

**PERCEIVED EFFECT OF PUBERTAL DEVELOPMENTAL BODY  
CHANGES ON SELF-ESTEEM AND ACADEMIC ACHIEVEMENT AMONG  
PUBLIC PRIMARY SCHOOL PUPILS IN SAGANA, KIRINYAGA WEST  
SUB-COUNTY, KENYA**

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for the Award of Master of Education Degree in Guidance and Counseling of  
Chuka University.**

**CHUKA UNIVERSITY  
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## DECLARATION AND RECOMMENDATIONS

### Declaration

This thesis is my original work and has not been presented for an award of a diploma or conferment of Degree in this or any other University.

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## **DEDICATION**

This study is dedicated to my late mother, Elizabeth Mwendwa, my children Peris Wanjiru, Job Mureithi and Wilson Mbogo.

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May God bless you

## ABSTRACT

Pupils in puberty stage face several challenges that affect their self-esteem and academic achievement. Low self-esteem is manifested when level of confidence, satisfaction and acceptance is dismal in pupils during puberty stage. Academic achievement of pupils is also affected as boys and girls in puberty stage perform dimly. Puberty stage is a developmental stage for a human being characterized by increased changes in bodies of the young people. The body changes are manifested in emotional, physical and attitude changes that affect their behavior. During the onset of this period, many young people attending school become affected posing potential risks to optimal academic achievement and self-esteem. The purpose of this study was to determine the perceived effect of pubertal developmental body changes on self-esteem and academic achievement among pupils in Sagana, Kirinyaga West Sub-County, Kenya. This study employed descriptive survey research design that comprises both quantitative and qualitative research procedures used for obtaining information from a large population. The researcher targeted 480 respondents comprising of twelve class teachers and 468 pupils in classes six and seven in six schools. Simple random sampling technique was used to obtain a sample size of 214 pupils from the target population of 468 pupils. The researcher also used purposive technique to obtain a sample of twelve class teachers. The researcher used questionnaires for teachers and pupils as well as achievement records for pupils to collect data. Validity of the instruments was confirmed through expert judgement from the Department of Education at Chuka University. The questionnaires and achievement tests were tested for reliability. Two schools were purposively selected for testing of the instruments using split half method. With a coefficient ( $\alpha=0.81$ ), the instruments were considered reliable for data analysis. Both qualitative and quantitative data were generated. Computer programme Statistical Package for Social Sciences Version 21 was used to analyse quantitative data that generated frequencies and percentages which were presented in Tables and Graphs. For qualitative data, content analysis was used to arrange data into themes. Findings indicated that girls are affected more than boys in terms of self-esteem academic performance. Also, the findings revealed that pubertal physical development changes are manifested differently in boys and girls with girls being affected most. The study findings indicated that occurrence of most of the pubertal development body changes reduce self-esteem of the pupils. Class participation, concentration and class attendance in girls was affected than boys yet performance was below that of girls especially during menstruation. The general perception is that boys are significantly satisfied than girls during puberty. This study concluded that while pubertal physical body changes occur in both boys and girls, the manifestation of the changes is more in girls than boys with boys exhibiting fewer effects. The study recommends that more strategies to help girls manage the pubertal changes should be devised as a means of improving their self-esteem and academic performance. The findings of this study will benefit pupils, teachers, NGOs, Ministry of Education and academicians.

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## **ACRONYMS AND ABBREVIATIONS**

ADHD	:	Attention-Deficit/Hyperactivity Disorder
AIDS	:	Acquired Immune Deficiency Syndrome
H.I.V	:	Human Immuno Deficiency Virus
MoE	:	Ministry of Education
n	:	Number
NACOSTI	:	National Commission for Science, Technology and Innovation
SPSS	:	Statistical Packages for Social Sciences
SSA	:	Sub-Sahara African
UNICEF	:	United Nations Children Fund
NGOs	:	Non-Governmental Organizations

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background to the Study

Puberty is universally considered as a challenging developmental stage of transition from childhood to adulthood in which young people are expected to cope with different changes that affect them. Puberty is considered as a critical developmental stage for a human that is a stage characterized by tremendous changes in bodies of the young people (Mruk, 2013; Bucur, 2007; Zeigler-Hill, 2013). According to Al-Bahrani, Aldhafri, Alkharusi, Kazem and Alzubiadi (2013), young persons in puberty exhibit challenges among them conflict with parents and peers, mood disruption, inconsistent academic performance and self-image. In addition, studies reveal that boys face more external problems (anti-social behavior), while girls face more of internal problems (low self-esteem and depression) (Lumley, McNeil, Herschell, *et al.*, 2002). Also, girls are considered to be vulnerable than boys (Charbonneau, Mezulis, Hyde, 2009) with higher levels of adaptation than boys (Aunola, Stattin & Nurmi, 2000). It is evident that physical body changes contribute to gender differences.

The challenges posed are different based on gender with girls experiencing more challenges than boys (UNICEF, 2008; Muchemi, 2007; Otieno, 2004; Mbatia, 2003; Njoroge, 2005; Pichi 2005; Charlayne, 2006). Effects of puberty on behavior of learners' cause misunderstanding of parents or teachers with the children in puberty stage. As the stage causes many social, emotional, physical and cognitive changes in these children, such changes may be detrimental to their learning process. For example, according to Fraser-Thill (2013), what affects academic performance of pupils in pubertal development stage includes higher rates of depression and anxiety, great risk of substance abuse, earlier sexual activity, lower self-esteem and body image. Also, while behavior and persons in puberty seem to be affected by pubertal changes, the effects emanating from physical body changes are not clearly established.

In the developed countries such as Canada (Connolly, Hatchette & Mc Master, 2008), United States of America (Zirpoli, 2008; Blakemore, 2010), Australia (Mruk, 2006;

Carr, 2004) and United Kingdom (Forrest, 2013; Carr, 2004) young adolescents showed decline in academic achievement mainly due to perceived effect of physical changes in the bodies. In Canada, Connolly, Hatchette & Mc Master (2008) observed that puberty influenced children's social adjustments which limited their interactions at school and home. However, pupils who disclosed the pubertal development of beginning signs recorded higher on the mathematics test and this led to their conclusion that adolescence may not be a factor of risk for achievement of the school. This further explains that fluctuation in academic achievement among boys and girls during puberty could be attributed to many factors including physical body changes.

In the United States of America, physical developments abound during adolescence, with variations in body size and shape, fluctuations of hormones, voice vacillation and skin changes can rouse attitude swings and powerful moods among children in puberty stage. Affected by puberty is the brain; the brain changes cause an upsurge in memory and delinquent resolving skills of youths during puberty (Zirpoli, 2008; Blakemore, 2010). Adolescents are typically tired in most cases between the time 8 and 9 a.m. and most attentive after 3 p.m., causing possibly exertion with emphasis and preservation during hours of school and distressing school performance. (Zirpoli, 2008; Blakemore, 2010).

In Australia, puberty stage is linked to use of drugs among Australian children in puberty stage, but how this affects performance is not clearly established (Hayatbakhsh, Najman, McGee, Bor & O'Callaghan, 2012). Again, in Australia, it is argued that while the entire body of children, with the brain, experiences these important variations during adolescence, the way an individual child perceives and interprets this transition into puberty ultimately affects the way the experience is handled (Mruk, 2006). This is a manifestation of self-esteem resulting from a comparison of the individual's present condition to future aspirations in different settings such as school, family or among peers (Mruk, 2013).

In Germany, pubertal developmental changes have been associated with body satisfaction from a gender difference perspective. According to Meike (2008), high levels of dissatisfaction about their bodies during puberty are observed more in girls

than boys. This indicates that both girls and boys have perceptions on their desired physical body attributes during puberty. However, in Israel, Agam, Tamir and Golan (2015) argue that gender differences in respect to self-esteem and body image are largely influenced by stereotypes. Self-confidence is a stereotypical male feature and for girls it is considered as a breach of traditional gender roles. It therefore remains unclear whether the pubertal physical changes contribute to the gender differences.

In Africa, many studies on puberty are focused more on girls than boys yet physical body changes are exhibited in both genders. For example, decline in academic achievement among girls has also been attributed to pubertal developmental body changes (Etsy, 2005, Chinyoka, 2014, Sowmyaa & Archana, 2004; Kirimi, 2005). The onset of puberty among girls in Zimbabwe, Ghana and Malawi reduced their self-esteem due to lack of sanitary towels and lack of knowledge on use of sanitary towels that contributed to low academic achievement.

In Kenya, boys and girls in the puberty stage become very conscious of their body changes in respect to perceptions of people around them (Arcia, 2007; Bergquist, Bigbie, Groves, & Richardson, 2004). However, how this is manifested in Sagana in Kirinyaga was yet to be established. In addition, reviewed studies have attempted to link puberty to behavior changes and self-esteem. Moreover, the studies do not fully elaborate the role of each physical change on self-esteem, academic performance and from the perspective of gender differences. The studies only describe the differences between boys and girls but not the extent to which such differences affect self-esteem and academic performance.

Also, in Kenya, pubertal physical developmental changes are associated with academic achievement through many aspects. The extent to which pubertal physical developmental changes become favourable to boys and girls in puberty are likely to improve academic achievement or not. For example, during menstruation, girls without sanitary towels become absent from school (Mbatia, 2003; Muchemi, 2007; Akoth, 2004; Odhiambo, 2004). School absence implies interrupted learning that contributes to low academic achievement.

Another aspect of puberty relative to academic achievement is social behavior that is strongly affected by body appearances. At puberty, findings indicate that peers exert considerable effect over the psychological well-being of pupils in puberty (Roseth, Johnson, & Johnson, 2008; Wentzel, McNamara Barry, & Caldwell, 2004). Mendle, Turkheimer and Emery (2010), also argue that a child in puberty may act more irrationally and make irresponsible decisions, affecting his overall academic achievement. Gender differences in youths affects their behavior and self-esteem. For example, according to Moksnes and Espnes (2013), self-esteem of persons in puberty is susceptible to internal and external influences.

In Vihiga, social and academic interactions among adolescents affected academic achievement of pupils. Korir and Kipkemboi, (2014) reveal that levels of self-esteem affected peer relationships that affected academic achievement. In Kiambu (Njoroge, 2005), Migori (Pichi, 2005), Northern Kenya (Mbatia, 2003; Muchemi, 2007) and Western Kenya (Akoth, 2004; Odhiambo, 2004) found that girls are affected by puberty when they begin their menstrual flows; lack of sanitary towels forces them to be absent from school. Even when in attendance, girls reportedly withdrew from school related activities both within and outside the class.

In Kirinyaga, there are few similar studies yet there are learners in puberty who are exhibiting challenges. It is emerging that despite pubertal physical body changes being numerous and distinct in each gender, the effect on self-esteem and academic performance has not been established. In this regard, the extent to which pubertal developmental body changes affect self-esteem and academic performance has not been compared in a single study in Kirinyaga to determine the extent to which puberty affects self-esteem and academic achievement. This has not been established and it formed the basis for this study to determine perceived effect of puberty physical body changes on pupils' self-esteem and academic achievement in Sagana, Kirinyaga West Sub-County.



## **1.2 Statement of the Problem**

In Sagana area, primary school pupils of classes six and seven do not regularly attend school, thus pupils are not consistent in their performance. The primary school pupils do not boldly express themselves during learning. As the pupils are in puberty stage, the emerging question is whether the physical body changes contribute significantly to the academic achievement and self-esteem fluctuations. This study therefore sought to determine the perceived effect of pubertal developmental body changes on self-esteem and academic achievement among public primary school pupils in Sagana, Kirinyaga West Sub-County, Kenya.

## **1.3 Purpose of the Study**

The purpose of this study was to determine the perceived effect of pubertal developmental body changes on self-esteem and academic achievement among pupils in Sagana, Kirinyaga West Sub-County, Kenya.

## **1.4 Objectives of the Study**

This study was guided by the following objectives:

- i) To determine the perceived effect of pubertal developmental body changes on self-esteem among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- ii) To establish the perceived effect of pubertal developmental body changes on academic achievement among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- iii) To examine the perceived effect of pubertal development stage on self-esteem based on gender among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- iv) To examine the perceived effect of pubertal development stage on academic achievement based on gender among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.

## **1.5 Research Questions**

This study sought to answer the following research questions:

- i) Does pubertal developmental body changes affect self-esteem among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?
- ii) To what extent do pubertal developmental body changes affect academic achievement among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?
- iii) To what extent do pubertal developmental body changes affect self-esteem of pupils based on gender in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?
- iv) Does pubertal developmental body changes affect academic achievement among pupils based on gender in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?

## **1.6 Significance of the Study**

The findings of the study may be important to teachers, pupils, parents, counsellors, Non-Governmental Organisations (NGOs), Ministry of Education and researchers. As teachers interact with pupils at school. The findings inform on the strength would be informed on the strength of each puberty characteristic on academic achievement. Pupils who are most affected by physical changes during puberty may be informed that puberty is a normal and temporal transformation of the body. For parents who are expected to guide and support the pupils during puberty may be informed about handling of pupils in puberty stage.

Counsellors who are also expected to guide and counsel the pupils during puberty, may be informed on identification of indicators of pubertal changes for different pupils. This is critical in identifying the challenges associated with body changes from which solutions are developed during counselling. Moreover, the NGOs who support adolescent programmes may be informed on different needs of boys and girls for decision making to support interventions for behaviour.

The Ministry of Education mandated with policy formulation and enforcement on gender support programmes as well as adolescent programmes may be provided with

information to support the review of adolescent programmes or interventions at national level. The study may also provide data for monitoring and evaluation of the adolescent health programmes by the Ministry of Education. Such reviews may be disseminated to schools to be implemented with an aim of enhancing academic achievement in primary schools. To researchers who are expected to add knowledge in management of pupils during puberty, this study may hopefully provide scholarly information on the perceived effect of physical development on self-esteem and academic performance among pupils in public primary schools.

### **1.7 Scope of the Study**

This study was confined to public primary schools in Sagana, Kirinyaga West Sub-County, Kenya. The study focused on pubertal developmental body changes that include weight increase, breast enlargement, breaking of the voice, menstruation and development of pimples in respect to different genders. Physical body changes are the most conspicuous pubertal body changes that have direct effect on pupil's cognitive, social and emotional development. The manifestation of such physical body changes indicate that pupils become sensitive and therefore the need to guide them so that the changes do not affect their academic achievement. Also, the focus of this study on pupils in classes six and seven is because these learners are beginning the puberty stage mostly between 11 and 14 years of age.

### **1.8 Limitations of the Study**

The limitations of this study included:

- i. Restriction of the study to outward manifestation of physical body changes during puberty that were observed mainly at school yet the pupils interacted outside the school as well. The researcher mitigated this limitation by using questions that helped to obtain information about perceived effects of physical body changes beyond the school level.
- ii. Reluctance of the pupils to provide information due to their shyness or consideration of some information to be too private to be shared. There was a possibility of some pupils especially girls denying not to have monthly periods. However, the researcher assured them of privacy by not allowing them to write names on the questionnaires. In addition, the researcher

separated boys from girls during data collection. This allowed the girls to freely respond to the questions.

### **1.9 Assumptions of the Study**

The assumptions of this study included:

- i. Pubertal developmental body changes are perceived to affect self-esteem of pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- ii. Pubertal developmental body changes are perceived to affect academic achievement of pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- iii. Pubertal development stage is highly perceived to affect self-esteem based on gender among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.
- iv. Pubertal development stage is highly perceived to affect academic achievement based on gender among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya.

### 1.10 Operational Definition of Terms

The following terms were operationally defined as follows in this study:

**Academic Achievement:** This is the level of success in learning activities measured from standardized tests and level of achievement of pupils in exams. In this study, end term exams for two consecutive terms will be considered.

**Adolescence:** The period between childhood and being an adult or transition period of pupils into adulthood characterized by physical body changes. In this study adolescence refers to a period of entrance into adulthood.

**Breaking of Voice:** When voice becomes hoarse. In this study, breaking voice is change of voice among boys in puberty to be deeper.

**Breast Enlargement:** Growth of breasts. In this study, breast enlargement refers to increased size of breasts of girls in puberty stage.

**Developmental Body Changes:** Increased weight and height, menstruation, deepening voice and breast development in pupils. In this study, it refers to visible changes in bodies of pupils in puberty and includes weight and height, menstruation, deepening voice and breast development in pupils

**Perceived effect:** Observed or noticeable long-term effects of a phenomenon. In this study, effect refers to observed bodily physical changes of puberty on academic achievement and self-esteem among learners.

**Gender differences:** Variations in culturally assigned roles and expectations for boys and girls.

**Menstruation/Periods:** Passage of menses among women every month. In this study menstruation refers to discharge of blood through the vagina among girls in puberty stage in primary school.

- Pimples:** Skin inflammation occurring on face, shoulders and neck. In this study, pimples are skin swellings that occur on faces of pupils in puberty stage.
- Psychological Changes:** Differences in the mind setting of an individual including emotions, feelings and behaviour of pupils during puberty resulting from brain development. In this study, psychological changes include mental characteristics with accompanying behaviors among learners in puberty.
- Puberty:** Period of adolescence when a person becomes sexually mature. Also refers to the process of significant pubertal developmental body changes that initiate sexual maturity in persons aged between 11 years and 14 years. In this study, puberty will cover physical and behavioral characteristics of learners aged between 11 and 14 years.
- Self-esteem:** Sense of self-worth, competence or rating of confidence level of pupils in puberty. In this study, self-esteem refers to self-assessment of learners in puberty.
- Weight Increase:** Additional mass of a person resulting from growth. In this study, weight increase refers to increase in body size of pupils in puberty stage.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Overview of Pubertal Physical Developmental Changes**

Puberty is considered as a developmental stage for a human being. The stage is characterized by tremendous changes in bodies of the young people. Puberty refers to complex transformation involving reproductive and hormonal changes in young individuals aged between 11 and 14 years that result in adult appearance, physiology and altered identity (Hayward, 2003; Becker, 2001). In simplicity, puberty refers to the process of significant body changes that initiate sexual maturity in adolescents aged between 11 and 14 years (Mruk, 2013). The body changes are manifested in emotional, physical and attitude changes that affect behavior of the young people. Kedro (2009) argues that puberty is characterized by a maturing consciousness, awareness of body changes and exploring various social dynamics can create an atmosphere of potential obstacles to optimal academic achievement.

According to United Nations Children Fund (2008), puberty begins at the age of 9 years for girls and 10 years for boys and ends at the age of 14 years for girls and 17 years for boys. The experience of puberty for boys and girls is different. For example, girls usually attain adult height and reproductive maturity about 4 years after the first physical changes of puberty appear (UNICEF, 2008). In contrast, boys accelerate more slowly but continue to grow for about 6 years after the first visible pubertal changes (Gordon, Catharine & Laufer, 2005). This means that girls and boys of the same age and in the same school or class experience considerable difference in their maturation process.

Pubertal developmental body changes during puberty reflect alteration in self-esteem that can either be manifested as positive and negative attitude. Positive attitude is high self-esteem while negative attitude is low self-esteem (Carr, 2004). Self-esteem refers to an individual's feeling of self-worth derived from success through comparing the individual's present condition to future aspirations (Mruk, 2006; Carr, 2004) in different settings such as school, family or among peers (Mruk, 2013). Self-esteem and puberty reflect two aspects: dignity and competence of an individual transforming to adulthood due to hormonal and physical body changes. Dignity and competence of

the individual undergoing hormonal and pubertal developmental body changes is manifested through behavior in relation to the environment.

A study done in the United States of America by Zirpoli (2008) on behavior management shows that physical developments abound during puberty such as breasts development, emergence of pimples, increased weight and vacillation of voice lowered self-esteem arising from stimulated mood swings and intense feelings. Affected by puberty is the brain; the changes in the brain cause an increase in memory and problem-solving skills of young people during puberty (Zirpoli, 2008; Blakemore, 2010). Another study done in Australia by Mruk (2006) shows that while the child's entire body, including the brain, undergoes these significant changes during puberty, the way an individual child perceives and interprets this transition into puberty ultimately affects the way the experience is handled. In the United Kingdom, Forrest (2013) demonstrates that pupils who claim a high satisfaction with life and who are in optimal health maintain greater connections with teachers, earn higher grades and are more committed to schoolwork.

Studies done in Zimbabwe by Chinyoka and Naidu (2014) and Malawi by United Nations Children's Fund (2008) on girls' education show reduced self-esteem among girls due to lack of sanitary towels and lack of knowledge on use of sanitary towels that contributed to low academic achievement. During menstruation, the girls were not confident to participate in learning activities and some opted to absent from school. As girls were sensitive to their privacy, poor conditions of the toilets and lack of privacy and hygiene facilities resulted in girls' absenteeism from school (Sowmyaa & Archana, 2004; Kirimi, 2005). The outcome of these conditions was low self-esteem resulting to poor academic achievement compared to boys (United Nations Children Fund, 2008; Jewitt & Ryley, 2014; Chinyoka & Naidu, 2014).

Puberty is also related to peer effect and academic achievement based on gender differences. Adolescents' relationships with peers' affect academic achievement in Vihiga County (Korir & Kipkemboi, 2014). In Kiambu (Njoroge, 2005), Migori (Pichi, 2005), Northern Kenya (Mbatia, 2003; Muchemi, 2007) and Western Kenya (Akoth, 2004; Odhiambo, 2004) found that girls are affected by puberty when they



begin their menstrual flows; lack of sanitary towels forces them to be absent from school. Even when in attendance, girls reportedly withdrew from school related activities both within and outside the class (Mbatia, 2003; Njoroge, 2005; Pichi 2005). This indicates how girls in puberty are affected than boys in same school conditions.

The issues of girls in education notwithstanding, the studies by Chinyoka and Naidu, (2014); Korir & Kipkemboi, (2014); Njoroge, (2005); Pichi, (2005); Mbatia, (2003); Muchemi, (2007); Akoth, (2004); Odhiambo, (2004) reveal that poverty has tended to compound the problems that girls in sub-Saharan African encounter at the onset of puberty. However, poverty becomes a cause to the challenges of many girls during their menstrual periods. What is critical to the girls' wellbeing is dignity or self-esteem needed to support their learning. The challenges mentioned include lack of hygiene facilities, privacy, sanitary towels and knowledge about their bodies. These challenges lower the self-esteem of girls that limits their school attendance and participation in school activities hence affecting their academic achievement.

## **2.2 Effect of Pubertal Developmental body Changes on Self-esteem**

Pubertal physical developmental changes are associated with self-esteem through the level of confidence, satisfaction and acceptance about an individual's body changes such as increase in weight, height, menstruation, deepening voice and breast development. The physical development changes can either lead to some pupils in puberty stage to develop high level of confidence or not. There are effects of pubertal developmental body changes on self-esteem that emanate from menstruation, increase in weight and height deepening voice and breast development (Arcia, 2007; Bergquist, Bigbie, Groves, & Richardson, 2004; Cook *et al.*, 2008; Cromwell, 1999; Malaspina & Rimm-Kaufman, 2008; Mendez & Knoff, 2003; Weiss & Kipnes, 2006). This indicates that self-esteem of pupils in Sagana Kirinyaga West Sub County was likely to be affected by increase in weight, height, menstruation, deepening voice and breast development.

Low self-esteem is manifested when level of confidence, satisfaction and acceptance is dismal in pupils during puberty. When girls experience the first menstruation in their lives, it demands for change in behaviour and personal hygiene (UNICEF,

2008). In this case, girls without information of their bodies on how to behave and maintain their personal hygiene become shameful and this reduces their self-esteem. Girls in puberty worry about what to use to manage the period, how to acquire enough supplies that are effective in managing the period and more importantly, how to keep this function of managing the period hidden. The dilemma sets on how to acquire and change sanitary materials; the belief to acquire and change sanitary towels in secret to prevent potential ‘accidents’ of leakage and the possibility of ‘other people knowing’ (Sowmyaa & Archana, 2004; Kirimi, 2005). In this case, there is the worry of finding some discreet disposal points where to deposit the used absorbent materials. This may in turn affect their school going hence may affect academically and in this case pupils in Sagana are not an exception.

UNICEF (2008) opines that the complex navigation of how to manage a period indicates that the onset of menstruation is not a simple matter but rather a combination of types and forms of special challenges, which the body of an adolescent menstruating girl presents. However, the way in which each culture thinks about, and constructs menstruation is as important as the way communities inform, educate and effect their adolescent girls to think and present the female body, develop self-image, and nurture self-esteem.

Low self-esteem among girls is also manifested when breasts and hips enlarge. According to UNICEF (2008), breast and hip enlargement are adult features that make young girls worried as they occur than their male peers. This manifestation creates anxiety, particularly if it attracts attention towards themselves and their developing of features in ways that they themselves perceive to be sexually intrusive. For school going pubescent girls, the physical and biological changes often do compound their life in a manner that affects not only their self-esteem but also their construction of femininity, both at home, in the community and in the school where they spend most of their time (UNICEF, 2008).

Puberty is the stage when most girls experience an increased need to boost their image by observing hygiene practices and by being clean and tidy, well-groomed and generally appealing. Kiminyo (1995) observes that at the stage of adolescence, girls

and boys tend to be disturbed by their own sexual developments with some of them getting embarrassed by their body changes. Such embarrassment is exacerbated when people making remarks of the adolescents' physical look (Kiminyo, 1995). According to Gitome, Katola and Nyabwari (2013), self-esteem can also be destroyed during puberty if young people are not fully explained about the physical changes taking place in their bodies. Therefore, pupils live with shame resulting from the unexplained conflicts in themselves. Thus, Connolly, Hatchette and McMaster (1998) argue that a decline in self-esteem was found among youth who had begun pubertal development as well as a decline in their views of the supportiveness of their parents. This may in turn affect their academic achievement in school and this study sought to demonstrate the extent to which self-esteem of girls in Sagana Kirinyaga West Sub County is affected.

Puberty does carry with it the potential for generating stress in pupils' lives and creating distance between pupils and their parents. For example, lower self-esteem is associated with body appearance. Fraser-Thill (2014) affirms that girls who mature early also tend to suffer from lower self-esteem and poorer body image than their friends who mature on time or late. In contrast, early-developing boys seem to avoid these negative effects. This study therefore demonstrated whether body appearance effects self-esteem of pupils in Sagana Kirinyaga West Sub County.

The relationship between self-esteem and pubertal changes indicate that boys and girls in the puberty stage become very conscious of their body changes in respect to perceptions of people around them. For example, pupils' self-esteem is lowered if they are highly emotional, too fat, eating too much or when they are not provided with necessary support such as hygienic facilities (Gitome, Katola & Nyabwari, 2013; Connolly, *et al.*, 1998). On the contrary, pupils self-esteem is upheld if they are understood, taken care of and embraced during their hormonal changes, physical body changes, social changes and psychological changes (UNICEF, 2008). Such effects of pubertal physical changes on self-esteem have not been explored among pupils in Sagana Kirinyaga West Sub County

Scholars did not link other physical developmental changes such as deepening of voice in boys, appearance of pimples and increased body weight in boys and girls to self-esteem. For example, as physical development changes, increased body weight and height as well as appearance of pimples on faces of boys and girls seem to make the pupils in puberty different from others (Arcia, 2007; Bergquist, Bigbie, Groves, & Richardson, 2004). Like menstruation and breast enlargement in girls, the differences in other physical developmental changes such as appearance of pimples, deepening of voice and increased weight and height are likely to effect on self-esteem (Cook *et al.*, 2008; Cromwell, 1999; Malaspina and Rimm-Kaufman, 2008; Mendez & Knoff, 2003; Weiss & Kipnes, 2006). This study therefore sought to establish whether physical developmental changes other than menstruation and breast enlargement in girls contribute to low esteem or not.

Also, scholars do not articulate whether physical developmental changes contribute to improved self-esteem among boys and girls in puberty. The extent to which young boys and girls in puberty become proud of their body changes is not established. This study sought to establish whether boys and girls in puberty improve their self-esteem during deepening of voice, facial hair and menstruation, hip and breast enlargement, development of pimples or increase in weight and height respectively.

### **2.3 Effect of Pubertal Physical Developmental Changes on Academic Achievement**

Pubertal physical developmental changes are associated with academic achievement through many aspects. The extent to which pubertal physical developmental changes become favourable to boys and girls in puberty are likely to improve academic achievement or not. Emotional, behavioural, social and pubertal developmental body changes have been associated with academic achievement of pupils in puberty (Combs, Clark, Moore, Onwuegbuzie, Edmonson, & Slate, 2011; Beyens, Vandenbosch, & Eggermont, in press; Mendle, Turkheimer & Emery, 2010; Kedro, 2014; Fraser-Thill, 2014; UNICEF, 2008). As this study acknowledges the findings of these studies, such findings have not been demonstrated in Sagana Kirinyaga West Sub County. This study therefore sought to determine extent to which physical developmental changes affect academic achievement of pupils.

Low academic achievement is manifested when boys and girls in puberty perform dismally in school activities especially tests. Early puberty is an especially critical time for school achievement because it initiates a time when youth, particularly girls, can show marked declines in academic interests (Connolly, Hatchette & Mc Master, 2008). Ganai and Mir (2013) define academic achievement as degree of competence in school activities measured by use of standardized tests. Puberty affected pupils' social adjustments which limited their interactions at school and home. According to Mruk (2006), this reflects difference is self-evaluation resulting from sense of self-worth. However, pupils who showed beginning signs of pubertal development scored higher on the test of mathematics and this led to their conclusion that puberty may not be a risk factor for school achievement. That is why this study sought to determine perceived effect of pubertal physical body changes on academic achievement in Sagana Kirinyaga West Sub County

During menstruation, girls without sanitary towels become absent from school (Mbatia, 2003; Muchemi, 2007; Akoth, 2004; Odhiambo, 2004). School absence implies interrupted learning that contributes to low academic achievement (Mbatia, 2003; Muchemi, 2007; Akoth, 2004; Odhiambo, 2004). Njau (1997), reveals that the relationship between school attendance and girls' experience in reproductive events is more complex today than in the past due to the rising adolescent time being spent in school and inadequate guidance and counselling. When girls reach puberty, they face the risk of sexual coercion, unwanted pregnancy, early marriages, and Human Immunodeficiency Virus (HIV) or Acquired Immune Deficiency Syndrome (AIDS) that may interfere with their academic achievement and force them to drop out of school (Yara & Ndirangu, 2012). Similar studies have not been done in Sagana Kirinyaga West Sub County, thus this study sought to determine whether menstruation contributes to low school attendance hence low academic achievement or not.

Pupils reported that shortage of space, overcrowding and not having any privacy causes arguments and tension which in turn affect academic achievement. A vicious cycle of poverty can be noted when poor pupils, live in poor accommodation, attend

poor schools (Chinyoka & Naidu, 2013). This indicates that academic achievement of boys and girls in puberty is dependent on multifaceted aspects of their environment. According to Combs, Clark and Moore (2011), decline in motivation and self-esteem resulted into low levels of academic achievement. The low levels of academic achievement were attributed to declining self-esteem resulting from unexpected physical body changes.

According to Yara and Ndirangu (2012), although menstruation is a topic in class six in the syllabus according to the Kenyan primary school curriculum, many teachers feel embarrassed to teach it in gender mixed classes. Yara and Ndirangu (2012) assert that many female students learn about their puberty changes from friends, their elder sisters or through their own self-discovery. This confusion force most them to avoid school during their whole menstrual period in fear of being embarrassed thus aggravating their academic achievement further. Other than menstruation in girls, boys and girls require privacy for understanding of their bodies. Boys and girls are reported to use mirrors often to check facial changes such as appearance of pimples or breast and hip enlargement in girls (Yara & Ndirangu, 2012). Ideally the environment in which the pupils under this study live fell far short of what Cameron, (2012); Donald, Lazarus and Lolwana, (2010); Chinyoka and Naidu, (2013); Bronfenbrenner, (2008) prescribed for as a conducive learning environment. Thus, this study sought to determine whether appearance of pimples affects their learning time.

Another aspect of puberty relative to academic achievement is social behavior that is strongly affected by body appearances. At puberty, findings indicate that peers exert considerable effect over the psychological well-being of pupils in puberty (Roseth, Johnson, & Johnson, 2008; Wentzel, McNamara Barry, & Caldwell, 2004). Building on this information, Jacobson and Burdsal (2012) found that adolescent relationships with peers' affect academic achievement on the basis social support was significantly and positively related to academic achievement.

According to Mendle, Turkheimer and Emery (2010), pupils who claim a high satisfaction with life and who are in optimal health maintain greater connections with teachers, earn higher grades and are more committed to schoolwork hence high

academic achievement. This indicates that pupils in puberty with low social interactions with their peers and teachers limit their academic potential. In this case, Mendle, Turkheimer and Emery (2010), argue that a child in puberty may act more irrationally and make irresponsible decisions, affecting his overall academic achievement. This study sought to determine whether physical body changes affect academic achievement or not.

Fraser-Thill (2014), argues that girls who experience early puberty do poorer in school compared to their peers. This is because their decreased academic achievement is linked to low self-esteem resulting from rapid increase in weight that seem to restrict girls than boys from attending and participating in school activities. Similarly, findings by UNICEF (2008), show that missing school and lagging in school-related activities caused considerable anxiety and embarrassment to girls. This in turn affected their achievement, which tended to push them out of school at a higher rate compared with boys. This study therefore attempted to show the extent to which the boys achievement differs from girls in Sagana Kirinyaga West Sub County in respect to changes in their physical bodies.

Achievement contributes strongly to one's self-esteem. It is also important in gaining the esteem of others. According to Franky and Chamundeswari (2014), high achievers have greater difficulty in interpersonal relationships with peers and appeared less cooperative, more selfish, less dependable, and less sociable. It is also argued that under achievers are more likely to be characterized by a high level of free-floating anxiety, negative self-confidence, hostility towards authority, difficulty in relating to peers combined with excessive dependence on the peer group. This indicates the differences in levels of self-esteem based on changing behaviour.

Low academic achievement of learners is linked to low self-esteem resulting from increased body weight in girls. Boys and girls in puberty experience the challenge of eating and accompanying effects. According to Mendle Turkheimer and Emery (2010), the onset of menstruation requires a certain body mass index and may be precipitated by a gain in weight and body fat. Comparisons on eating disorders based on gender indicate that girls tend to be less aware than boys of the relation between

diet and exercise as a means of weight loss (Abraham & O’Dea, 2000). Girls in puberty are also more likely to consider themselves fat and restrict eating which contribute to depressions that limit academic achievement. Similarly, Foret, Poston, Winebarger and McGavin (1998), found that 19% of girls in puberty are estimated to engage in some form of disordered eating behavior or to display distorted body perception. This is an indication that eating disorder is challenge to girls in puberty.

Self-esteem is also linked to eating disorders. According to McCabe and Ricciardelli (2004), girls in puberty are more likely to report body dissatisfaction and poor self-esteem due to engagement in excessive dieting and disordered eating. As these findings confirm the relationship between puberty and chronically disturbed eating patterns, it is less clear whether age of pubertal onset affects eating disorder symptoms at a diagnostically severe level. However, girls may internalize changing physical appearance as a way that they are “different” from peers. This may be manifest as feelings of self-consciousness or behavioral attempts to “reduce” their bodies via diet and exercise. This becomes a concern during school activities and limits participation of girls in class activities thereby reducing their level of achievement. How this manifestation is among girls in Sagana was determined by this study.

The relationship between puberty and academic achievement is demonstrated with emphasis on the manifestation of self-esteem. The effects of puberty vary depending on how self-esteem is manifested. Symptoms through which puberty is manifested have not been clearly linked to self-esteem of learners to determine how academic achievement is affected. The studies indicate piecemeal or single interaction of social interactions, physical body changes, hormonal fluctuations, cognitive ability, emotional changes or peer effect to academic achievement. This limit true reflection of perceived effect of puberty on self-esteem and academic achievement from holistic approach. Thus, this study sought to establish whether pubertal physical changes affect academic achievement and self-esteem pupils in Sagana Kirinyaga West Sub County.



## **2.4 Gender Differences and Pubertal Developmental Body Changes**

Many studies elsewhere on adolescent have attempted to show the relationship between gender differences and developmental body changes during puberty. According to Seiffge-Krenke, Aunola, Nurmi (2009), gender differences occur from an early age of childhood. During such early ages before onset of puberty, the gender differences are considered insignificant (Agam, Tamir & Golan, 2015). However, the gender differences begin to be significant at the onset of puberty. According to Agam, Tamir and Golan (2015), adolescents encounter several developmental challenges “including coping with sudden changes in their bodies, managing their sexual interests, forming new kinds of relationships, and planning their academic and occupational futures” Golan *et al.* (2015),

The relationship between gender differences and developmental body changes during puberty indicates that while physical body changes influence the coping strategies employed by the adolescents, gender roles and expectations also play a critical role. For example, Fournet, Wilson, and Wallander (1998) explain that in many societies the boys are taught to be aggressive in confronting issues than girls. Garaigordobil, Maganto, Pérez, Sansinenea (2009) agree with findings of Fournet and Wallander (1998) that girls and female adolescents more frequently develop cognitions and emotions related to internalizing problems such as sadness, anxiety, anger inhibition, eating disorders, while boys and male adolescents develop cognitions and emotions related to externalizing problems such as aggressiveness, dominance.

Moksnes and Espnes (2013), reveals that gender differences in youths affects their behavior and self-esteem. According to Moksnes and Espnes (2013), self-esteem of persons in puberty is susceptible to internal and external influences. This is a psychological functioning of the adolescents. Kling, Hyde, Showers and Buswell (1999) explain that gender roles are consistent with self-esteem. For example, boys are expected to develop high levels of confidence than girls. In this regard, boys are expected to confront any internal or external challenge with courage and high level of confidence while girls are expected to shy away from handling issues affecting them. Although physical body changes are issues that face the young persons during puberty, it remains unclear on the extent to which boys and girls are affected.

Attempts have been made to link physical body changes to level of satisfaction. According to Croll (2005) and Bearman, Presnell, Martinez and Stice (2006) physical body changes during puberty tend to increase level of dissatisfaction among girls. This agrees with Agam *et al.*, (2015) who explain that pubertal physical changes in boys especially increase in height and muscular strength are admired by the society while the same society perceives physical body changes in girls such as increase in weight as less laudable. The societal perceptions are constructs grounded around stereotypes hence vary with cultures. For example, according to Tatangelo and Ricciardelli (2013), in Western culture, males are good looking when they are muscular and lean while females should be thin. How these perceptions are received among persons in puberty remain unclear especially in African culture. Thus, this study examined whether boys and girls in puberty are satisfied with physical body changes considering the cultural stereotypes in Sagan Kirinyaga West Sub County.

Level of dissatisfaction has also been associated with weight among persons in puberty. According to Austin, Haines and Veugelers (2009) in their study on body satisfaction and weight from a gender difference perspective, boys are dissatisfied when their body weight is below or above what is considered average. Austin *et al.*, (2009) further explains that, girls' body dissatisfaction increases as a function of body weight. Underweight girls reported greater satisfaction, whereas girls of average weight reported dissatisfaction, which increased further in overweight girls (Austin *et al.*, 2009).

Bearman *et al.* (2006) linked gender differences to pubertal physical changes. In their study they point out that in both genders, there is a general perception that weight or height is an issue. In this regard, the way boys and girls respond to these issues seems to create other problems. For instance, Bearman *et al.* (2006) opines that boys and girls during puberty undergo depression, emotional distress and develop eating disorders as well as likeness towards beauty products. As both genders respond to such challenges differently, the extent to which academic performance and self-esteem are affected is not documented especially in Sagana. Thus, this study critically examined the extent to which physical body changes other than weight and height affect self-esteem and academic performance of pupils in puberty.

In Germany, pubertal developmental changes have been associated with body satisfaction from a gender difference perspective. Meike (2008) carried out a study on Pubertal Development, Body Satisfaction, and Desired Body Changes Gender Differences in Early Adolescence. In this longitudinal study, Meike (2008) assessed pubertal development, body satisfaction, and desired body changes of 106 boys and 108 girls. The study found that girls showed high level of dissatisfaction about their bodies than boys and this decreased significantly over time. The findings reveal that boys and girls both have certain idealistic visions of how they would like to look. It was concluded that pubertal physical body status is a predictor of body satisfaction among girls while for boys there are other physical body predictors. However, girls face difficulties in accepting their physical changes, the same study does not articulate other physical body changes that affect boys as well. Thus, this study examined the extent to which boys are satisfied with physical body changes during their puberty.

In Spain, emotional basis of gender differences in adolescent self-esteem was established. According to Gomez-Baya, Mendoza and Paino (2016), lower self-esteem in adolescent girls than boys confers greater vulnerability to numerous risks in their development towards social adulthood. Findings from 1791 Spanish adolescents aged between 12 and 17 years old revealed that girls presented lower overall self-esteem than boys, as well as lower perceived emotional intelligence. It was found that high perceived emotional attention was related to lower self-esteem in girls; on the other hand, results detected that high perceived emotional attention was linked to higher perceived emotional clarity and repair in boys, which were associated with higher self-esteem. However, while emotional outcomes are brought out clearly in respect to gender differences on self-esteem, the study does not show the perceived effect of pubertal physical body changes on emotional development and self-esteem. This study therefore examined the role of pubertal physical body changes on self-esteem informed by emotional changes.

In Israel, Agam *et al.*, (2015) carried a study on gender differences in respect to self-esteem and body image as well as response to adolescents' school-based prevention programs and found that despite gender differences being manifested at an early age, the onset of puberty tends to increase the manifestation. It was found that image and

self-esteem of are related with pubertal physical changes. In this regard, it is explained that boys show high levels of satisfaction about their bodies than girls. However, this seems to be changing as boys strongly perceive to have lean and muscular body. With no similar studies done in Sagana Kirinyaga West Sub County, this study therefore examined the extent to which gender differences are related to pubertal physical body changes.

## **2.5 Theoretical Framework**

This study adopts two theories to support the relationship between pubertal developmental body changes and self-esteem as well as academic achievement. The first theory is Erik Erikson's (1968) Psychosocial Developmental Theory that mainly focuses on identity formation. This theory supports the relationship between pubertal developmental body changes and self-esteem. The second theory is Albert Bandura's Social Learning Theory that supports the relationship between pubertal developmental body changes and academic achievement from a social perspective.

### **2.5.1 Psychosocial Developmental Theory**

Psychosocial Developmental Theory was developed as expressed in the subsequent half of the 20<sup>th</sup> century by Erick Erickson in alliance with Joan Erickson is inclusive theory of psychoanalytic that recognizes eight stages in series that a well emerging individual should pass over from start to late maturity. Erickson castigated that character develops in a fixed condition through eight steps of psychosocial growth from infancy to adulthood during each stage, the individual practices a psychosocial catastrophe which could have a negative or positive outcome for developmental personality. Erikson categorized human psychosocial development into eight stages. According to Erikson, in each stage a person should deal with distinct conflict that serves as a milestone in development. Erickson argues that resolving the conflict in each stage is as good as developing the qualities of the stage. This argument indicates that pupils in pubertal development undergo conflict that should be overcome for them to qualify the qualities of the stage. According to the Psychosocial Developmental Theory, self and identity reflect the interpersonal domain including the events that differ due to differences in social contexts.

In the UK, a government-funded research undertaken by the academic staff from University College of London found that 24 percent of 14-year old girls and 9 percent of boys in secondary schools had psychosocial problems (Campell, 2017). The findings were based on a survey of 10,000 teenagers. Similar problems were also commonly reported among Australian adolescents. By the middle teenage years, the rates of psychosocial problems are twice as high among girls in high school as they are in boys. This is as indicated in the Australian Parenting Website – (Centre for Adolescent Health (CAH, 2016). In a study carried out by the Queen Elizabeth Medical Centre in Western Australia, out of 400 children aged 12 to 16 were found to have emotional instability, with 112 assessed as being vulnerable to depression symptoms. Children with depressive symptoms believed that happiness is achieved through the acquisition of fame, money and beauty. Happier children tended to believe that the feeling comes from healthy relationships with parents and pursuing worthwhile goals (Kwon *et al.*, 2017)

Ring (2015) notes that many aspects are important in emotional regulation of young people like financial security, good education and spending time with friends. Ring also asserts that values and beliefs are part of a culture. The foods we eat, the language, and the customs we follow are all part of our cultural background. A study done in South Africa by Merwe (2007) revealed that a high number of participants felt sad, hopeless and traumatized as they witnessed violent crimes in their surroundings regularly. Melgosa (2001) points out that though psychosocial problems occur in both boys and girls, the girls are at a higher risk of developing the symptoms. This is because girls mature faster than boys in terms of their emotional regulation do. This sensitivity in the interpretation of emotional stimuli most likely makes the girls more vulnerable to depression symptoms.

Yarosan and Zaria (2004) in their report on strategies for curbing indiscipline in Secondary schools in Nigeria, asserted that the actions of a parent are all deeply rooted in a cultural experience. Within a culture, each generation teaches the next about educating and guiding children. Different cultures may follow different values. To support this argument, Kaczynski (2003) adds that many customs arise from needs and circumstances. Economic conditions affect parenting on both individuals as well

as social levels. The lower a family income, the more difficult it is to provide for a child. The strain of making financial ends meet can be hard on a parent.

According to Erikson (1968), the first phase is confidence against mistrust that occurs among infants where pupils trust parents or caregivers who provide them with everything. The next stage is independence against shame and doubt that occurs in toddlers where pupils' sense of personal control increases significantly. The third stage is ingenuity against guiltiness that occurs in pupils aged amongst three and five years where pupils develop sense of self-initiative. In the fourth stage of business versus humbleness that occurs between six and eleven years where pupils' social interactions affect their self-esteem. In this stage, pupils who are praised and encouraged develop sense of competence while those who encounter discouragements develop sense of inferiority.

Erikson (1968) states in stage five known as identity versus role confusion that adolescents who find sense of identity feel secure in future while those who do not find sense of identity do not feel secure. This stage occurs in pupils undergoing pubertal physical changes that affect confidence and sense of worth. In stage six known as intimacy and isolation, Erikson (1968) states that young adults aged 19 and 40 find intimate relationships in this stage while those who do not feel isolated. In the seven-stage known as generativity versus stagnation, that the persons in middle adulthood acquire sense of purpose for raising families and developing communities. In this stage, those who do not find the sense of purpose feel useless and worthless. Lastly, the eighth stage is known as integrity versus despair that begins at age of 65 where adults evaluate their lives to determine their success. According to Erikson (1968), adults who were successful in life develop sense of peace, wisdom and fulfillment while those who consider themselves unsuccessful regret and develop sense of desperation.

From these stages, persons who successfully overcome the conflict in each stage develop or acquire high levels of self-esteem while those who do not develop low levels of self-esteem. As this study focuses on pupils in puberty stage, this places such pupils in the early stage of five of identity and role confusion. The Psychosocial

Developmental Theory states that pupils in puberty stage struggle between achieving identity and identity confusion. According to Erikson (1968), pubertal changes that mainly include physical, social and cognitive define the identity of the persons in puberty stage. Identity of pupils in puberty stage begins by reasoning the differences they have in private and public.

Kohlberg's theory helps to understand the moral development of students. From an early age, adults obey instructions since they are told to do so by an expert figure like a teacher or a parent or distress over punishment. According to Sears (1951), children's conduct is administered by moral mutuality whereby rules are followed if there is a known reward. Children at adolescence stage comprehend the trust, devotion and gratitude concepts. This sheds light on student deviance of authority when they feel it does not deserve their respect (Regoli, 2003).

The theory gives the insight that behavior depends on individual perception of right and wrong and the motivation behind it in certain environments. It explains why the child behaves well when the teacher or parent is around but wild in the absence of both. Rejection, especially by parents and denial of care and love, leads the child into unacceptable behaviors including aggression in school (Njenga, 2010).

This theory theorizes that the moral development of children will depend on the parenting practice and generally the socialization process. The behavior of students in Secondary schools is a product of how the child was brought up. The stages of interpersonal conformity and law and order of Kohlberg's moral development are applicable to the study of student's moral development. This is because students may do the right thing for the good of the family or peer group (Sailor, 2004).

Studies have been done to demonstrate the relevance of Psychosocial Developmental Theory in analysing puberty and its effects on the young people. For example, Spano (2004) concurs with Psychosocial Developmental Theory that psychosocial development of early adolescents is significantly influenced by their physical development. According to the theory, the young persons in puberty get worried about being normal by comparing their bodies with people around them. In this regard, the

young persons in puberty struggle with sense of identify through making comparisons of their changing bodies with adults and other younger children. To this study, this theory indicates that pubertal developmental body changes such as menstruation and breast enlargement identify the child privately while pimples and body increase define the person publicly. From this theory, the extent to which physical body changes of pupils in Sagana Kirinyaga West Subcounty during puberty affect their self-esteem was established.

### **2.5.2 Psychoanalytic Theory**

Freud, the most famous personality theorist the world has ever known revolutionized peoples thinking about the development of human personality. As Freud listened to experiences of his patients mostly middle-aged, he coined the terms of id, the self-image and the super ego as they are all important components of human character. The id, Latin word for “it” is shows that at birth. It consists of basic needs like hunger, thirst and sex which Freud called the life instincts. The id also contains a death instinct called “thanatos” responsible for aggressiveness and destruction. To Freud, those life and death instincts are the basis for all human behavior throughout life. The ego (Latin for “I”) develops soon after birth when the infant realizes that all that she wants will not automatically come to her. The ego operates on the reality principle. The superego (Latin word for “over the I”) appears in early childhood. It operates on the perfection principle. It represents the values that parents and significant others in society communicate to the child as he or she grows up. The superego lets the child internalize the concepts of right and wrong. Ideally, the three faces of the psyche (id, ego, and superego) are in a state of equilibrium with each other.

When these forces are out of balance, people often become anxiety-ridden and tend to engage in defense mechanisms to protect the ego. According to Freud, all humans engage in these defenses at one time or another. This theory postulates behavior as driven by forces lying deep in the unconscious part of the mind. The first force is the wish for life called “libido “or life instinct. From here emerges a drive, which promotes growth and development such as the need for air, food, water and sex. The second instinct is the wish to die called “thanatos” or death instinct. When directed to



self, these instincts result in self-injurious behavior like suicide. This wish can be directed to other people. One may become aggressive to other people.

To relieve the pressure the ego comes to the rescue with one or more defense mechanisms. These are unconscious processes such that the person is not even aware that any distortion has taken place and is completely theory of psychoanalysis viewed behavior outcomes as an attempt on the part of children to avoid pressure and responsibility. A retreat from normal intellectual growth brought about by unstable ego, possibly caused by psychological or developmental trauma. The founder of modern psychiatry, Freud (1956), the Australian physician theorized that childhood experiences, even when forgotten, affect a person's actions and personality as an adult. Freud believed that unconscious motives have the strongest effect on personality. In addition, he believed that the positive and negative sensory experiences infants associated with feeding and toileting affect personality.

According to Freud, abnormal behavior results from conflicts between the id and the superego. These conflicts become too heavy for the ego to handle. The conflicts can be aggravated by serious errors in child-rearing practices. These errors may be committed by parents who either under stimulate or over stimulate their children during oral, anal or phallic stages of early childhood (Posse & Melgosa, 2002). Because of the child's own inborn needs and the parents' mistakes, the child becomes fixated in one period or another and is unable to develop normally (Siegel & Hartzell, 2003). Freud's Psychodynamic theory, postulates that many of the student's negative behaviors in schools emanate from the inner conflicts acquired during the process of upbringing. According to Ngugi (2008), Secondary School students live in a world where they are confronted with a host of choices regarding sex, drugs, friends, schoolwork and a variety of other situations. NACADA (2002) adds that learners in trying various styles and values are influenced by the cohort to which they belong.

This theory emphasizes that the experiences students in secondary schools went through as children whether pleasant or not have not been forgotten. The experiences are in their subconscious mind and affect their behavior as adults. It is therefore imperative that parents use proper ways of bringing up their children, as this will

affect their entire lives. According to the Report of the National Committee of Educational Objectives and Policies of (1976), examinations provide the means of assessing the degree of achievements of the learning objectives and in the process also serve to stimulate the learner to put the necessary effort in learning. The report pointed out that the results of examinations are used in estimating an individual's future. Muchira (1988) in concurrence with the above report attaches a lot of importance to national examination results. He asserts that there is much loss or gain depending on how well or poorly a student performs in schoolwork. Abagi (2000) points out that in Kenya examinations are used as measures of achievements of the education system objectives and in assessing the quality of education offered. They reveal that schools that perform well in national examinations are viewed as offering high quality education as opposed to those that perform poorly.

According to Eshiwani (1993), the primary objectives of Kenya Certificate of Primary Education (KCPE) examination include ranking candidates according to the attainment of knowledge, skills and attitudes as specified in the syllabus, improving the learning process in primary schools by providing the schools with constant feedback on candidates performance; and selecting pupils to secondary schools and to post primary technical training institutions using academic performance as a base.

The family is the child's first place of contact with the world. The child as a result, acquires initial education and socialization from parents and other significant persons in the family. Agulana (2000) pointed out that the family lays the intellectual, psychological, moral and spiritual foundation in the overall development of the child. Structurally, family/homes are either broken or intact. A broken home in this context is one that is not structurally intact because of divorce, separation, death of one of parent and illegitimacy. According to Fraser (2004), psychological home conditions arise mainly from illegitimacy of children, the label of adopted child, broken homes, divorce and parental deprivation. According to him, such abnormal conditions of the home are likely to have a detrimental effect on school achievement of the child.

The impact of family type as well as parental rearing practices which are linked to parental marital status have been found to be crucial in as far as the developments of a

child's academic achievement are concerned (Coopersmith, 2000). Boys brought up by single parents are for instance much more likely to suffer psychological, social and academic problems than girls of the same family background are. Hetherington (1999) asserts that boys are more likely to show acting-out behavior than girls while girls from divorced families were more sexually promiscuous and seductive. Therefore, paternal absence affects daughters as well as boys. Kuczynski (2003) supports the view that Parenting practices have been identified as an overwhelming factor affecting students' achievement academically.

The family structure model fails to consider aspects of parent-child relationships (Partridge & Kotler, 2007) and socialization processes within African families (Wilson, 2002). The family functioning model suggests that children may be better off in a cohesive single-parent home than in a conflictive two-parent home (Vollmar, 2006). Research on the effects of family functioning quality on African children has generally been very supportive of the family functioning theory (Heiss, 2006). Dancy and Handal (2004) found that family-environment quality significantly predicted African adolescents' perceptions of family climate, psychological adjustment, and grade point average. Heiss (2006) also found that family structure had weak effects on academic variables for African adolescents, but parental involvement had a very strong effect on the same variables.

### **2.5.3 Albert Bandura's Social Learning Theory**

This study adopts Albert Bandura's (1977) Social Learning Theory which considers learning as an interaction between environment, behaviour, and one's psychological processes. Social learning theory postulates that one's learning and performance of behaviours are influenced by one's social contexts, including the family, community and broader society. Social learning suggests that a combination of environmental (social) and psychological factors influence behaviour. In this theory, learning occurs through imitation, reproduction, attention and motivation. These tenets of this theory indicate that social groups support learning as individuals require interactions to imitate, reproduce, become attentive and motivated by other individuals. In this regard, pupils with high level of social interactions likely have high level of self-esteem and therefore have high level of imitation, reproduction, attention and

motivation hence improved academic achievement. This study will therefore determine the extent to which social interactions among pupils in puberty affect their self-esteem and academic achievement.

Korir and Kipkemboi (2014) demonstrate the relevance of Social Learning Theory to social interactions among persons in puberty stage. They found that participation of the learners in puberty stage is significantly affected by their identities. According to Korir and Kipkemboi (2014), some learners made fun of those whose physical body changes were making them different from others and this reduced their self-esteem hence poor academic performance. Ryan (2000) supports the Social Learning Theory by indicating that learners often compared themselves to others and identified others to be role models. It is on the basis of comparison that inspiration was drawn while in some instances, large differences from the role models were not a source of motivation.

In the context of this study, it is evident that learning for boys and girls in puberty is affected by social changes, psychological changes and perceptions on their physical body changes that limit their self-esteem hence affecting academic performance. Boys and girls who have knowledge from their teachers, parents and the community about their body changes during puberty develop confidence and appreciate the changes. This high level of esteem is essential in cognitive development. The social learning is also enhanced and facilitated by extent to which the society including school is prepared for the body changes such as provision of sanitary facilities. Parental support whether financially, materially or psychological enhances social learning of the boys and girls in puberty. The boys and girls feel comfortable during the stage hence gain confidence that is suitable for school participation.

According to Posse (2002) in most families with more than one child, parents will adjust their parenting practices accordingly based on what their child responds best to, however, a high level of differential parenting can have negative effects on children. The effect that differential parenting has on families differs, though there are usually negative effects on both children. The severity of effects is extreme for the child who is viewed as disfavored. The “disfavored” child generally has a variety of personal

development issues such as low self-esteem and depression. The favored child tends to have higher self-esteem and more friends in school (Gardner, 1989). However, Dunn (1992) notes that both the favored and disfavored child tend to have problems with interpersonal relationships as well as problems with managing their emotion. A high level of differential parenting influences how siblings treat one another and the level of conflict in the sibling's relationship. Other viewpoints emphasize that the effect of any environmental experience such as parenting will have a different impact, depending on the wider social context. Thus, if causal claims were supported at all, they would have to be prescribed for individual children in particular circumstances (Gill, 2007), reported that in studying high-risk behaviors in young people, Pettit *et al.*, (1999) notes that parental monitoring plays a particularly important role in preventing delinquency in adolescents living in violent and high-risk neighborhoods. The effect of similar levels of monitoring in low-risk environments was less pronounced – presumably because of the lower level of ambient risk, exposure to delinquent peers and reduced opportunities for delinquency.

Kochanska (2001) found that, for temperamentally fearful children, gentle parental control was associated with optimal behavioral/emotional regulation, whereas temperamentally more aggressive ('fearless') children required firmer control to achieve the same positive results. Similarly, children with difficult or irritable temperaments may be less likely to develop behavioral problems under conditions of firm control (Bates, 1998). Further, in suggesting that children who are more irritable may be more susceptible to rearing influence, parents may be unable to exert a particularly strong impact on their child's development (Belsky, 2003).

McGue (2006) compared the correlation between parent-reported measures of family functioning and adolescent self-reports of behavioral problems in adopted and biologically related families. Across a number of measures, the authors found that the association between family environment and child outcome was consistent, although not invariably, greater for biologically related parent-child dyads than for adoptive dyads. The implication is that genetic factors mediated some of the effect attributed to family relationships and that is genetically related enhances the strength of the link

between parent-child relationship quality and child behavioral outcomes (Phillips, 2001).

According to social learning theory, behavior is learned from others in the environment. Children grow up observing what is happening in the environment. They observe the societies obsession for money, bribery and corruption, postelection violence, unrests and other social evils in the society. Bandura (1977) notes that social learning theory is one of the most influential models of parent-child relationships. Broadly put, social learning theory argues those children's real-life experiences and exposures directly or indirectly shape behavior.

Patterson (1996) argues that the fundamental tenet is that moment-to-moment exchanges are crucial if a child receives an immediate reward for his/her behavior, such as getting parental attention or approval, then he/she is likely to repeat the behavior. Whereas if the child is ignored (or punished) then she/he is less likely to do it again. Other advocates have expanded this focus to consider the cognitive processes that underlie the parent's behavior (Dix, 1992) and its effects on children (Dodge, 1995).

This theory suggests that students learn strategies about managing their emotions, resolving disputes and engaging with others not only from their experiences but also from the way their own reactions were responded to. For younger children especially, the primary source of these experiences is in the context of the parent-child relationship and the family environment. Given its historical emphasis on altering negative, aggressive behavior in children, models of parenting based on social learning theory have tended to emphasize parental conflict, coercion and consistent discipline. More theorists have incorporated positive dimensions of parenting as a way of promoting child positive behavior and effect, improving the pleasurable nature of parents' and children's interactions with one another (Gardner, 1989).

Supporting this theory (Harter & Like, 1984) showed that children who experience warm, supportive, non-conflicted, authoritative relationships report more positive self-concept in the areas of academics, social relationships, romantic relationships,

athletics and most other areas or domains. The development of a positive self-view or identity has long been viewed as a critical developmental task (Erickson, 1968). A child's view of him or herself does appear to be consistently linked with the quality of parent-child relationships (Grotevant & Cooper, 1986).

Dreikurs (2001) believed that pre-adolescent children's misbehavior was caused by their unfulfilled wish to be a member of a social group. If they do not get it, they aim for power, then revenge and finally feel inadequate. This theory is used in education as well as parenting, forming a valuable theory upon which to manage misbehavior. Dreikurs emphasized significance to establish a democratic family style that adopts a method of periodic democratic family councils and meanwhile avert the punishment and teach children to be responsible and understand the natural consequences of proper rules of conduct and improper behavior.

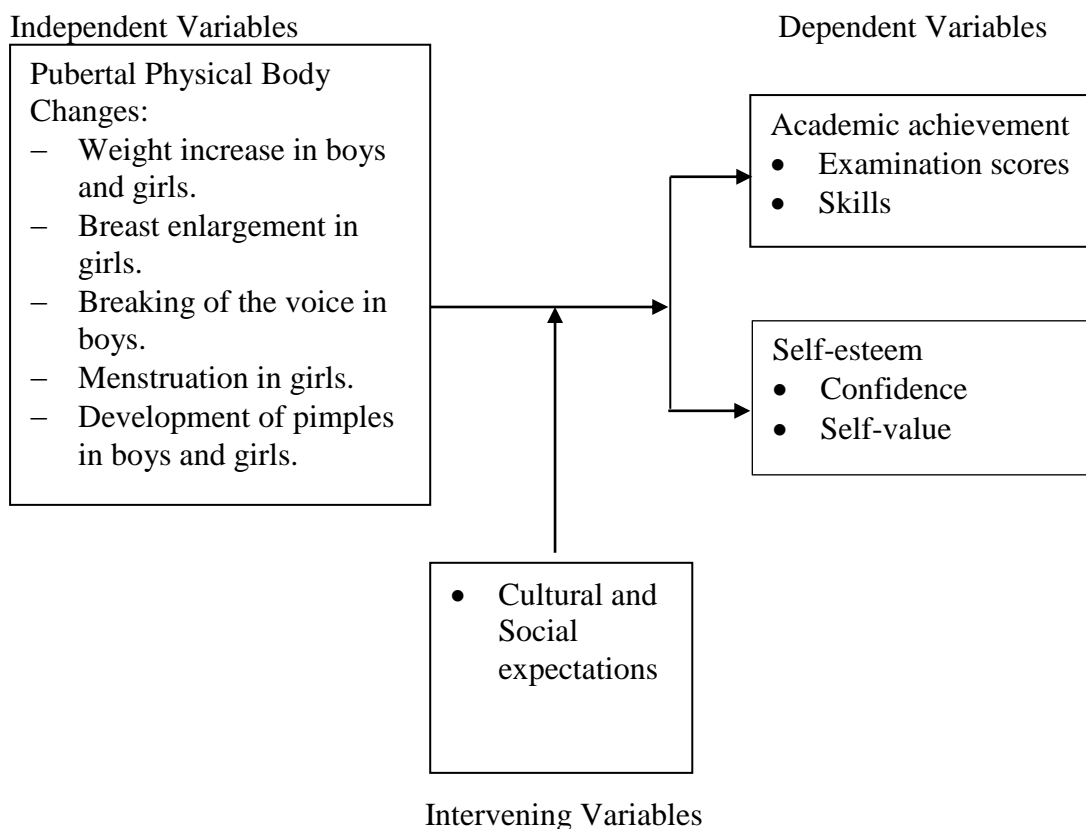
Furedi (2001) a sociologist with a particular interest in parenting and families believed that the actions of parents are less decisive than others claim. Furedi describes the term infant determinism as the determination of a person's life prospects by what happens to them during infancy, arguing that there is little or no evidence for its truth (Furedi, 2001). While commercial, governmental and other interests constantly try to guide parents to do more and worry more for their children, Furedi believes that children are capable of developing well in almost any circumstances. Similarly, Gill (2007) has expressed concern about excessive risk aversion by parents and those responsible for children. This aversion limits the opportunities for children to develop sufficient adult skills, particularly in dealing with risk, but also in performing adventurous and imaginative activities.

According to social learning theory, all behavior is learnt from others in the environment. Bandura's social learning theory can be used to explain why young people may be engaging in high-risk health behaviors. Children grow observing what is happening in the environment. Children also observe their parents' obsession for money, bribery and corruption, others observe adults' involvement in alcohol, drugs, cigarettes and extra marital issues. This theory theorizes that student's behavior outcomes are related to what they observe in homes, schools and society. It is hoped

that through this theory, parents, teachers, community and policy makers will be careful on the socialization process of children.

## 2.6 Conceptual Framework

The Conceptual Framework of the study has independent variable is pubertal physical changes while the intervening variables are government policy and guidance and counselling while the dependent variables are academic achievement and self-esteem as illustrated in Figure 1. The the relationship between independent and dependent variables. From the Figure, pubertal developmental body changes include weight increase, breast enlargement, breaking of the voice, menstruation and pimples. The pubertal developmental body changes affect self-esteem and academic achievement of the pupils in puberty. This relationship is also affected by intervening variables which include culture and social expectations. The intervening variable was tested to find out the extent to which they affected the relationship.



**Figure 1:** Interrelationship of Study Variables



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Research Design**

This study was done among many pupils from several schools in large Kirinyaga West Sub-county. Collecting data from such large population requires research design that will support effective achievement of study objectives. In this regard, the study employed descriptive survey research design. Descriptive survey refers to all the procedures for collecting and analyzing both qualitative and quantitative data from a large population by use of questionnaires (Tashakari, 2006). Mugenda and Mugenda (2008) also state that descriptive survey research design is suitable for social scientists who are interested in collecting information that help determine specific characteristics of a group. The research design was used to collect opinions and perceptions of learners and teachers from a large population in Kirinyaga west sub-county by use of questionnaires and interviews. In collecting data, an intervention such as experiment was not applied hence making this research design suitable for this study.

#### **3.2 Location of Study**

This study was carried in Kirinyaga west sub-county, Kirinyaga County. In the area, primary school pupils of classes six and seven are not regularly attending school. The pupils are not consistent in their performance. The primary school pupils do not boldly express themselves during learning. Inadequate academic research on effects of pubertal developmental body changes on self-esteem and academic performance in this zone prompted the need for this study. Absence of academic research indicates that teachers do not have adequate information to handle the learners as well as improve their academic achievement. With few scholarly studies showing extent to which puberty affects academic achievement and self-esteem among pupils in puberty in Kirinyaga West Sub-county

#### **3.3: Population of Study**

Pupils in classes six and seven together with class teachers of classes six and seven were targeted. Pupils in classes six and seven were chosen for this study because most pupils first encountered challenges related to puberty while in these classes. From a

school population of 1926 pupils in six schools found in Kirinyaga West Sub-county, the study's target population comprised of 241 pupils of class six, 227 pupils of class seven together with six class teachers of class six and six class teachers of class seven. This is as shown in Table 1.

Table 1: Distribution of Population by School

School	School population	Accessible Population			
		Class 6 pupils	Class teachers	Class 7 pupils	Class teachers
Muslim	380	60	1	60	1
Kahiro	380	37	1	41	1
Upper Sagana	320	56	1	53	1
Thangu	146	19	1	11	1
Lower Sagana	500	50	1	43	1
Gakandu	200	19	1	19	1
Total	1926	241	6	227	6

The target population of the study was 12 teachers and 468 pupils comprising of 241 pupils in class six and 227 pupils in class seven from six schools.

### 3.4: Sampling Procedures and Sample Size

According to Mugenda and Mugenda (2008), in a descriptive survey research design a sample of between 10% and 30% of the target population is recommended. The researcher used Kathuri and Pals (1993) on (Appendix E) to sample from a target population of 468 by use of simple random sampling technique to obtain 214 pupils. Simple random sampling is suitable for giving members of the population equal chance of participation. Purposive sampling was used to obtain the twelve class teachers who had achievement records of the pupils.

The researcher obtained a sample of 226 respondents comprising of twelve teachers and 240 pupils in three public primary schools as distributed in Table 2.

Table 2: Distribution of Sample Size by Class

Category	Population	Sample frequency	Method of sampling
Class six pupils	241	107	Simple random
Class seven pupils	227	107	Simple random
Class six and seven teachers	12	12	Purposive
Total	480	226	

### 3.5: Research Instruments

Questionnaires and achievement records were used to collect data from teachers and pupils.

#### 3.5.1: Questionnaires

A class teacher questionnaire was developed to collect information on social learning of pupils in puberty in relation to physical body changes, gender differences, self-esteem and academic achievement. The questionnaire was used because the teachers could respond to the questions at their free time. The questionnaire also promoted privacy of the pupils which was one of the limiting factors to participation of the pupils in the study. Thus, it did not inconvenience normal duties. The class teacher questionnaire contained questions three sections. The first section was used to collect demographic information of the teachers while second question was used to collect information on perceived effect of pubertal development changes on self-esteem and performance. The third section contained questions on pubertal developmental body changes and academic achievement. The fourth section contained questions on gender differences in relation to pubertal physical changes, self-esteem and academic performance.

Questionnaire for pupils comprising of structured and unstructured questions was administered to pupils to obtain detailed information about their demographic background, behavior, feelings and response to the questions asked as illustrated in Appendix C.

### **3.5.2 Achievement Records**

Achievement records were used to obtain achievement of learners as illustrated in Appendix D. Records of the pupils of their average achievement in recent tests were collected. Level of participation in co-curriculum and other activities were recorded. The overall achievement of the pupils was calculated by taking average of the performance in tests and level of participation.

### **3.6 Validity**

Validity of research instruments involves the ability of an instrument to test or measure what is intended to measure (Kombo & Tromp, 2006). Expert judgment from the Department of Education at Chuka University and supervisor was used to ascertain content of the instruments. The researcher verified the outcome of the instruments based on the objectives of the study. In addition, face and construct validity were improved by the researcher during the piloting phase. The improvement included eliminating irrelevant questions. Also, some questions were rephrased to eliminate ambiguities.

### **3.7 Reliability**

Reliability is a measure of how consistent the results from instruments are. During construction of evaluation instruments, reliability is increased by precise identification of data required and repeated review of instruments by knowledgeable evaluators and field test on appropriate population (Mulusa, 1996). To estimate reliability of instruments, testing of the instruments in schools which were not factored in real data collection was done. Two schools were purposively selected for testing of the reliability of instruments using split half method. According to Mugenda and Mugenda (2008), a reliability coefficient of above 0.7 is suitable for the study. The instrument yielded a reliability coefficient of  $\alpha=0.81$  which was considered reliable and accepted for data collection.

### **3.8 Ethical Considerations**

The researcher considered ethics in the study through obtaining permission to conduct the study as well as promoting privacy and integrity during data collection. Permission to collect data from the respondents was obtained from NACOSTI and

education officers. Permission obtained provided assurance to the respondents that the study was approved by the National institutional tasked with regulating academic research. Involvement of Ministry of Education officials assured the respondents that the information collected was intended to improve education outcomes.

On privacy and integrity, the research instruments had questions that do not offend the respondents but rather framed to ensure dignity of the respondents. Moreover, the researcher explained to the respondents that participation was voluntary. The researcher ensured confidentiality of the respondents by instructing the respondents not to indicate their names on the questionnaires. Privacy of the respondents was guaranteed as interviews were conducted away from other pupils. For interviews, the researcher did not take their names during and after the interview sessions. Also, the researcher assured the respondents that the information collected was used for academic purposes and education policy making only.

### **3.9: Data Collection Procedures**

The researcher sought research clearance and authorization letter from Chuka University Ethics Review Committee. Research authorization and permit was further sought by researcher from National Commission for Science, Technology and Innovation (NACOSTI). The Ministry of Education in Kirinyaga County Education officer was also contacted in order to visit the schools to collect data. The researcher informed head teachers of the need to collect data. Thereafter, the researcher visited the schools and administered the research instruments which took 3 weeks.

### **3.10 Data Analysis**

Data analysis was done qualitatively and quantitatively. Quantitative data was analysed quantitatively by use of Statistical Package for Social Science (SPSS) version 21 where frequencies, percentages and means were obtained and presented in Tables and Graphs. Moreover, for qualitative data content analysis was used and outcome presented thematically depending on strength of argument. The summary of data analysis is presented in Table 3.

Table 3: Summary of Data Analysis

Research Questions	Independent variables	Dependent variables	Statistical tests
i) How do pubertal developmental body changes affect self-esteem among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?	Pubertal physical body changes	Self-esteem	Percentages Frequencies Means
ii) To what extent do pubertal developmental body changes affect academic achievement among pupils in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?	Pubertal physical body changes	Academic achievement	Percentages Frequencies Means
iii) In what ways do pubertal developmental body changes affect self-esteem of pupils based on gender in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?	Pubertal physical body changes	Self-esteem	Percentages Frequencies Means
iv) How do pubertal developmental body changes affect academic achievement among pupils based on gender in public primary schools in Sagana, Kirinyaga West Sub-County, Kenya?	Pubertal physical body changes	Academic achievement	Percentages Frequencies Means Standard Deviation Variance

## CHAPTER FOUR RESULTS AND DISCUSSION

### 4.1 Background Information

In this section, background information of respondents was presented. The background information collected included response rate, gender, class and age for pupils. For teachers, background information collected included gender, age, professional qualification and teaching experience. This information was presented in Figures 2 and 3 as well as Tables 4, 5 and 6.

#### 4.1.1 Questionnaire Return Rate

Questionnaire return rate is the proportion number of respondents who participated in the study to the overall sample size. In this study, the sample size comprised of 107 class six pupils, 107 class seven pupils and 12 class teachers (6 class 6 teachers and 7 class 6 teachers). As shown in Table 4.

Table 4: Response Rate

Category	Sample	Data collection tool	Number of Respondents	Response Rate
Class six pupils	107	Questionnaire	107	100%
Class seven pupils	107	Questionnaire	107	100%
Class six and seven teachers	12	Questionnaire	12	100%
Total	226		226	100%

Table 4 on response rate indicates that response rate was 100%. This implies that all respondents participated in the study. The 100% success rate was achieved after employing strategies such as taking records of the respondents and following them for a period of 3 weeks to provide the filled questionnaires. The researcher used to visit the school every day to monitor and supervise data collection.

#### 4.1.2 Background Information of Respondents

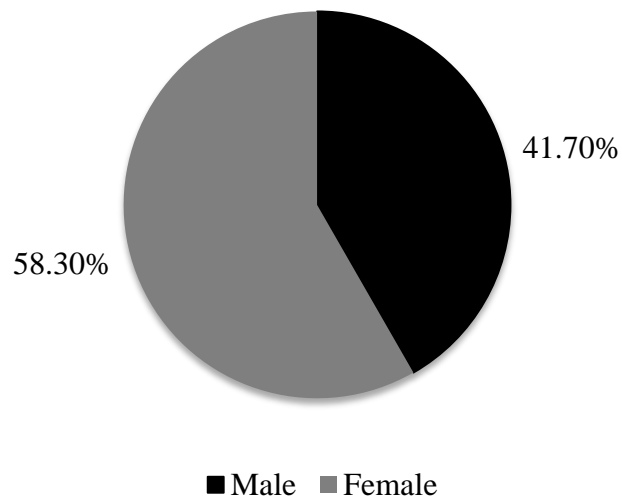


Figure 2: Gender of Teachers

Figure 2 shows that majority of teachers are females (58.3%) while male teachers are represented as 41.70%. The findings indicate that female pupils have many female teachers to support them during puberty.

Table 5: Age of Teachers

Indicator	Percentage (n=12)
20-29 years	25.0%
30-39 years	33.4%
40-49 years	25.0%
50-59 years	8.3%
Above 60 years	8.3%
Total	100.0%

Table 5 on age of teachers indicates that many teachers (33.4%) are aged between 30 and 39 years while least number of teachers (8.3%) is above 60 years. The findings indicate that majority of the teachers are mature adults who can understand pupils in puberty.



The researcher also determined the level of education of the respondents. The result is shown in Figure 3

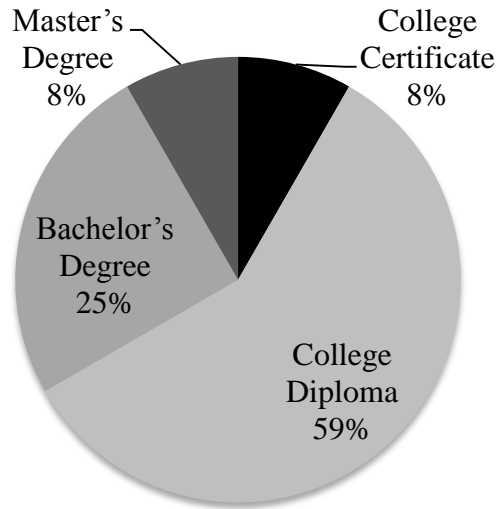


Figure 3: Education Level of Teachers

Figure 3 shows that more than half (58.3%) have college diploma followed by 25% of teachers with Bachelor degree while college certificate holders are 8.30% of the teachers. The findings indicate that majority of the teachers have knowledge in human development thus have the ability to help pupils in puberty manage the challenges of puberty.

Table 6: Experience of Teachers

Indicator	Percentage (n=12)
0-4 years	16.7%
5-9 years	33.3%
10-14 years	25.0%
15-19 years	16.7%
Above 20 years	8.3%
Total	100.0%

Table 6 indicates that most teachers (33.3%) have teaching experience of between 5 and 9 years. Only 25% have experience of between 10-14 years while the least number of teachers have teaching experience of above 20 years.

The findings indicate that majority of the teachers have teaching experience that support guidance of pupils in puberty.

Findings in Figure 4 indicate that majority of pupils were female (52.3% in class 6 and 62.3% in class 7). This implies that many girls are undergoing pubertal body changes than boys.

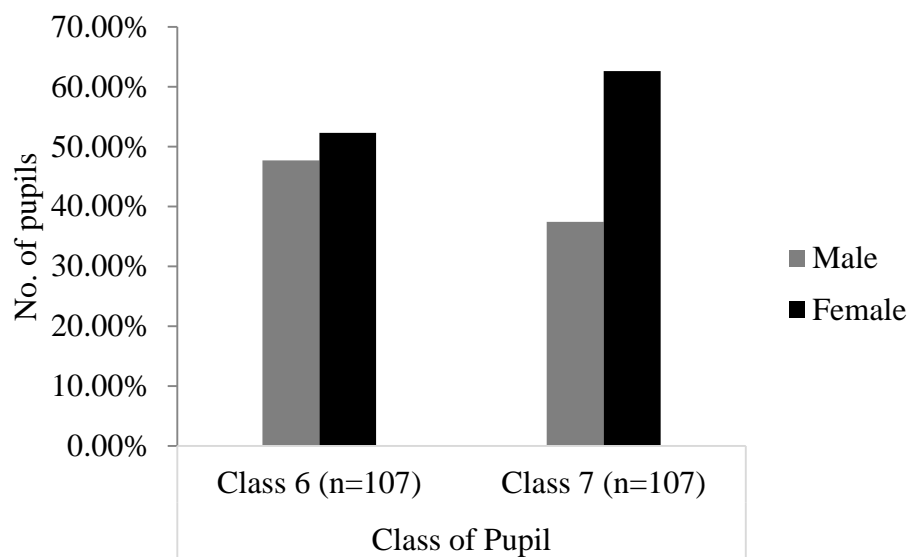


Figure 4: Gender of Pupils

Findings in Figure 5 indicates that majority of the pupils were aged between 12 and 14 years (88.8% in class 6 and 85.0% in class 7). This implies that most pupils aged between 12 and 14 years are undergoing pubertal body changes, as this is the age for one to notice these body changes.

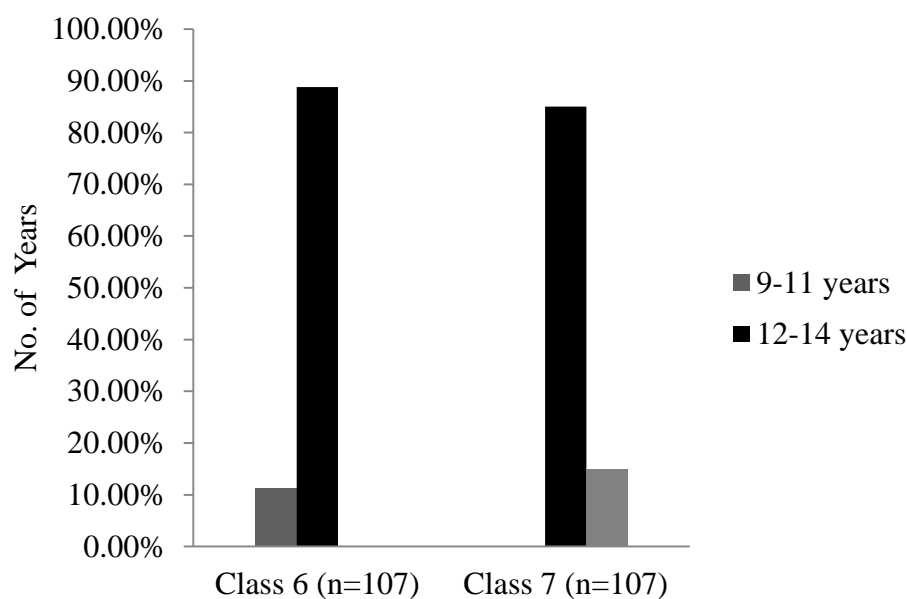


Figure 5: Age of Pupils

#### 4.2 Perceived Effect of Pubertal Developmental Body Changes on Self-esteem

A determination was done on the extent to which pubertal developmental body changes affects self-esteem of pupils. Perceptions of teachers and pupils were obtained as follows:

##### 4.2.1 Perceptions of Pupils on Pubertal Development Changes and Self-esteem

Pupils had the following perceptions on the effect of pubertal development body changes on self-esteem as illustrated in Table 7.

Table 7: Perception of Pupils on Pubertal Development Changes and Self-esteem

Statement	Mean
Boys and girls with increased weight have high levels of confidence	4.2
Girls with enlarged breasts have high level interaction with other pupils	2.9
Boys with broken voice have high level of confidence	2.9
Boys highly participate in school activities than girls	1.9
Boys and girls with pimples have high level of confidence	1.4
Overall	2.05

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 7 indicate that with a mean of 4.2, most pupils agree that increase in weight is a major factor in determining their self-esteem through improvement of their confidence. The findings also indicate that pupils disagree (mean of 2.9) that breast enlargement and breaking voice improve their interaction and confidence. The findings also indicate that with a mean of 1.9, the pupils strongly disagree that girls do not actively participate in school activities than boys. Also, the findings reveal that with a mean of 1.4, most pupils strongly disagree that pimples in boys and girls improve their confidence.

With an overall mean of 2.05 which is below 2.5 on the Likert scale, the findings imply that pupils highly perceive that pubertal physical body changes do not significantly affect self-esteem. The findings are in agreement with Arcia, (2007), Bergquist, Bigbie, Groves, and Richardson, (2004); Cook *et al.*, (2008), Cromwell, (1999); Malaspina and Rimm-Kaufman, (2008); Mendez and Knoff, (2003); Weiss and Kipnes, (2006) that there are effects of pubertal developmental body changes on self-esteem that emanate from physical body changes in both boys and girls during puberty.

#### **4.2.2 Perceptions of Teachers on Pubertal Development Body Changes and Self-Esteem**

Teachers made the following observations on perceived effect of pubertal development body changes on self-esteem as illustrated Table 8.

Table 8: Perception of Teachers on Pubertal Development Body Changes and Self-Esteem

Statement	Mean
Boys with increased weight have high level of self-esteem	4.42
Girls with increased weight have high level of self-esteem	2.75
Girls with enlarged breasts have high level of self-esteem	2.75
Boys with broken voice have high level of self-esteem	2.58
Girls have high level of self-esteem during menstruation	1.33
Boys with pimples have high level of self-esteem	1.50
Girls with pimples have high level of self-esteem	1.25
Overall	2.23

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 8 made by teachers on perceived effect of pubertal development body changes on self-esteem indicate that pubertal development changes characterized by weight increase, breast enlargement, breaking of voice, menstruation and development pimples affect self-esteem of both boys and girls. In boys, teachers observed that weight increase improved self-esteem (mean of 4.42) unlike girls (mean of 2.75). The findings also indicate that most teachers (mean of 2.75) disagreed that breast enlargement improves self-esteem of girls while majority of the teachers (mean of 1.33) strongly disagreed that menstruation improves self-esteem of girls. On pimples, majority of the teachers (mean of 1.50 and 1.25) strongly disagreed that pimples improve self-esteem in girls and boys respectively.

With an overall mean of 2.23, these findings indicate that occurrence of most of the pubertal development body changes reduce self-esteem of the pupils. This is in agreement with Arcia, (2007), Bergquist, Bigbie, Groves, and Richardson, (2004); Cook *et al.*, (2008), Cromwell, (1999); Malaspina and Rimm-Kaufman, (2008); Mendez and Knoff, (2003); Weiss and Kipnes, (2006) that there are effects of pubertal developmental body changes on self-esteem that emanate from menstruation, increase in weight and height deepening voice and breast development.

#### **4.2.3: Perceptions of Teachers on Self-esteem and Self-confidence in Puberty**

Self-esteem was associated with confidence levels of the pupils. Teachers made the following observations as illustrated in Table 9.

Table 9: Perception of Teachers on Self-esteem based on self-confidence at Puberty

Statement	Mean
Girls with increased weight have high self esteem hence confidence in school	1.92
Boys with increased weight have high level of self esteem hence confidence in school	4.42
Girls with enlarged breasts have high level of self esteem in group activities.	1.83
Boys with broken voice have high level of self esteem hence confidence in school.	2.08
Girls have high level of self esteem hence confidence during menstruation.	1.50
Boys with pimples have high level of self esteem hence confidence in school	1.58

Girls with pimples have high level of self steem hence confidence.	1.25
Total	2.08

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Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 9 indicate that girls are least confident (mean of 1.92) when their body weight increases during puberty. The findings also indicate that weight increase in boys is favourable (mean of 4.42) to them as it improves their self-confidence. The findings also indicate that girls least interact with other pupils (mean of 1.83) when their breasts enlarge during puberty. Findings in Table 9 also reveal that boys are less confident (mean of 2.08) when they break voice during puberty. Also, girls are less confident during their menstruation (mean of 1.50) while growth of pimples reduces confidence in girls (mean of 1.25) more than in boys (mean of 1.58).

The finding concurs with Forrest (2013) that pupil confidence increases with the teachers understanding of pubertal stage of pupils. However, the confidence levels are not guaranteed. According to Yara and Ndirangu (2012), many teachers feel embarrassed to teach about pubertal physical body changes in gender mixed classes. In this regard, the pupils are left to learn from peers about their puberty changes or through their own self-discovery. This situation therefore poses risk to the self-confidence of the learners unless there are platforms that will be used to connect teachers with the learners.

#### **4.2.4 Implications of Pubertal Developmental Body Changes on Self-esteem**

Findings in Tables 7, 8 and 9 indicate that pubertal development body changes affect self-esteem differently for boys and girls. The findings indicate that occurrence of most of the pubertal development body changes reduce self-esteem of the pupils. One of the girls considered herself to be fat than others and this reduced her self-esteem. For boys, they became shy whenever their hoarse voice was heard during interaction with teachers and fellow pupils. The confidence of girls during menstruation deteriorates and this reduced self-esteem.

These findings are in agreement with Connolly, Hatchette and Mc Master (2008) who observed that puberty influenced children's social adjustments which limited their interactions at school and home in Canada. This indicates that confidence of the

pupils grows thin as long as the physical body changes manifest which limits their social interactions. Also, findings of this study concur with Fraser-Thill (2014) who affirms that girls who mature early also tend to suffer from lower self-esteem and poorer body image than their friends who mature on time or late. The findings are also in agreement with UNICEF (2008) that low self-esteem among girls is also manifested when breasts and hips enlarge. This manifestation creates anxiety, particularly if it attracts attention towards themselves and their developing of features in ways that they themselves perceive to be sexually intrusive.

### 4.3 Perceived Effect of Pubertal Developmental Body Changes on Academic Performance

Analysis on the extent to which pubertal development body changes affects academic performance was done as follows:

#### 4.3.1 Academic Performance of Pupils

The academic performance of the pupils is illustrated in Table 10.

Table 10: Academic Performance of Pupils

Period	Gender	n	Mean	Standard Deviation	Variance
2017 (1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> term)	Boys	91	325.01	54.09	2926.36
	Girls	123	326.33	55.66	3098.48
	Overall	214	325.77	54.87	3011.64
3rd Term 2017	Boys	91	337.01	54.09	2926.36
	Girls	123	338.33	55.66	3098.48
	Overall	214	337.77	54.87	3011.64
Term 1, 2018	Boys	91	334.95	55.52	3083.28
	Girls	123	333.27	54.80	3003.07
	Overall	214	333.99	54.98	3023.55
Overall	Boys	91	332.32	54.09	2926.36
	Girls	123	332.64	55.66	3098.48

Findings in Table 10 indicates that boys performed marginally less (mean of 325.01) than girls (mean of 326.33) in 2017 years' exam. In previous term's exam (3<sup>rd</sup> Term, 2017), boys also performed marginally below girls (mean of 337.01) compared to girls' performance (mean of 338.33). However, girls performed marginally below boys with mean of 333.27 compared to mean of 334.95 of boys in Term 1 of 2018. Overall performance indicates that girls (mean of 332.6) marginally outshined boys

(mean of 332.32). The overall findings contradict Fraser-Thill (2014) and UNICEF (2008) who established that girls who experience early puberty do poorer in school compared to their peers. This is because their decreased academic achievement is linked to low self-esteem resulting from rapid increase in weight that seem to restrict girls than boys from attending and participating in school activities.

Low self-esteem is therefore a significant contributor to low academic performance of learners during puberty. Low self-esteem was found to be more profound in girls with eating disorders and on set of menstruation. In both sexes, high level of free-floating anxiety, negative self-confidence, hostility towards authority, difficulty in relating to peers combined with excessive dependence on the peer group contributed significantly to low academic achievement.

#### **4.3.2 Perception of Pupils about Physical Pubertal Body Changes and Academic Performance**

Pupils provided the following responses about pubertal developmental body changes and academic performance as illustrated in Table 11 below.

Table 11: Perception of Pupils about Physical Pubertal Body Changes and Academic Performance

Statement	Mean
Girls and boys with increased weight have high levels of class participation and attendance	1.97
Girls with enlarged breasts have high levels of class participation and attendance	2.3
Boys with broken voice have high levels of class participation and attendance	2.3
Girls have high level of class participation and attendance during menstruation.	2.2
Boys and girls with pimples have high level of class participation and attendance	1.7
Overall	1.75

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 11 indicate that most of the pupils (mean of 1.97) strongly disagree that weight increase has improved their class attendance and participation. The findings also indicate that most girls (mean of 2.3) disagree that their breast enlargement has improved class attendance and participation. With a mean of 2.3,



most boys disagree that breaking of their voices has improved their class participation and attendance. Also, with a mean of 2.2, most girls disagree that menstruation has improved class participation and attendance. The findings also reveal that most pupils (mean of 1.7) strongly disagree that occurrence of pimples has improved class participation and attendance.

With an overall mean of 1.75, the findings indicate that most pupils strongly disagree that physical developmental changes improve their class attendance and participation. The finding agrees with Mruk (2006) that found that beginning signs of pubertal development, pupil scored higher on the test of mathematics and this led to their conclusion that puberty may not be a risk factor for school achievement.

However, the findings disagree with other scholars who established that decline in academic achievement among girls was associated with menstruation. For example, in Africa, decline in academic achievement among girls was attributed to pubertal developmental body changes (Etsy, 2005, Chinyoka, 2014, Sowmyaa & Archana, 2004; Kirimi, 2005). The onset of puberty among girls in Zimbabwe, Ghana and Malawi reduced their self-esteem due to lack of sanitary towels and lack of knowledge on use of sanitary towels that contributed to low academic achievement. Also, girls reportedly withdrew from school related activities both within and outside the class (Mbatia, 2003; Njoroge, 2005; Pichi 2005; Charlayne, 2006).

#### **4.3.3 Perception of Teachers on Pubertal Development Body Changes and Academic Performance**

Teachers provided the following responses on pubertal development body changes and academic performance as illustrated in Table 12.

Table 12 Perception of Teachers on Pubertal Development Body Changes and Academic Performance

Statement	Mean
Boys with increased weight have high level of academic achievement.	1.92
Girls with increased weight have high level of academic achievement.	1.50
Girls with enlarged breasts have high level of academic achievement.	1.67
Boys with broken voice have high level of academic achievement.	1.50
Girls' academic achievement is most affected during menstruation.	4.50
Boys with pimples have high level of academic achievement.	1.50

Girls with pimples have high level of academic achievement.	1.58
Overall	2.02

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Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings on perceptions of teachers about academic performance and pubertal development body changes as illustrated in Table 12 indicate that weight increase, breast enlargement, breaking of voice, emergence of pimples in both boys and girls do not improve academic performance of boys and girls as observed in mean of 1.92, 1.50, 1.67, 1.50, 1.50 and 1.58 respectively. Menstruation in girls significantly (mean of 4.50) affects girls' academic achievement. These findings are confirmed by an overall mean of 2.02 where physical body changes do not improve academic achievement of the pupils.

Findings in Tables 10, 11, 12 and 13 indicated that pubertal body changes affect academic performance of pupils in puberty. The physical body changes were manifested more in girls (weight increase, breast enlargement, hip enlargement, emergence of pimples and menstruation) yet they performed marginally above boys who have few pubertal physical body changes (voice breaking, weigh increase and enlargement of shoulders). The findings on performance of the pupils indicate that boys are not significantly affected by pubertal physical changes hence no significant change in academic performance. Class participation, concentration and class attendance in girls was affected than boys yet performance was below that of girls especially during menstruation.

These findings concur with Etsy (2005), Chinyoka (2014), Sowmyaa and Archana (2004) and Kirimi (2005) findings, that decline in academic achievement among girls has also been attributed to pubertal developmental body changes. The findings are in line with Njoroge (2005), Pichi (2005), Mbatia (2003), Muchemi (2007), Akoth (2004) and Odhiambo (2004) findings that girls are affected by puberty when they begin their menstrual flows; lack of sanitary towels forces them to be absent from school. This study indicates that though the girls performed significantly better than boys, their performance could have been better if they could not have been limited by low self-esteem.

#### **4.4 Perceived Effect of Pubertal Developmental Body Changes on self-Esteem and Academic Achievement Based on Gender**

Analysis on the extent to which pubertal developmental body change is manifested in boys and girls based on gender was done and analysed as follows:

##### **4.4.1 Perceptions of Teachers on Manifestation of Pubertal Development Body Changes and Self-esteem Based on Gender**

Perceptions of teachers on pubertal development body changes and self-esteem based on gender are illustrated in Table 13.

Table 13: Perception of Teachers on Manifestation of Pubertal Development Body and Self-esteem based on Gender

Statement	Mean
Boys with increased physical body changes have high level of satisfaction	4.92
Girls with increased physical body changes have high level of satisfaction	1.67
Cultural perceptions about girls during puberty improves confidence among girls	1.33
Cultural perceptions about boys during puberty improves level of confidence among boys	4.42
Overall	2.84

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 13 on responses of teachers about manifestation of pubertal development body changes in boys and girls indicate that pubertal changes are considered different in respect to gender. The findings reveal that boys are significantly satisfied (mean of 4.92) than girls (mean of 1.67) during puberty. The findings also reveal that cultural perceptions about girls during puberty reduce confidence among girls (mean of 1.33) than boys (mean of 4.42). With an overall mean of 2.84, the findings reveal that physical body changes in respect to gender and culture do not improve satisfaction and confidence among pupils in puberty.

The general perception of teachers is that boys are favoured than girls during puberty. Girls tend to have low self-esteem than boys. Meike (2008) explains that high levels of dissatisfaction about their bodies during puberty are observed more in girls than boys. According to UNICEF (2008), breast and hip enlargement are adult features that make young girls worried as they occur than their male peers. This study concurs with other studies (UNICEF, 2008; Muchemi, 2007; Otieno, 2004; Mbatia, 2003; Njoroge,

2005; Pichi 2005; Charlayne, 2006) that the challenges posed are different based on gender with girls experiencing more challenges than boys.

#### 4.4.2 Perceptions of Pupils on Manifestation of Pubertal Development Body Changes and Self-esteem Based on Gender

Pupils also provided the following responses on the extent to which pubertal developmental body changes are differentiated in gender.

Table 14: Perception of Pupils on Manifestation of Pubertal Development Body changes, self-Esteem and Academic Performance

Statement	Mean
Pupils derive high level of satisfaction from increased body weight	3.9
Pupils derive high level of satisfaction from the way people in the community perceive them	3.6
Physical body changes contribute to high level of pupil's academic performance	2.9
Physical body changes contribute to high level of pupil's self-esteem	2.8
Overall	3.55

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 14 on responses of pupils on manifestation of pubertal development body changes in boys and girls indicate that most pupils (mean of 3.9) are undecided about their satisfaction on their body weight. The findings also indicate that with mean of 3.6, most pupils are undecided about the community perceives them. The findings also reveal that most pupils (mean of 2.9) disagree that physical body changes improve their academic achievement as self-esteem (mean of 2.8). However, with an overall mean of 3.55, the findings indicate that most pupils remain undecided about the manifestation of pubertal development body changes, self-esteem and academic performance.

Findings in Table 14 have also indicated that manifestation of pubertal development body changes in boys and girls are different in respect to gender. The general perception is that boys are significantly satisfied than girls during puberty. Girls tend to have low self-esteem than boys. Meike (2008) explains that high levels of dissatisfaction about their bodies during puberty are observed more by girls than boys. According to UNICEF (2008), breast and hip enlargement are adult features that

make young girls worried as they occur than their male peers. This study concurs with other studies (UNICEF, 2008; Muchemi, 2007; Otieno, 2004; Mbatia, 2003; Njoroge, 2005; Pichi 2005; Charlayne, 2006) that the challenges posed are different based on gender with girls experiencing more challenges than boys.

#### **4.4.3 Perceptions of Teachers on Manifestation of Pubertal Development Body Changes and Academic Performance Based on Gender**

Extent to which academic achievement was affected by pubertal development body changes was explained by the following observations made by teachers in Table 15.

Table 15: Perception of Teachers on manifestation of pubertal development body changes and academic performance based on gender

Statement	Mean
Pupils with increased weight have high levels of concentration in class activities	1.58
Girls with enlarged breasts have high level of participation in group activities	1.58
Boys with broken voice have high levels of participation in class	1.75
Girls have high level of class participation and school attendance during menstruation.	1.33
Girls with pimples have high level of class concentration and participation	1.58
Boys with pimples have high level of class concentration and participation	2.25
Overall	1.68

Scale: 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree

Findings in Table 15 illustrate the responses of teachers on manifestation of pubertal development body changes and academic performance of pupils. The findings reveal that increase in weight does not improve concentration of both boys and girls (mean of 1.58) during learning. The findings also reveal that breast enlargement does not improve participation of girls (mean of 1.58) in group activities. Also, breaking of voice does not improve participation (mean of 1.75) of boys in class. Menstruation was also observed to reduce school attendance and class participation (mean of 1.33) in girls. Concentration and participation of girls was also significantly reduced (mean of 1.58) by emergence of pimples compared to boys (mean of 2.25). With an overall mean of 1.68, the findings reveal that most teachers strongly disagree that physical body changes improve concentration, class attendance and participation of pupils in puberty.

Findings in 15 concur with other studies (UNICEF, 2008; Muchemi, 2007; Otieno, 2004; Mbatia, 2003; Njoroge, 2005; Pichi 2005; Charlayne, 2006) that the challenges posed are different based on gender with girls experiencing more challenges than boys. This brings into perspective the support of Erikson's (1968) Psychosocial Developmental Theory and Bandura's (1977) Social Learning Theory. In respect to these theories, pubertal physical development changes affect psycho-social behaviors of the girls more than boys which could be temporal. In this regard, the behavior of girls is more pronounced if the pubertal changes are intense that it makes the girl's identity different from the rest to a large extent. Girls that consider themselves different from the rest therefore exhibit intense change in psycho-social behaviors.

In addition, pubertal physical development changes do not entirely affect cognitive development of girls, but it is associated more with behavioral changes. This explains that boys might not be exhibiting such changes as girls do, hence, lack of strong association of boys in academic performance. This brings into perspective the Bandura's (1977) Social Learning Theory. Social learning theory postulates that one's learning and performance of behaviours are influenced by one's social contexts, including the family, community and broader society. Social learning suggests that a combination of environmental (social) and psychological factors influence behaviour. In respect to this theory, girls exhibit tenets of this theory especially attention where they are responsive to pubertal physical changes that affect their attention in learning.

## CHAPTER FIVE

### 5.1 SUMMARY, CONCLUSION AND RECOMMENDATIONS

Pupils disagreed that physical body changes improve their self-esteem. and the occurrence of most of the pubertal development body changes reduce self-esteem of the pupils. Teachers disagreed that physical body changes improve self-esteem of the pupils. Occurrence of most of the pubertal development body changes reduce self-esteem of the pupils. Some girls considered themselves to be fat than others and this reduced their self-esteem. Boys became shy whenever their hoarse voice was heard during interaction with teachers and fellow pupils. The self-esteem of girls during menstruation deteriorates.

The physical body changes were manifested more in girls (weight increase, breast enlargement, hip enlargement, emergence of pimples and menstruation) yet they performed marginally above boys who have few pubertal physical body changes (voice breaking, weigh increase and enlargement of shoulders). indicate that boys are not significantly affected by pubertal physical changes hence no significant change in academic performance. Class participation, concentration and class attendance in girls was affected than boys yet performance was below that of girls especially during menstruation.

The decline in academic achievement among girls has also been attributed to pubertal developmental body changes. Also, girls are affected by puberty when they begin their menstrual flows; lack of sanitary towels forces them to be absent from school. This study indicates that though the girls performed significantly above boys, their performance could have been better if they could not have been limited by low self-esteem.

Physical body changes in respect to gender and culture do not improve satisfaction and confidence among pupils in puberty. Most pupils remained undecided about the manifestation of pubertal development body changes, self-esteem and academic performance. Most teachers strongly disagreed that physical body changes improve concentration, class attendance and participation of pupils in puberty.

Pubertal development body changes in boys and girls are different in respect to gender. The general perception is that boys are significantly satisfied than girls during puberty. Girls tend to have low self-esteem than boys. Also, breast and hip enlargement are adult features that make young girls worried as they occur than their male peers.

## **5.2 Conclusion**

This study revealed that pubertal developmental body changes affect self-esteem among pupils in public primary schools in Kirinyaga west sub county. Self-esteem of pupils is affected to large extent in girls than boys. This has been occasioned by many pubertal physical body changes in girls than boys. Also, academic performance of pupils is to some extent affected by pubertal physical changes especially menstruation in girls. The study also potrayed that while girls performed marginally better than boys, the performance could have been better in absence of pubertal physical changes especially menstruation and breast enlargement.

In addition, this pubertal physical development changes vary with gender. Boys are less affected by pubertal physical changes than girls. The society also perceives puberty in girls as developmental changes that should make the girls not equal to boys as boys are praised during puberty than girls. Girls' self-esteem and academic performance is therefore affected than boys despite girls performing better than boys. Therefore, this study brought it out that pubertal development body changes affect self-esteem and academic achievement among girls than boys in Kirinyaga West Sub-County.

## **5.3 Recommendations**

Based on the conclusions, the following recommendations were made:

- i. Teachers should interact with pupils in order to understand the developmental challenges that may be encountered with a view of ensuring that such challenges do not affect their self-esteem.
- ii. School management and teachers should devise strategies and activities that could support pupils to manage pubertal challenges hence improving their academic achievement.



- iii. School management and teachers should liaise with community members in developing initiatives aimed at reducing stereotypes around puberty especially in girls can be done on academic clinic days, sports days and festivals.
- iv. The teacher's service commission and the Ministry of Education (MoE) should step up and introduce guiding and counselling programmes for pupils in puberty stage in all primary schools.

#### **5.4 Suggestions for Further Studies**

This study suggests that another study on other pubertal factors affecting academic achievement of boys and girls in puberty be done in Kirinyaga East Sub-County, Kenya. Also, similar study should be done in high schools for adolescents.

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**APPENDIX A**  
**LETTER OF INTRODUCTION**

Susan Wanjiru Maina  
P.O. BOX 23  
Sagana  
TEL: 0722324948

Dear respondent,

**RE: REQUEST FOR DATA COLLECTION FOR ACADEMIC RESEARCH**

I am a Student in Chuka University pursuing Master of Education, Degree in Guidance and Counseling on “**Perceived Effect of Pubertal Developmental Body Changes on Self-Esteem and Academic Achievement among Public Primary School Pupils in Sagana, Kirinyaga West Sub-County, Kenya.**”

The purpose of this study remains to be educational; you are therefore requested to give your sincere response by filling the questionnaire given transparently. The researcher will observe confidentiality.

Thank you.

Yours Faithfully

Susan Wanjiru Maina,  
(Researcher)

## APPENDIX B

### QUESTIONNAIRE FOR CLASS TEACHERS

Kindly provide your responses in the brackets and spaces provided by giving tick [√] or writing respectively. As your responses shall be treated confidential, please DO NOT write your name or contacts anywhere on this questionnaire. The study is intended for academic purposes only.

#### Section A: General Information and Personal Data

1. Gender: Male  Female
2. Age:  
 20-29 years  30-39 years  40-49 years  50-59 years  above 60 years
3. Professional Qualification Level:  
 College Certificate  College Diploma  Degree  Masters   
 Other  (please specify) \_\_\_\_\_
4. Teaching Experience:  
 0-4 years  5-9 years  10-14 years  15-19 years  above 20 years

#### Section B: Perceived effect of pubertal developmental body changes on self-esteem

Please tick (✓) mark under your response. Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree

5. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Weight increase in boys and girls improves self-esteem.					
Breast enlargement in girls improves self-esteem.					
Breaking of voice in boys improves self-esteem.					
Self-esteem of girls improves during menstruation.					
Development of pimples in boys and girls improves self-esteem.					

6. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Weight change in girls reduces their confidence in school.					
Breast enlargement or lack of it affects the interaction of girls in group activities.					
Breaking of voice by boys reduces their confidence in school.					
Menstruation cycles reduces their confidence in school hence miss lessons.					
Growth of pimples reduces their confidence hence minimizing interactions during learning.					

7. What else do you think enhances self-esteem of adolescents?

.....  
 .....

**Section C: Perceived effect of pubertal developmental body changes on academic achievement**

Please tick (✓) mark under your response. Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree

8. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Weight increase in boys and girls improves academic achievement.					
Breast enlargement in girls improves their academic achievement.					
Breaking of voice in boys improves academic achievement.					
Academic achievement of girls improves during menstruation.					
Development of pimples in boys and girls improves their academic achievement.					

9. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Weight change in girls reduces their concentration in class activities.					
Breast enlargement or lack of it affects the participation of girls in group activities.					
Breaking of voice by boys makes them to be passive in class.					
Menstruation cycles lead to absenteeism of girls in school hence missing lessons.					
Pimples waste students' time on the mirror and peer comparison hence affecting their achievement in class.					

**Section D: Gender Differences, Physical Body Changes, Self-esteem and academic performance**

Please tick (✓) mark under your response. *Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree*

10. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Increase in physical body changes increases level of dissatisfaction among boys.					
Increase in physical body changes increases level of dissatisfaction among girls.					
Bad cultural perceptions about girls during puberty reduce confidence among girls.					
Cultural perceptions about boys during puberty increase level of confidence among boys.					

11. Which other pubertal physical changes affect academic achievement of pupils in your class?

.....  
 .....

Thank You

**APPENDIX C**  
**QUESTIONNAIRE FOR PUPILS**

Kindly provide your responses in the brackets and spaces provided by giving tick [✓] or writing respectively. As your responses shall be treated confidential, please DO NOT writes your name or contacts anywhere on this questionnaire. The study is intended for academic purposes only

**Section A: Background Information**

1. Gender:  
Male                       Female
2. Class:  
Six                       Seven
3. Age: 9-11 years     12-14 years  above 15 years

**Section B: Perceived effect of pubertal developmental body changes on self-esteem**

Please tick (✓) mark under your response. *Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree*

4. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
Weight increase in boys and girls improves their confidence.					
Breast enlargement in girls has improved their interaction with other pupils.					
Breaking of voice in boys improves their confidence.					
Girls do not actively participate in school activities than boys.					
Pimples in boys and girls improve their confidence.					

5. As an adolescent, what other physical body changes have affected your self-esteem?

.....  
 .....  
 .....

**Section C: Perceived effect of pubertal developmental body changes on academic achievement**

Please tick (✓) mark under your response. *Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree*

6. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
My weight increase has improved class participation and attendance					
As a girl, my breast enlargement has improved class participation and attendance.					
As a boy, my breaking of voice has improved class participation and attendance.					
As a girl, my menstruation has improved class participation and attendance.					
My development of pimples has improved class participation and attendance.					

**Section D: Gender Differences, Physical Body Changes, Self-esteem and academic performance**

Please tick (✓) mark under your response. *Key: SA-Strongly Agree, A-Agree, UN-Undecided, D-Disagree, SD-Strongly Disagree*

7. What is your opinion on the following statements?

Statement	SA	A	UN	D	SD
I am satisfied with my increased body weight.					
I am satisfied with the way people in the community see me.					
My physical body changes have improved my academic performance.					
My physical body changes have improved my self-esteem.					

8. As an adolescent, what other physical body changes have affected your academic achievement?

.....  
 .....

THANK YOU



**APPENDIX D**  
**ACHIEVEMENT RECORDS OF PUPILS**

Kindly make a record of achievement of pupils in the listed school activities.

Pupil's Code: _____ Class: _____ Gender: _____	
Class achievement:	
Average achievement of the previous year	
Average achievement of the previous term	
Recent test achievement	
Co-curricular achievement:	
Achievement in games and sports	
Achievement in other activities	
Overall achievement:	

## APPENDIX E

### TABLE OF RANDOMLY CHOSEN SAMPLE

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	241	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	960	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

N = population; S = sample size

Adapted from Kathuri, N. J & Pals, D. A (1993)

**APPENDIX F:  
NACOSTI AUTHORIZATION LETTER**



**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

Telephone: 020 400 7000,  
0713 788787,0735404245  
Fax: +254-20-318245,318249  
Email: dg@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Wayaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/17/62024/19590**

Date: **31<sup>st</sup> October, 2017**

Susan Wanjiru Maina  
Chuka University  
P.O. Box 109-60400  
**CHUKA.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Effect of pubertal developmental body changes on self-esteem and academic achievement among public primary school pupils in Sagana, Kirinyaga West Sub-County, Kenya”* I am pleased to inform you that you have been authorized to undertake research in **Kirinyaga County** for the period ending **30<sup>th</sup> October, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Kirinyaga County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM  
FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Kirinyaga County.

The County Director of Education  
Kirinyaga County.

**APPENDIX G**  
**NACOSTI PERMIT**

<p><b>THIS IS TO CERTIFY THAT:</b> <b>MS. SUSAN WANJIRU MAINA</b> of <b>CHUKA UNIVERSITY, 45-60209</b> Meru, has been permitted to conduct research in <i>Kirinyaga County</i></p> <p>on the topic: <b>EFFECT OF PUBERTAL DEVELOPMENTAL BODY CHANGES ON SELF-ESTEEM AND ACADEMIC ACHIEVEMENT AMONG PUBLIC PRIMARY SCHOOL PUPILS IN SAGANA, KIRINYAGA WEST SUB-COUNTY, KENYA</b></p> <p>for the period ending: <b>30th October, 2018</b></p> <p>..... <b>Applicant's Signature</b></p>	<p><b>Permit No : NACOSTI/P/17/62024/19590</b> <b>Date Of Issue : 31st October, 2017</b> <b>Fee Received :Ksh 1000</b></p> <div style="text-align: center;"></div> <p>..... <b>Director General</b> <b>National Commission for Science, Technology &amp; Innovation</b></p>
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