጤና ባለሙያዎች	1. አለ	2. የለም	
6	የመገናኛ ብዙሀን(ቴሌቪዥን ፤ሬድዮ)	1. አለ	2. የለም	
7	ኢንተርኔት/ማህበራዊ ድረ-ገፅ(ፌስ ቡክ)	1. አለ	2. የለም	
605	**ከሚከተሉት ውስጥ የሰውነት ክብደት ለመቆጣጠር የሚረዱ መንገዶችን ተግባራዊ እንታደርጊ ተፅእኖ የሚፈጥርብሽ አለ?**			
1	ቤተሰብ	1. አለ	2. የለም	
2	የት/ቤት ጓደኛ	1. አለ	2. የለም	
3	የፍቅር ጓደኛ	1. አለ	2. የለም	
4	የ ት/ቤት መምህራን	1. አለ	2. የለም	
5	ቴሌቪዥን/ኢንተርኔት (ማህበራዊ ድረ-ገፅ)	1. አለ	2. የለም	
6	ኢንተርኔት/ማህበራዊ ድረ-ገፅ(ፌስ ቡክ)	1. አለ	2. የለም	

በመረጃ ሰብሳቢ/በጠያቂው የሚሞላ

ክፍል 7 የሰውነት መጠን ልኬት

ተ.ቁ	**የሰውነት መጠን ልኬት**	**ንባብ**
701	ቁመት (በሴንቲ ሜትር)	
702	ክብደት (በኪሎ ግራም)	

ስለትብብርዎ በጣም እናመሰግናለን!

TIGEST AJEME

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Email:tgabysinia@gmail.com

Personal Data

Name	Tigest Ajeme
Date of Birth:	SEPT 22, 1990
Sex:	Female
Marital status:	Single
Nationality:	Ethiopian

Education

2006-2011	Haromaya University, Bachelor of Science in Public health
2002-2006	Abyot kirs preparatory School

Professional Experience

Summary of Professional Experience:

- Over 2 years of experience as Hospital staff at Southern region of Ethiopia at Leku primary hospital as stabilization center Focal person for prevention of malnutrition in the area and as an Emergency department facilitator and then over two tears at Addis Ababa region, kirkos sub city, Efoyta Health center as Emergency focal person and as a Head of Medical delivery core process and member of the management team.

Major Duties and responsibilities

Experience with Leku primary hospital

May, 2011- may 2013

- Responsible on undertaking annual plan for stabilization center to help malnourished children.
- Admit children and adults with severe acute malnutrition.
- Work with community members and health extension workers in prevention of malnutrition.
- Providing trainings and workshops for staffs about malnutrition and its consequences
- Prepare monthly, quarterly and annual reports..
- Work in collaboration with other non-governmental organizations like Goal Ethiopia concerning malnutrition.

Experience with Efoyta Health Center

May 2013- May 2016 (**Head of medical delivery core process)**

- Responsible on undertaking annual plan in medical delivery core process and for different case teams
- Developing evaluation checklist and criteria for awarding staffs in different case teams who become employ of the month and the year.
- Prepare timely monthly, quarterly and annual reports
- Undergo quarterly and yearly supportive evaluation and monitoring
- Chairperson of discipline committee of the facility that decides on staff and management discipline issues.
- Organize and provide trainings for staffs in the department.
- Conduct a SWOT analysis of pilot projects and workshops in a project.
- Review and write quarter and annual field project report.
- Plan and coordinate field visit by donor and other stack holders.
- Lead and organize the collection and analyzing off field data.

Training (Certificate of participation)

- Training on severe acute malnutrition and its management.
- Training on food by prescription for people living with HIV-AIDS
- Training on inpatient management
- Training on oral health management
- Training on integrated management on neonatal and child illness
- Training on social accountability

Language

	Oral Level	**Writing level**
Amharic advanced (fluent)	Excellent	Excellent
English	Excellent	Excellent
Computer skill:	- MS. Word, MS Excel and Power point	

Reference

- Ato Yosef Berihun,Medical Director at Efoyta health center (+251911776671)
- Ato Addisu Kibret,Head of disease prevention department (+251913123234)
- Ato Temesgen Sermesa , Head of Hospital Administration at Leku primary Hospital (+251935979202)