UNIVERSITY OF EDUCATION, WINNEBA

MENOPAUSE AND NUTRITION AMONG THE WOMEN IN AGOGO – ASANTE AKIM, NORTH DISTRICT

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A THESIS IN THE DEPARTMENT OF HOME ECONOMICS EDUCATION, FACULTY OF SCIENCE EDUCATION, SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, UNIVERSITY OF EDUCATION, WINNEBA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR AWARD OF THE MASTER OF PHILOSOPHY (HOME ECONOMICS) DEGREE

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DECLARATION

I, Magdalene Aba Aggrey, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE: ……

DATE: ……

We hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of Thesis Project as laid down by the University of Education, Winneba.

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To God be the Glory, Great things He has done. Thanks be to Him who sits upon the throne and to the Lamb, for wisdom, direction and the extravagant grace shown to me throughout this programme. I am privileged to have all the encouragement from my beloved family while I pursued my dreams. God richly them for their prayers and support. I am also indebted to my Principal Supervisor, Professor Matthew Caurie for his invaluable encouragement, contributions, patience and guidance. It has been a privilege working with him. God bless him richly. Many thanks to all the lectures in the Home Economics Education Department, especially my co-supervisor, Professor Phyllis Foster for their support and encouragement. Not forgetting all my course mates for their useful suggestions. I am also very grateful to LCI Winneba Aparche for the love, care and contribution, especially Rev. Francis Hammond and Mr. Samuel Tandoh. Thank you R ev. Amoa- Mensah, the chaplain of Agogo Presbyterian College of Education for your contribution toward this piece of work. Last but not least, I wish to thank all menopausal women of Agogo and University of Education, Winneba especially Miss Marian Adams, who participated in this study for their immense cooperation and assistance. May the Almighty God reward your labour in Him. Amen.

DEDICATION

This study is first dedicated to God Almighty to Him be the glory, and my family; Nana Kwamena Kum Aggrey: my husband and the three lovely children of our union; Papa Nyamedom Aggrey, Maame Sarba Aggrey and Nana Afriyie Aggrey. God bless you richly for your understanding and support.

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OPERATIONAL DEFINITION OF TERMS

Amenorrhea: - Absence of menstrual cycle.

Diverticulitis: - Infected "pockets" within the large intestines.

Oestrogen: - A steroid produced mainly in the ovaries and occurs naturally in women which is responsible for the development of secondary sexual characteristics.

Hysterectomy: - Surgical removal of the uterus

Indole: - Crystalline alkaloid compound in plants and animals.

Inhibin: - a hormone secreted by the gonads that inhibit production of follicle stimulating hormone.

Lignin: - Non-carbohydrate polymer that contributes to dietary fibre,

Malnutrition: - Poor nutrition resulting from an excess or lack of calories or nutrition.

Menarche: - The occurrence of the first menstrual cycle.

Morbidity: - The quality of being unhealthy, morbid (to or with relation to disease.)

Osteoporosis: - condition in which low bone density or weak bone structure leads to an increased risk of bone fracture.

Phyto- estrogen: - A hormone-like substance found in plants, strong enough to bind with estrogen receptors.

Phyto- chemicals: - Chemical substances in plants, some of which affects body processes in humans that may benefit health.

Progesterone: - A hormone that occur naturally in women and female animals

Sarcopenia: - gradual age related loss of skeletal muscle

Serotonin: - A brain chemical that facilitate sleep, improves mood, diminishes pain and reduce appetite

Tofu: - a soft, white food made from soybeans and often used in vegetarian cooking instead of meat.

ABSTRACT

The aim of the study was to find out the awareness of menopausal symptoms, food preferences, nutrition related health statuses and strategies to ensure effective diet management by menopausal women in Agogo, Asante- Akim North District. The study was a cross sectional survey using descriptive research methods. One hundred and twenty (120) women between the ages 40 and 60 years were selected by convenience, purposive and by snowballing methods to select the site, area and respondents. Instruments used to collect data were questionnaire, interview and observation checklist. Data was analysed descriptively with (SPSS) version 16.0. The study revealed that the menopausal age for women in Agogo was between the ages of 46 to 55years. The average age was 51years and 5months. Awareness of menopausal symptoms was very high and the sources of information were through adult children, parents, friends and relations. The diets of the respondents were diversified as they frequently consumed food items from all the six food groups. Major nutrition – related health problems experienced by respondents were arthritis, hypertension, diabetes and obesity. It was found that exercise was important for the health of the respondents but the duration of the exercise among the respondents was short so it is important to encourage extended periods of exercise. Strategies recommended to ensure healthy menopause included intensive education and counselling on menopausal symptoms, management, good nutrition, adequate rest as well as awareness creation and moral support from the community. Menopausal women should be encouraged to include a variety of fruits, vegetables, legumes and pulses in their diet to boost their phyto- oestrogen level. Menopausal women should perform exercise regularly in the form of walking, jogging, skipping, dancing, and playing tennis or any weight-bearing exercises but the duration of the exercises should be extended beyond the present level to make their bones and muscles stronger to prevent cardiovascular diseases. There should be workshops and seminars for leaders in the churches by Home Economists and Dieticians to educate the menopausal women on the symptoms of menopause and the right diet to eat to remedy or reduce the impact of menopausal symptoms.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Since the dawn of civilization, human beings have recognized a progression in life from infancy through old age. This progression is universal, yet the time between birth and death has been organized in distinctive ways by different societies and schools of thought. The simplest concept of life‟s course is divided into two; childhood and adulthood. But as societies become more complex and longevity increase, a number of stages such as infancy, childhood, adolescence and adulthood have evolved. Even the adulthood stage has been sub-divided into young adulthood, middle adulthood and older or late adulthood (Adams, 2009). Life span has been divided into 19 through to 50 years, 51 to 70 years and 71 years and above. These divisions indicate the progressive changes brought about by aging.

Living long is an achievement which calls for celebration and it is important for people to age gracefully and make aging enjoyable. As we grow older, we face many challenges, some of which could be health threatening or even fatal. Aging is characterized by different symptomatic changes which vary among different individuals in terms of gender or sex, heredity, socio-economic background and other factors. The rate and severity of menopausal symptoms are highly influenced by a number of factors of which nutrition and diet rank high since an individual‟s health, physical growth and development have a direct bearing on them.

Eating well is one of the best ways to take care of one‟s self, and what you eat makes a big difference in the way you look and feel as such a healthy diet provides energy to

get through busy day, supports mood, helps to maintain weight and looks best as one goes through different stages of life. Correct food choices can help to reduce premenstrual syndromes, boost fertility, combat stress, make pregnancy easier and ease the symptoms of menopause. Healthy diet helps to look and feel one‟s best and be confident enough to enjoy life whatever the age. Good nutrition starts with a diet consisting of whole grains, fresh fruits and vegetables, healthy fats, and lean sources of protein. These kinds of food provide individuals with good nutrients, which are the means for long life, weight control and key ingredients for looking and feeling great at any age (U.S. Department of Health and Human Service, 2003). Good nutrition again is vital to the overall wellbeing of the body from conception through the various stages of life and some nutrients like water, protein, vitamins and minerals are used to regulate and control body processes rather than for growth at old age.

The experience of growing old is different for men than for women in some obvious and less obvious ways. For instance physical signs of aging bring more severe social consequences for women than for men. Generally, hormones are responsible for these changes from birth, childhood, and adulthood up to old age, as such hormonal changes that happen around menopause affect women differently. The menopausal stages in a woman‟s life are characterized by varying hormonal changes which sometimes cause changes in the lifestyles of women that can affect the woman socially, emotionally, psychologically and physically. Nevertheless, it is important to note that not all symptoms are caused by menopause but by other aspect of ageing (Allen, 20009).

For years both doctors and women viewed menopause in negative terms, using such phrases as “hormonal deficiencies” and “reproductive dysfunction” to describe the

physical aspect of this stage of life. However, times have changed and menopause is now looked upon not as a death sentence, but an opportunity. The equivalent of menopause in men is andropause. In either andropuase or menopause certain nutrition practices can be used to manage its adverse effects (Campbell, 2007).

Most menopausal women are not aware about the symptoms, effects on health status and their remedial measures. Therefore, it is important to educate menopausal women about how to combat and tackle this important phase in their lives of which very few studies have been conducted on their nutritional status. Hence it reinforces the debate on the need for special attention to this group by health care centres (Barasi, 1997). Nutrition education helps individuals to obtain knowledge, skills and food choices for positive health throughout life. However, this important service is mainly confined to hospitals, health centres and also to those with formal education. This means that as long as a woman is not pregnant or lactating to visit a health centre or listen to radio programmes on good nutrition, she may never learn about food and nutrition. Food if not eaten properly, will become "toxic" to the body rather than promoting good health. A well balance diet throughout life will help one to reach the genetic potentials and avoid premature ageing, premature menopause and degenerative diseases.

To this end, Weber (2009) offers some suggestions to complement diet intake during menopause that, variety of food should be eaten to get all the nutrient needs. The author continued that since women‟s diets are often low in iron and calcium, women aged 51 and above should eat more of iron and calcium-rich foods of 8 milligrams and 1,200 milligrams respectively to get their recommended dietary allowance per day. Menopausal women should get enough fibre from foods high in fibre such as whole-grain breads, cereal, fresh fruits and vegetables and drink plenty of water as

requirement for most healthy adults. Additionally, menopausal women should maintain a healthy weight, reduce foods high in fat, use sugar and salt in moderation and limit alcohol intake. All these are meant to ensure effective management of menopause.

1.2 Statement of the Problem

The researcher, who stays and works in Agogo observed that some women in Agogo complained a lot about hot flushes, frequent headaches, burning sensation at certain parts of the body, backaches, nervousness and many other problems which are all menopausal symptoms that may result from nutritional inadequacies. In casual conversation with some community member about these symptoms, it was revealed that some community members associate these symptoms with witchcraft. This situation may make it difficult for women with such menopausal problems to come out boldly and seek for the needed attention. Consequently, this study was undertaken to find out whether women in Agogo in Asante- Akim North were aware of the symptoms of menopause; the behavioural changes, anatomical changes, and the right diet to take during menopause to calm down or eliminate some of their menopausal symptoms.

1.3. Purpose of the Study

The aim of the study was to find out whether menopausal women in Agogo Asante-Akim North District were aware of menopausal symptoms and ensures effective management of their nutrition related menopausal symptoms among menopausal women in Agogo Asante- Akim North.

1.4 Specific Objectives of the Study were to:

1. Assess the awareness of menopausal symptoms among the women in Agogo.
2. Evaluate the food preferences of the menopausal women.
3. Find out the nutrition related health status of the menopausal women.
4. Identify strategies to manage and ensure good and healthy menopause.

1.6 Significance of the Study

1. The findings of this study provide information on menopause and nutrition to help readers understand changes at menopause and know how to manage them.

2. Provide baseline information on menopause and nutrition management to the following stakeholders: Churches and other social groups etc.

3. Family Life Educators can use the findings of this study for their training programmes to educate women on physiological and psychological changes at menopause and the diet that will help them.

1.6 Limitation of the Study

All the respondents were employed; hence the researcher who is a teacher had to plan her activities in order to fit into the leisure time of each of them. Hence a lot of time was spent in collecting the data especially form the illiterate women where guided interview with the questionnaire was employed.

1.7 Delimitation of the Study

The study was delimited to menopausal women in Agogo Township of the Asante-Akim North District. Purposive sampling was used to identify and select menopausal women aged between 40 and 60 years and snowball was used to get the sample for the study. The design was a descriptive survey.

1.8 Organization of the Study

The study consists of six chapters. Chapter one deals with introduction, the background of the study, the statement of the problem, purpose of the study, research questions, significance of the study, limitation and delimitation.

In the chapter two, literature relating to the topic under study is reviewed accordingly. The review is mainly focused on menopause, its symptoms and how nutrition could be used to reduce the symptomatic effect of menopause. It also presents information on related studies (empirical) conducted by other writers.

Chapter three discusses the methodology and data collection; the research design, the study population, the sample size and sampling technique, instrumentation and the statistical tool used for the study are also looked at. In chapter four, the data collected from the respondents are presented and analysed using statistical procedures.

Chapter five discusses the findings recorded in chapter four and finally, chapter six presents the summary of the research findings. Conclusions are drawn on the findings and implications for counselling as well as recommendations for future research works are given.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Concept of Menopause

Menopause is a universal biological phenomenon that has been explored and talked about by researchers, medical system, and women themselves in a multitude of ways. It has been studied in terms of physiological and psychological deficiency (Dennerstein, Barton, Koochaki & Graziottin, 2006), a symbolic social transition and a normal life transition (Bianchi &Spain, 1989). It is a phenomenon experienced by all human females who live to old age and often researched with the justification that menopause is a threat to health (Burger,1999), though this view has received some criticism (Thomas, 2001). Menopause is a stage in a woman‟s life, when menstruation ceases and child birth stops. It is now generally considered as a process with different cultural meanings which some consider as a cultural construct and a biological event. Menopause is also referred to as the "change of life" and it is a unique and personal experience of every woman who grows to a grand old age (Lock & Kaufert, 2001).

Women refer to it as the closing down of the body factory, a change to a new stage of life, and not just as being physical changes in their bodies. Mostly, not all women‟s experiences of menopause are compassed by the term transition. It is also defined as a "change or passage from one state or stage to another and a period of time during which something changes from one state or stage to another (Oxford Advanced Learner‟s Dictionary, 1996). The term menopause has several definitions by a host of authors. According to Thomas (2001), menopause is the permanent cessation of menstruation and it marks the end of a woman‟s natural ability to bear children. Meanwhile, Waugh and Grant (2010), indicated that menopause occurs between the

ages of 45 and 50 years. According to them, most American women experience it in their late 40s or early 50s – about half of them by the age of 51 years. Menopause may occur spontaneously or gradually over a period of years as long as 10 to 15 years or even more.

The North American Menopause Society (2004) stated that menopause is by definition the permanent cessation of menstrual function following a decline of ovarian oestrogen production. Mosby‟s Pocket Dictionary of Medicine, Nursing and Allied Health (1998) indicated that menopause is strictly the cessation of menses, but commonly refers to the period as the female climacteric when menses stop naturally with decline of cyclic hormonal production and function between 35 and 60 years of age. According to Ojeda (1992), menopause is the loss of ovarian function, characterized by the actual cessation of menses which is prompted by the decline in estrogen and progesterone production, rising follicle- stimulating hormone (FSH) and luteinizing hormone (LH) levels. The average age of onset of menopause is about 48 years, but menopausal symptoms may begin as early as 40 or as late as the early 50‟s (The World Book Encyclopaedia, 2001). Additionally, the New Encyclopaedia Britannica (2003) described menopause as a time in a woman‟s life when her menstrual periods stop; most women have their last menstrual period between the ages of 45 and 55 years. McPherson (2002) added that menopause is a perfectly normal, natural sort of disorder or ailment. It is a condition designed by nature to define in a female the age where a safe and healthy pregnancy and delivery can be assured and deprives a woman further possibility of impregnation.

The most typical age range for menopause is between the ages of 40-60 and the average age for last period is 51years. In some countries however, such as Indonesia

and Philippines, the median age of natural menopause is considerably earlier (Moody, 2010).

It is often said that if one has her menarche at an early stage, there is a likelihood that menopause will also start early in that individual‟s life and vice versa. The World Encyclopaedia (2001) stressed that the end of menstruation before the age of 40 is premature and should be discussed with a physician. McPherson (2002) asserted that discourses of menopause are varied and complex, just as the lives of women themselves are, diverse and multifaceted. She continued that traditionally, menopause signals the end of child-bearing years and a time when women might experience a great deal of change of life in many ways. These changes can be felt in one‟s own body, her feminism, general well-being, in sexuality, relationship with her partner, the family and at work place. This period of change is called the "climacteric" and it involves menopause and a general change in ovarian function over the course of six to thirteen years. A woman is considered to have reached menopause when a year passes since her last period (amenorrhoea) and it marks the permanent end of fertility and a natural part of a woman‟s life (Burger, 1999). It is a phase when she is no longer experiencing menstruation, technically her body begins to produce less and less progesterone and estrogen, and eventually her period cease (Devi, Singh & Singh, 2003). The later authors stated that menopause typically occurs in a woman‟s life in the mid 40‟s to early 50‟s. A "premature" menopause is one which occurs spontaneously before the age of 40 as a result of surgical removal, irradiation or abnormalities of ovaries in 8% of women.

Utian (1999) defined menopause as ovarian failure due to loss of ovarian follicular function that accompanied estrogen deficiency resulting in permanent cessation of

menstruation and loss of reproductive function. In most women, the number of days of flow decrease with skipping one or more months for several years before complete cessation. The timing of menopause and the experience of changes in wellbeing associated with it are generally called menopausal symptoms and these vary greatly between individuals and among populations (McKinlay, Brambilla & Posner, 1992).

Menopause occurs in three phases;

1. Pre-menopause phase, were a little disruption of the ovarian function is observed and the menstrual cycle remains regular. Nevertheless, a few symptoms may begin to occur.
2. Peri-menopause is a phase that represents declining ovarian function where menstrual irregularities and symptoms commonly start or become troublesome, and this phase last till the end of menses.
3. Post-menopause stage is where permanent cessation of menstrual cycle occurs which last over a year is experienced.

According to Sell-Meyer, Stone, Sebastian & Cummings (2001), women are born with about 1.5 million ova but reach menarche with around 400,000, and most menstruate about 400 times between menarche and menopause. When all responsive ova are used and the ovary is no longer capable of responding to pituitary gonadotropins and the production of oestrogen and progesterone, the other ovarian hormones are reduced. The result of these low levels in hormones is often manifested by deleterious physical, psychological and sexual changes in the post menopausal phase. Post menopausal phase is now recognized as a time of decreased hormonal

production with associated problems that reduce the quality and length of life for a large number of women.

With Andropause, there is a decline in the hormone testosterone in aging men which is a slower process. The testes unlike the ovaries do not run out of the substance it needs to make testosterone and that a healthy male may be able to make sperms well into his eighties or longer (Sherwin, 1988). Symptoms of testosterone deficiency tend to fall in one of four categories: physical, cardiovascular, mental, or sexual, with some of them overlapping. For example, feeling too weak or tired to engage in sex could be related to impaired cardiovascular health, feeling of insecurity, and decreased libido, all of which may be related to a testosterone deficiency (Geller & Studee,2005).

Hormones are protein in nature and a decrease in hormone secretion during menopause brings about health problems which can be ameliorated with balanced diets. Many people also assume that because menopause is caused by changes in hormones, taking hormones tablets will solve the problem. Nevertheless, the North American Menopause Society (2004) asserted that many of the symptoms of menopause can be reduced if not completely eliminated by simply adjusting one"s diet and taking in some key vitamins and minerals. There are some risk factors and symptoms associated with aging and menopause that cannot be changed. Good nutrition, as has been noted can help prevent or reduce certain conditions that may develop during and after menopause.

2.2 The Concept of Nutrition

A healthy diet and enough physical exercise are essential to keep fit at all ages in the peri, pre and post menopause phases. Nutritional requirements vary from person to person and change with age. Some risk factors associated with aging and menopause

cannot be changed, but healthy eating can prevent or reduce certain conditions that may develop during and after menopause (Barasi, 1997). Wardlaw and Kessel (2005) defined nutrition as the science of food: the nutrients and substances in food and their action, interaction and balance in relation to health and disease. Nutrition is the process of absorbing nutrients from food and processing them in the body in order to keep healthy or grow well. It also deals with food and the minerals, vitamins and other nourishing substances they contain and their effect on health. Worthington-Roberts and Williams(1996) and Wardlaw (2003), on their part defined nutrition as the process by which the body ingests, digests, absorbs, transports, utilizes and excretes food substances, while Insel and Roth (2004) were of the view that nutrition is the science of food and how the body uses it in health and in disease. The word nutrition implies the food itself and all that happens to it from the time the food is eaten until it actually nourishes the body (Tuckwell, 1998).

Wardlaw (2003) stated that nutrients are substances obtained from food and used in the body to promote growth, maintenance, and repair. Essential nutrients are those that the body cannot make for itself in sufficient quantity but has to obtain them from food.

According to Adow, Daaku and Ofosu (1991), nutrients are components of food substances which help the body to produce energy, promote growth, repair tissues, regulate and control body processes. Poston and Foreyt (2009) divided nutrients into seven major classes as carbohydrates, fibre, fats, protein, minerals, water and vitamins. Nutrients needed in relatively large amounts such as carbohydrates, fats, fibres, water and protein are called macronutrients while vitamins and minerals needed in smaller quantities are called micronutrients.

2.2.1 Importance of Nutrition in Good Health

According to National Population Report (1994), the life expectancy of Ghanaians is increasing and obviously, there will be more elderly persons, especially women in the society. The World Health Organization (WHO) (2004) defined health as a state of complete physical, mental and social wellbeing of an individual and not merely the absence of disease and infirmity (Insel & Roth, 2004).

Nutrition is only one of the aspects of health (Kuhulein, 1989) and eating correct proportion and assortment of food each day is the contribution of nutrition to health. To Berndanier (2002), a healthy diet is essential to human health and well-being. Habitual or consistent consumption of a nutritionally balanced diet ensures the greatest benefit to the health and well-being of an individual. According to Tull (1996), nutrition also includes all aspects of processing, storage, distribution, cooking as well as how food resources can be best utilized in all circumstances.

The Ministry of Health Report (2003) stated that a good health status is desirable in itself, but its direct impact on labour productivity and therefore ultimately on economic growth makes it even more imperative for the government to ensure easy access to modern health facilities to as many Ghanaians as possible. Cassidy (2003a) found that six out of the ten leading causes of death in the United States of America are directly linked to the diet.

The American Dietitic Association (2000) increasingly supports the fact that nutritional well-being contributes to good quality of life of all. Longevity is characterized by good nutrition. Wardlaw (2003) stated that consuming a wide variety of foods is the best way to ensure a balance of nutrients in diet. The Department of Health Services and Welfare (DHSW) of Kwazulu – Natal (2006) emphasized that the

intake of sufficient quantities of the correct kinds of food will meet all the nutrient needs of the elderly, as good nutrition boosts the resistance of disease and stress.

According to Kasper (1999), the influence of nutrient intake on menopausal health status is still largely undefined. Nutrients such as calcium and Vitamin D affect bone health and adequate intake may influence bone turnover. Vitamin K and C, magnesium, zinc, manganese and copper all influence the synthesis of bone matrix proteins. Boron potentiates oestrogen action and zinc stimulates the production of insulin. Inadequate dietary intake and age-related changes in the absorption, utilization or excretion of these nutrients may affect health status in menopausal women.

After menopause, a woman‟s risk of heart disease grows to almost equal the risk in a man. Falling oestrogen levels may lead to high cholesterol levels. These psychological and physiological changes have impact on food intake and food choices of menopausal women. It is an established fact that to a certain extent a well-balanced diet is important for good health to combat some of the complication of menopause. Hormones are protein in nature and a decrease in hormone secretion during menopause brings about health problems which can be ameliorated with balanced diets. May people also assume that because menopause is caused by changes in hormones, taking hormone tablets will solve the problem. Nevertheless, North American Menopause Society (2006) asserted that many of the symptoms of menopause can be reduced if not completely eliminated by simple adjusting one‟s diet and taking in some key vitamins and minerals, though there are some risk factors and symptoms associated with aging and menopause that cannot be changed.

Healthy eating can help reduce many of the symptoms and the side effects associated with menopause. Apart from a nutritious diet, an active lifestyle which includes exercise pattern is a cure for a trouble free menopause. Regular exercise benefits the heart and bones, helps to regulate weight and contributes to a sense of overall well-being and improvement of mood.

Barasi (1997) is of the view that in modern times the consumption of excessive amounts of processed food with high sugar and fat content are normally preferred to eating enough fresh fruits, vegetables and drinking of pure water. He added that a diet with less fat but high in vegetables, nuts, and carbohydrate-rich foods will outweigh the energy balanced and correct levels of vitamin D and E. however, a declining quality of food makes it more difficult to get sufficient nutrients that are needed for good health. Due to large scale farming and storage methods, the nutrients in food are degraded and this poses nutritional deficiency problems to the ageing body, which is more serious during menopause (Rees & Purdie, 2000).

2.3 Kinds of Menopause

According to Maltais and Dionne (2009), menopause is categorized according to the time and condition under which it begins. Basically there are three kinds of menopause. These are:

1. Normal menopause: menopause experienced between ages 45 and 55 years.
2. Premature menopause: menopause experienced before age 35. This may be due to the presence of certain disease conditions, auto-immunity reactions (the body‟s immune system attacking the body‟s cells, tissues and organs) and medical treatment such as radiation or drug therapies or for unknown reasons.

3. Surgical menopause: this is caused by the surgical removal of the two ovaries due to ovarian cancer or any other disease which may affect the ovaries. However, women who go through hysterectomy (the surgical removal of the uterus) will no longer menstruate but if the ovaries are not removed, the hormonal changes of menopause will not be experienced until the ovaries stop functioning.

2.3.1 Stages of Normal or Natural Menopause

According to Ashrafi, Saeed, Farideli, Elham and Babak (2008), natural menopause is the permanent ending of menstruation that is not brought on by any type of medical treatment; it is experienced between the ages of 45 and 55years. Menopause as a process is gradual and is described in three stages; or phases namely, pre, peri and post menopause stages or phases. The Pre-menopause phase is where a little disruption of the ovarian function is observed and the menstrual cycle remains regular, nevertheless a few symptoms may begin to occur. Kenneth and Andeva (2003) stated that pre-menopause includes the year between puberty and menopause. For many women their production hormone is regular, so their periods are usually predictable.

Peri-menopause is the term used to describe the menopause transition years. To Devi et al. (2004), it is a phase that represents declining ovarian function with menstrual irregularities and symptoms which commonly start or become troublesome and this phase last till the end of menses. Lock *et al*. (2001) stated that pri-menopause is a word used to describe the year leading up to the last period when the levels of reproductive hormones are already becoming lower and more erratic and the effect of hormone withdrawal may be present or the ovaries have stopped releasing eggs and

producing most of their oestrogen. Peri-menopause describes the years before and after the final period, although it is only possible to determine in retrospect which episode of flow was indeed the final period as medical convenience. Telljohann, Stellato, Crawford, Cain, Ganz, Bromberger &Kagawa-Singer (2001) asserted that peri menopause is technically defined as the time from which menses start to become irregular and follicle stimulating hormone (FSH) levels increase through to the last menstrual bleed. However, the hormonal changes are gradual; both in onset and in termination, therefore the various possible peri-menopause effects often start before and continue after this neatly defined time slot. Burger (1999) has stated that, during peri- menopause, the ovarian production of the oestrogen and the progesterone become more irregular, often with wide and unpredictable fluctuation in levels. Fertility diminishes but is not considered to reach zero until the official date of menopause. The date is determined retrospectively once 12 months have passed after the last appearance of menstrual blood. According to the Northern American Menopause Society (2006) the duration of peri-menopause with noticeable bodily effects can be as brief as a few years but it is not unusual for the duration to last ten or more years. The actual duration and severity of peri menopause effects for any individual currently cannot be predicted. The symptoms associated with menopause such as hot flushes and irregular menstrual cycles may start to appear. The average peri menopause lasts for four years it continues, by definition, through the 12 months following the last period.

According to Freeman and Roehrs (2006), during this time many women undergo very unnoticeable and clinically observable physical changes resulting from hormonal fluctuations. The most well-known of these is the „hot flush", a sudden temporary increase in body temperature which peaks very rapidly. The hot sensation

in „hot flash" is not the initial temperature rise; however, it is a reaction to slowness of the bodies to return to a more normal range. In some cases, hot flashes can be so strong that they raise the body temperature multiple degrees in a very short period of time and can cause the sufferer to feel weak and break out in heavy sweating. Despite the discomfort to the woman, hot flashes are not considered harmful by physicians.

The post-menopause stage is where one is experiencing permanent cessation of menstrual cycles over a year ad it is the stage of life after menopause. It begins with the last period and continues for the rest of life. Ashuma *et al.* (2005) stated that post- menopause is applied to women who have not experienced menstrual bleeding for a minimum of 12 months, assuming that they do still have a uterus, and are not pregnant or lactating. Dawson-Hughes (2008) asserted that the reason for the delay in declaring a woman post-menopausal is that, periods are erratic at this period of life and therefore a reasonably long stretch of time is necessary to be sure that the cycling has actually ceased completely. During this stage, menopausal symptoms such as hot flashes ease for most women. However, health risks related to the loss of oestrogen are cardiovascular disease, and bone mass problems increase as the woman ages. Hence the menopause transition, and post menopause itself are a natural life change, not a disease state or a disorder. The transition itself has a varied degree of effects; it can be difficult time of life for some women and les so for others (Macdonald, New, Golden, Campbell & Reid, 2004).

2.4 Causes of Menopause

Devi et al. (2003) contended that there is no consensus on the underlying cause of menopause in the scientific community, and it is not clear whether menopause is triggered by insufficient ovarian follicle numbers or by primarily

hypothalamic failure. However, there is consensus that menopause involves both the depleted ovarian follicle numbers and changes in levels of estrogen, follicle stimulating hormone (FSH) and inhibin B. at the time of menopause there are only about 1000 follicles left, which are incapable of maturing. Estrogen levels begin to decrease six months before menopause and FSH levels generally rise after menopause until the fourth year of post menopause (Zidan, 1995).

Leidy, Godfrey and Sutherland (1998) have affirmed that the hormone oestrogen and progesterone regulate menstruation, more specifically; oestrogen regulates menstruation while progesterone is more involved with preparing the body for pregnancy. A woman‟s fertility starts to decline a long time before she may notice any menopausal or pre-menopausal symptoms. According to Leidy (1999) an early menopause can be related to cigarette smoking, higher body mass index, racial ethnic factors, illnesses, chemotherapy, radiation and the surgical removal of the uterus and or both ovaries (McKinlay et al., 1992).

2.4.1 Declining Estrogen and Disease Risk in Menopause

Depending on the health of the woman, the decline in oestrogen that occurs during menopause may not only cause the transient symptoms, it may also contribute to disease. The two most prevalent diseases associated with post-menopausal women are osteoporosis and heart disease. Both of these diseases are strongly linked to estrogen level as well as dietary and lifestyle habits. Examples of the risk factors associated with cardiovascular disease and osteoporosis are high blood pressure, diabetes etc (Lock, 2001). Estrogen plays important role in bone health by decreasing the rate of bone desorption. Estrogen appears to naturally protect women from heart disease, presumably by promoting a favourable plasma lipid profile and healthy

circulation. According to Minkin (1997) and Leidy (1999), comparison of plasma lipid levels between non-obese, pre-menopausal and post menopausal showed significance increases for post menopausals women in total cholesterol, low-density lipoprotein (LDL) cholesterol, triglycerides and decrease in high-density lipoproteins (HDL) cholesterol. Furthermore, the reduced oestrogen levels in post-menopausal women cause a relatively high concentration of circulating testosterone. Elevated testosterone levels are known to increase LDL levels and lower HDL levels by increasing hepatic lipase activity (Seed, 1991).

2.5 Symptoms of Menopause

According to Telljohann, Stellato, Crawford, Bromberger, Ganz and Kagawa-Singer (2001), at the time of menopause, the hormonal output, instead of reducing gradually, alternately stops and starts. This general re-adjusting of the body‟s endocrine balance leads to many of menopause‟s symptoms. The estrogen supply eventually regulates itself and reaches a plateau, where it remains until around age seventy (70). Thus, symptoms of menopause are caused by estrogen dominance in the body as progesterone production declines in the year leading up to this change in a woman‟s body. Women may experience water retention, weight gain, memory loss, irritability and depression. Rees and Pordie (2000) added that during menopause, decreased estrogen levels may cause bladder and vaginal atrophy.

Utian (1999) indicated that some modern women have some or all of several unpleasant symptoms such as hot flashes, emotional swings, headaches, aching joints, sleep disturbances and even incontinent. Based on that, each woman‟s experience with menopause is unique. Some women experience few symptomatic effects, while

others suffer significant discomfort and stress that can add to the problem by increasing the severity of the symptoms (Royal College of Nurses, 2005). Menopausal women also experience a decline in testosterone, although this aspect of menopause is often neglected. Ovarian testosterone production is said to be substantially decrease in 50% of post-menopausal women. Furthermore, diminished adrenal androgen synthesis also occurs, but is more likely a function of age rather than menopause per se. the decline in circulating androgens, specifically testosterone, has been termed "adrenopuase" by some experts, and is largely responsible for diminished sexual function, including loss of libido and loss of sexual response in postmenopausal women (Rako, 1996).

The symptoms of menopause vary among women. Reported symptoms include weight gain, loss of muscle mass, increase abdominal weight gain, mood changes, hot flashes, night sweats, anxiety, dry skin, irregular menstrual bleeding, memory problems, and reduced libido. These symptoms result from changes in hormones, most significantly changes in oestrogen and testosterone. Nonetheless, nutrition can play a strong role in preventing and managing changes in body composition.

Cohen, Rousseau and Carey (2007) indicated that common psychological symptoms of menopause include mental stress, mood disturbances, panic attacks, depression, irritability, crying spells, anxiety, sleep disturbances, concentration difficulties, feeling of stress, fatigue, confusion, lowered judgement, lowered motor coordination, forgetfulness, insomnia, distractibility, restlessness tension and loneliness. He added that behavioural changes in menopause include avoiding social activities, lowered work performance, staying at home and in bed. From the physiological point of view, Mitchell and Wood (1996) indicated that physiological

changes associated with menopause are hot flushes, cold sweats, dizziness, faintness, nausea, vomiting, breast tenderness, weight gain, skin and hair disorders anorexia nervosa, oedema, pelvic discomfort, headaches or migraines, changes in bowel habit, reduced coordination and irregular periods, these are thought to increase the risk of various chronic diseases including heart diseases and osteoporosis. They added that irregular periods, lower fertility, vaginal dryness, night sweats, disturbed sleep, urinary problems, moodiness, hair loss (thinning hair) and loss of breast size, anxiety, depression and sensory changes are all part of the symptoms.

The North American Menopause society (2004) stressed that, some changes that might start in the years around menopause include:

1. Irregular periods: the periods may come more often or less often, last more days or fewer and be light or heavier.

2. Hot flashes or (flushes): these are sudden feeling of heat all over or in the upper part of the body, flushing on the neck, red blotches on the chest, back and arms, heavy sweating bringing cold shivering after the flash.

3. Trouble sleeping: one may find sleep very difficult with night sweat (hot flashes) throughout the night.

4. Vaginal and urinary problems: Changing hormone levels can lead to drier and thinner vaginal tissue, which can make sex uncomfortable. Urinary tract infections result in inability to hold urine long enough to get to the wash room (urinary inconsistence).

5. Mood changes: one might have mood swings (which are not the same as depression), cry often more and feel crabby.

6. Changing feeling about sex: one might have less interest in sex and feel more comfortable with her sexuality. However, sexual activities can continue to be highly pleasurable because of nipple erection and the response of the clitoris to stimulation remains intact with age.

7. Other possible changes at this time (either from lower level of hormones or just from getting older) include; forgetfulness or trouble in focusing, losing muscle, gaining fat, having a larger waist, feeling stiff or achy, increased heart diseases, headache, backache and nervousness.

These vary greatly among different women however; the following are generally experienced by many women (Maltais et al., 2009):

1. For a number of years before the onset of menopause, women may notice longer menstrual periods, heavier menstrual flow, spotting or irregularities. This might be controlled by the prescription of hormone pills or low-dose birth control pills.
2. Short-term unpredicted vasodilation (widening of blood vessels leading to increased blood flow and reduced blood pressure).
3. Hot flushes ranging from a passing feeling of warmth in the face and upper body to extreme sweating and visible redness of the skin (in light skinned women) followed by chills causing discomfort and disturbance of normal sleep patterns.
4. Heart palpitations and feeling of suffocation can also occur. Shrinkage of the breast. Atrophy of the sex organ. Vaginal walls become less elastic and thinner. Vaginal secretions reduce and are less acidic, increasing the chances of vaginal infections.

5. Insufficient vaginal lubrication during sexual activity causing sexual intercourse to be uncomfortable and even painful. Axillaries and pubic hairs become sparse. Gradual thinning of the skin. Loss of bone mass predisposing to osteoporosis. Slow increase in blood cholesterol level that increase the risk of cardiovascular diseases.
6. Psychological symptoms such as depression, episodes of uncharacteristic behaviours like irritability, mood swings and memory lapses.

From the listed symptoms, psychological and physiological changes have impact on food intake and food choices of menopausal women. After menopause, a woman‟s risk of heart disease grows to almost equal the risk in a man. Falling oestrogen levels may lead to high cholesterol levels. These psychological and physiological changes have impact on food intake and food choices of menopausal women. It is an established fact that to a certain extent a well-balanced diet is important for good health to combat some of the complications of menopause.

Hormones are proteins in nature and a decrease in hormone secretion during menopause brings about health problems which can be ameliorated with balanced diets. Many people also assume that because menopause is caused by changes in hormones, taking hormone tablets will solve the problem. Nevertheless, the North American Menopause Society (2004) asserted that many of the symptoms of menopause can be reduced if not completely eliminated by simply adjusting one‟s diet and taking some key vitamins and minerals, though there are some risks factors and symptoms associated with aging and menopause that cannot be changed. Good nutrition as has been noted can help prevent or reduce certain conditions that may develop during and after menopause.

Healthy eating can help reduce many of the symptoms and side effects associated with menopause (Matin, 2004). Apart from a nutritious diet, an active lifestyle which includes exercise pattern is a cure for a trouble free menopause. Regular exercise benefits the heart and bones, helps to regulate weight and contributes to a sense of overall wellbeing and improvement in mood (Lovejoy, Champagne, Smith, Jonge & Andxie (2001).

Barasi (1997) is of the view that in modern times the consumption of excessive amounts of processed foods with high sugar and fat content are normally preferred to eating enough fresh fruits, vegetables and the drinking of pure water. He added that a diet with less fat and protein but high in vegetables, nuts and carbohydrate-rich foods will outweigh the energy balanced and correct levels of vitamin D and E. however, a declining quality of food makes it more difficult to get sufficient nutrients that are needed for good health. Due to large scale farming and storage methods, the nutrients in food are degraded and this poses nutritional deficiency problems to the aging body which is more serious during menopause (Rande, 1996).

2.6 Nutrition problems during Menopauses

Menopause as a part of ageing cannot be separated from good nutrition. With proper eating habits most of the woes of menopause could be done away with. Adequate nutrition includes balancing calories, weight management, physical activity, managing fats, carbohydrates, sodium and potassium, alcoholic beverages and recognizing food safety concerns. Nutrient-dense foods such as dark green vegetables, legumes, orange vegetables, fruits, whole grains and low fats or possibly non-fat milk and milk products provide substantial quantities of vitamins and minerals and

relatively low calories. It must be noted that reducing calories does not necessarily mean reducing eating (Wardlaw & Smith, 2011).

Osteoporosis is a "Brittle- bone" disease and it occurs when the inside of bones become less dense, making them more fragile and likely to fracture. According to Gold, Sternfed and Kelsey (2000), it is one of the most serious and most stealthy problems triggered by the hormonal imbalance of menopause. About one-third of all women over the age of 50 may experience a broken bone that is a direct result of osteoporosis (Guthrie, 1999). The hormonal fluctuation during menopause is highly connected with osteoporosis since decreased estrogen levels will increase the risk of bone fractures and breaks. Due to the insufficient amount estrogen the bones cannot acquire calcium properly and as a result, the bones start to deplete since the new cells stop generating and the old ones expire. The body struggles to keep the balance of old and new cells in place (Rolfes and DeBrugne, 1997). A healthy lifestyle goes a long way in preventing menopausal symptoms and diseases. A high intake of phyto-estrogens is thought to explain why hot flushes and other menopausal symptoms are rarely experienced by populations consuming a predominantly plant-based diet like the Japanese. Avoiding certain "trigger" foods and beverages – spicy foods, caffeine and alcohol – may lessen the severity and frequency of some of them if not all (Cassidy, 2006b).

2.7 Nutrients Need in Menopause

Every menopausal woman faces the fact that she should change her way of life and especially nutritional habits. Nutritional changes for menopause can help to decrease symptoms and prevent diseases associated with menopause. A healthy diet will ensure the body receives the necessary vitamins, minerals, amino acids, enzymes,

and other elements to function properly (Poehlman & Horton, 1999). Dawson-Hughes (2008) indicated that adequate calcium intake helps to prevent the excessive bone loss that is associated with osteoporosis. In addition to calcium, vitamin D is also recognized as an important player in the maintenance of bone health. Other nutrients such as magnesium, the trace minerals: zinc, copper, and manganese appear to be important as well. Emerging evidence further suggests that the trace mineral boron may help to maintain bone health by increasing circulating levels of estrogen. In one study, boron supplementation (3 mg/day) was shown to significantly reduce urinary calcium loss and increase the concentration of circulating estrogen in post-menopausal who were previously placed on low boron diet (Institute of Medicine, Food & Nutrition Board, 2001).

Protein: helps preserve muscles and bone mass besides the maintenance of other body processes. The amount of protein must not exceed the recommended requirements. However, the daily intake of 0.8 grams of protein per kilogram body weight is sufficient. Excessive intake of protein takes a toll on the aliening kidneys and accelerates the rate of kidney function decline (Cashman, 2007).

Fats: is needed in very small quantities for a normal body functioning and to free up some calories that can better be spent on complex carbohydrates since there is a strong link between high fat diet and obesity with its associated health problems (Gerrior, Guthrie & Fox, 1995).

Vitamins and Minerals: Adequate intake of vitamins and minerals are essential during menopause. Nutrients that need special attention include calcium, vitamin D, iron, zinc, magnesium, folate, vitamin B-6, B-12 and E (Allen, 2009).

Calcium is an essential substance for every woman and especially for menopausal women. There is a direct relationship between the lack of estrogen after menopause and the development of weakened bones, called osteoporosis. Doses of approximately 600 milligrams of liquid calcium have been shown to have a relaxing effect. It is very essential for normal sleep. A calcium deficiency in the body causes restlessness and wakefulness (Gerrior *et al.,* 1995).

B Vitamins: During the menopause it is extremely important that the adrenal gland (which will be called into action to produce estrogen) is given a break and B vitamins will help to do this. They can also be useful in promoting or boosting energy level. Intrinsic factor and stomach acid production needed for the absorption of vitamin B12 may be blunted as women age causing its deficiency prevalence (Mahan and Scott-Stump, 2008). In surveys conducted in the United States and the United Kingdom, approximately 6% of those over 60 years of age are vitamin B12 deficient, and 20% have marginal status (Allen, 2009). Notwithstanding, many studies have found that vitamin B12 promotes sleep. It is thought to restore sleep by working with melatonin, a hormone that is involved in maintaining the body‟s internal clock. Thus its deficiency may cause disturbances in the release of melatonin. Vitamin B12 is found in all animal foods: meat, poultry, fish, eggs and dairy products (Campbell & Leidy, 2007).

Vitamin D deficiency has been estimated to affect 60-70% women over the age of 40. The deficiency is related to increased risk for osteoporosis, type 2 diabetes, and cancer, in addition to autoimmune conditions, depression, and impaired mobility. Of specific concern for women with osteoporosis is an increased risk for bone loss, bone fractures, falls and reduced muscles strength and coordination. It is produced in the

skin with exposure to the sun‟s ultraviolet ray; food sources of vitamin D are limited; and it acts more like a hormone that vitamin (Dawson-Hughes, 2008).

Magnesium and zinc are two critical minerals that may be low in women‟s diets. Magnesium is involved in bone development and prevention of osteoporosis, as well as regulating mood and muscle relaxation. Zinc is important for strengthening the immune system, building strong bones, and healing wounds. Deficiencies in zinc lead to reduced appetite and decreased sense of smell. Multivitamin and mineral formulas may not have adequate magnesium and zinc to enhance bone health, mood and the immune system. They are also known as „nature‟ tranquillizer‟, they help with symptoms such as anxiety and irritability. No doubt that well-balanced diet is very importance for good health because it helps to ensure a better mix of nutrients that are essential for the body. Every menopausal woman faces the fact that she should change her way of life and especially nutritional habits. Nutritional changes for menopause can help to decrease symptoms associated with menopause and prevent diseases associated with menopause (Institute of Medicine, Food & Nutrition Board, 2001).

Legumes are excellent sources of minerals needed by menopausal women; they contain calcium, magnesium, and potassium. They are also high in iron and in vitamin B complex which are nutrients important for the health of the liver and play a role in the metabolism of estrogen. Seeds and nuts are also good sources of calcium, magnesium and potassium, and seeds such as flax seeds are mildly estrogenic. Seeds are also high in essential fatty acids (Omega-3). A deficiency in these oils may be responsible in part, for the drying of the skin, hair, vaginal tissue and other mucous membranes that occur with menopause. Good sources are flax seeds and pumpkin seeds, the average healthy adult requires only four teaspoons per day of the essential

oils in their diet, but menopausal women with extremely dry skin may need up to 2 or 3 table spoons per day until the symptoms improve (Otten, Pitzi-Hellwig &Meyers, 2009).

Fruits and vegetables provide chemo-protective nutrients, such as fibre and antioxidants. There is physiologically plausibility that the nutrients concentrated in vegetables and fruits will block the initiation, promotion, and progression of cancer. Certain bioactive food components in plant foods may be uniquely protective. Indoles, carotenoids, and flavonoids are components of plant foods that have been linked with reduced breast cancer risk (Mahan and Escott-Stump, 2008). Indoles are found in cruciferous vegetables, carotenoids in yellow, orange, and green vegetables, and flavonoids in tea, dark chocolate, berries, apples and pears.

According to Poehlman and Horton (1999), fruits are not only delicious but healthful too. Rich in vitamins A and C, plus folate and other essential nutrients may help prevent heart disease and stroke, control blood pressure and cholesterol, prevent some types of cancer and guard against vision loss. They are a complex combination of fibre, minerals, antioxidant and photochemical as well as the vitamins that work in combination to provide protective benefits.

At least once a day, women in menopausal age should eat papaya, which contains phyto-estrogens. Studies have shown that these plant compounds can be helpful in menopause. Foods like apple, carrots, yams, green beans, peas, potatoes, red beans, brown rice, whole wheat, rye, and sesame seeds contain phyto-estrogen.

Vegetables such as asparagus, beets, bell peppers, broccoli stems, cabbage, cauliflower, carrots, cucumber, sweet potatoes, turnips and wheat can be useful during menopause (Cashman, 2007).

Iron: levels of iron play a significant role in various body functions; however, it is also essential for the normal growth and maintenance of hair. If the amount of energy used up by the body is not replaced by food intake, then other non-essential stores will be used up. For women, iron needs drop from 18 to 8milligram per day at menopause. Symptoms of iron deficiency include weakness, lethargy and fatigue on exertion. Iron deficiency is a progressive condition, even if the body‟s iron stores are not low enough to diagnose anaemia, symptoms of iron deficiency can still be felt (Cashman, 2007).

Essential Fatty Acids (EFAs): A deficiency in essential fatty acids can result in dry skin, lifeless hair, cracked nails, fatigue, depression, dry eyes, aching joint, difficulty in losing weight, breast pain. These are also typical symptoms of menopause. Getting sufficient EFAs will help reduce these health issues (Mahan & Escott-Stump, 2008).

Water: Dehydration is a risk for women as they age. The sensation of thirst decreases with age, and various factors increase the risk of dehydration in menopausal women (Mahan & Escott-Stump, 2008). The RDA for women is 2.7 litres of water daily, while all fluids, including caffeinated and sweetened beverages “count” toward fluid intake (Campbell, 2000) for those with weight-management concerns. According to Otten et al. (2009), adequate intake of water prevents dehydration and electrolyte imbalances which can result in disorientation and mental confusion, constipation, impacted faecal matter and even death.

Carbohydrates: The carbohydrate composition of the diet must be shifted to emphasize complex carbohydrates like the starches and cellulose while minimizing the intake of simple carbohydrates such as the sugars. This makes the body to control

blood glucose, stay within calorie bound and reduce the risk of diabetes, colon cancer and cardiovascular diseases.

An individual experiencing sleep problem can eat a small serving of a carbohydrate-rich food before bed. Carbohydrate-containing foods, such as milk, cereal or slice of toast, provide the brain with an amino acid called tryptophan as a building block to manufacture serotonin, a brain chemical that has been shown to facilitate sleep, improve mood, diminish pain and even reduce appetite. Including carbohydrates in breakfast meals help reduce fuzzy thinking in menopausal women. Studies in children and adults have shown that compared with breakfast skippers, individuals who eat the morning meal score higher on test of mental performance than those who do not eat breakfast that same morning. The speed of information retrieval (a component of memory) seems to be affected the most by skipping breakfast (The American Dietetic Association, 2000).

Exercise: Establish a regular exercise program. Exercise makes bone and muscles stronger and helps prevent bone loss. It also helps menopausal women to stay active and mobile. Weight-bearing exercises, done three to four times a week, are best for preventing osteoporosis. Walking, jogging, playing tennis, and dancing are all good weight-bearing exercises during menopause. In addition, strength and balance exercise may help to avoid falls, decreasing the chances of breaking a bone (Otten et al., 2007).

2.8 Ways of Managing Menopausal Symptoms

Hot Flushes and Night Sweats

Temperature regulation is affected in changing oestrogen levels associated with peri-menopause and menopause: Post-menopausal women have a much smaller „thermo-neutral zone", a temperature range in which they feel comfortable. Estrogen affects the size of the „zone" and influences the amount of blood that flows to the brain, allowing the body to control temperature. When estrogen levels drop, hot flushes and night sweats may be triggered. However, a promising pilot study demonstrated that 3 tables" poons of ground flaxseeds per day reduced the frequency and severity of hot flashes; it can be sprinkled on soups, salads, or main dishes (Pruthi, Thompson, Novotny, Barton, Kottschade, Tan, Sloan & Loprinzi, 2007). Flaxseed is rich in lignin which helps stabilize hormone levels. Food high in phyto-estrogens contain chemical compounds that the body can convert into useable estrogens which are thought to reduce the frequency of hot flushes. Diet that includes many soy bean foods, are high in natural phyto-oestrogens. Juang,Wang, Lee & Fuh (2005) indicated that in a controlled clinical trial supplementation with vitamin E (400IU for 4 weeks) significantly reduced the frequency and severity of hot flushing.

Weight Gain

Women are at risk for weight gain during and after menopause. The age-related decline in resting metabolic rate driven by sarcopenia increases the risk of weight gain. Hormonal changes contribute to body fat redistribution into the abdomen (Mahan & Escott-Stump, 2008). Slowing or preventing menopausal weight gain requires careful attention to food: Empty calories from added sugar and added fat may need to be limited. The Dietary Guidelines for Americans (CNPP, 2010) limits

discretionary calories to 200 calories per day, which for women is 10% of daily calories. Menopausal women need to be aware of their dietary intake and learn to set boundaries on empty calories in order to maintain or lose weight as they age.

Sensory Changes

Sensory changes are associated with aging to a varying degree depending upon genetics and a woman‟s lifestyle. Dysgeusia (loss of taste) and hyposmia (loss of smell) can occur due to age, medications, diabetes, liver or kidney disease, hypertension, cigarette smoking, poor dental or nasal hygiene, or deficiencies of zinc or niacin (Mahan & Escott-Stump, 2008). A change in sensory function can affect a woman‟s dietary choice in different ways. Sensory changes can decrease appetite, leading to loss of body mass, or they can increase consumption by reducing satiety which may lead to increase body weight. Women can work to overcome dysgeusia and/or hyposmia with increased use of ingredients such as herbs, spices, vinegars, and/or hot sauce that positively impact health. Sensory changes can also affect gastrointestinal function. When the capacity to taste or smell is reduced, salivary, stomach, and pancreatic secretions are reduced and can lead to impaired digestion and absorption of food.

Gastrointestinal Changes

According to Mahan and Escott-Stump (2008), women over 50 years of age suffer from achlorhydria or incomplete production of stomach acid which increases the risk of incomplete digestion of food and vitamin B12 deficiency. Diverticular disease, which is the out pouches in the intestinal tract caused by straining associated with constipation, is even more common, with more than 60% in adult women than men. With proper attention to a high-fibre diet and adequate fluids, diverticulitis can

be prevented and the risk of diverticulitis progressing into painful diverticulitis reduced (Mahan & Escott-Stump, 2008).

Skin problems

At menopause, women experience major changes in appearance including skin problems. The skin problems at menopause are: dryness especially at the face and hands, wrinkles, acne, among others. Dry skin has two common causes; they are hormonal imbalance and nutritional deficiencies. Hormonal imbalance causes dry skin because of declining levels of oestrogen that normally stimulates oil glands and as hormone level falls, so does the oil production, causing skin to become dry (Campbell & Leidy, 2007). Collagen is the main protein of connective tissues in the body and unlike some human cells that are constantly dying and replicating, collagen cells will not be replaced for, around thirty years. As a result, the collagen cells will breakdown and cause wrinkles. As such, proper nutrition through menopause will provide the female body with nutrients need, to support the various physical changes that occur, as well as encouraging a balanced diet that helps prevent long term concerns such as breast cancer and heart disease (Cashman, 2007). According to Freeman, Roehrs and Ohayon (2006), keeping physically active during menopause can help with many different health aspects such as appetite, digestion, weight control, agility, heart health, bone health and can have a powerful, positive effect on emotions, mental health and love life.

Constipation is a common complaint of menopausal women. Constipation can be explained as painful bowel movements, straining at elimination, decreased frequency of bowel movements, hard stools, and incomplete emptying. Constipation is generally a symptom of other underlying issue of which fibre pills or laxatives do

not help to identify the underlying problem. In this condition a high fibre food and adequate fluid intake will be very important while making the appropriate referrals to a registered dietician and physician to ensure that the underlying cause of constipation is identified and treated appropriately (Mahan & Escott-Stump, 2008).

2.9 Some Food Beneficial to the Body during Menopause

Campbell (2007) and Geller and Studee (2005) advised that menopausal women should consume more tofu and soy: Soy may give relief from hot flushes, although that benefit is still being debated by researchers. However, soy may help protect the heart and arteries by lowering bad cholesterol, because it can be substituted for meats and animal fat in our diet.

More fruits and vegetables need to be consumed since they offer many health benefits like fibres, vitamins, minerals and naturally low-fat. There are also many menopausal reasons to eat these foods. Plants have chemicals that help protect the bodies‟ health and wellbeing. Phyto estrogens are particular plant chemicals that are very similar in structure to oestrogen, and may act as weak oestrogen in the body. Simply put, phyto estrogen may trick the body into thinking that it has more oestrogen than it really does, potentially diminishing some of the discomforts caused by lower oestrogen levels during menopause. Foods with boron and phyto estrogens ease menopausal symptoms. The mineral boron is another beneficial element in fruits and vegetables which seems to increase the body‟s ability to hold on to estrogen. It also helps keep the bones strong by decreasing the amount of calcium excreted each day. Top sources of fruits and vegetables that contain boron and phyto estrogens: Examples of fruit are plums and prunes, strawberries, apples, tomatoes, pears, grapes, grapefruit, oranges and red raspberries. Examples of Vegetables are asparagus, beets,

bell peppers, broccoli stems, cabbage, cauliflower, carrots, cucumber, lettuce, onions and soybeans.

They continued that menopausal women should consume beans more often because beans are a nutritionally efficient food and they offer so many health benefits in one little package. They may slow the absorption of glucose in the blood stream, thus curbing appetite longer. They're full of fibre and contain phyto estrogen which is good sources of many vitamins and minerals, including calcium, folic acid and vitamin B-6 and a low-fat source of protein (Gordon Wardlaw, 2003).

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Chapter three is devoted to the methodology of the study. The chapter covers the research design, population of the study, sampling techniques and instruments used for data collection. Additionally, the methodology captures how the instruments were pilot tested, main data collection procedure and how data was analysed.

3.1 Research Design

A research design, according to Cohen & Marion (2007) is essentially a plan illustrating the strategy of investigation by the researcher. In this plan, the kind of data needed, the method used for the data collection, the procedures for obtaining data, and data analysis are clearly outlined. A cross-sectional survey was used in the study. Survey research is the most common type of descriptive research which uses both qualitative and quantitative methods (mixed method). According to Alhassan (2007), attempts to make sense of variety have led to a blurring of traditional methodological divide between qualitative and quantitative paradigms, opening up new perspectives and creating opportunities for synergies and complementarities. It also involves determining the views or practices of a group of people through interviews or by administering a questionnaire. According to Strong and Hensley (2002), information concerning opinions or practices is obtained from a sample of people representing a population, through the use of a questionnaire. This information provides a basis for making comparisons, determining trends, reveals current weaknesses or strengths in a given situation and provides information for decisions making.

Descriptive design outlined by Agyedu, Donkor and Abeng (2003), involves gathering data that describe events and then organizing, tabulating, depicting and describing the data. Descriptive design uses description as a tool to organize data into patterns that emerge during analysis. It often uses visual aids such as graphs and charts to aid readers to understand the results of the research. The descriptive survey design was used to collect data on the respondents‟ awareness of menopause and menopausal symptoms; describe the menopausal challenges the respondent were facing; and their ability to manage their menopausal challenges through the use of nutrition. The survey was qualitative because the respondents were allowed to express their views about their menopausal experiences and data on their knowledge levels were quantified and presented in frequency on percentage tables and figures.

3.2 Population

The population for the study comprised all women residing in the geographical area of the Agogo Traditional Council, in Asante – Akim North of the Asante Region of Ghana, aged between 40 and 60 years old. According to Cohen *et al.* (2007), a population is a group of respondents from whom the researcher is interested in collecting information and drawing conclusions. Women of this age were selected in accordance with McPherson (2002) assertion that most typical age range for menopause is between the ages of 40 and 60 years. This is from the period of pre-menopause to post-menopause as stated by Devi et al. (2003). They explained that menopause represent the period of decline of ovarian function with menstrual irregularities to the stage of complete cessation of menses, where disease risk begins as result of the decline in oestrogen that appears to naturally protect women from heart disease.

3.3 Sampling and Sampling Procedure

Creswell (2005) defined a sample as a sub-group of a target population that a researcher plans to study for the generalization of data about the target population. The sample for the study consisted of 120 women who were experiencing some symptoms of menopause between the ages of 40 and 60 years in Agogo Township from two orthodox, one Pentecostal denomination and two work places namely: Methodist, Roman Catholic, Christ Apostolic churches, Agogo Presbyterian Hospital and Agogo Presbyterian College of Education. McPherson (2002) asserted that most typical age range for menopause is between ages of 40 and 60 years. Non-probability sampling methods such as convenience, purposive, snowballing techniques were employed by the researcher to select the area, the site and respondents for the study. Sampling procedure, according to Santrock (2004), is the process of choosing a unit of the target population which is to be included in the study. Convenience sampling technique was employed to select Agogo district out of the three (3) districts in the Asante Akim Metropolitan Area of the Republic of Ghana and also the area (Agogo Township) because of proximity to the researcher‟s residence and work place, which facilitated data collection. According to Cohen, et al. (2007), a purposive sampling entails one that deliberately selects cases on the basis of the specific qualities they illustrate. Creswell (2005) asserted that in purposive sampling, the researcher intentionally selects individuals and sites to study or understand the central phenomenon. In all one hundred and twenty (120) women who fell within the ages of 40 to 60 years were selected purposively because they were within the menopausal age range and were therefore the right people to supply the relevant data.

In snowballing, the researcher used a small pool on initial informants to nominate, and through their social network, reach other respondents who meet the eligibility criteria to contribute to the specific study. The snowballing method was used to sample the women form the Methodist Church, Catholic Church, Christ Apostolic Church, the Administration of Agogo Presbyterian Hospital and Agogo Presbyterian College of Education.

In all a total of one hundred and three (103) women who were within the menopausal age were sampled from the three (3) churches and Seventeen (17) women from the two work places. Through one of the researcher‟s students‟ mother who was a member of the Methodist women‟s fellowship, a total of thirty five (35) respondents were sampled from Methodist church. A total of forty five (45) menopausal women were also sampled from Roman Catholic Church by snowballing method through a Catholic Sister friend and a total of twenty three (23) menopausal women were sampled from Christ Apostolic Church through the researcher‟s friend who was a Deaconess in that Church. The chaplain of Agogo Presbyterian Hospital, also an administrative worker helped in sampling nine (9) women within in the ages of forty and sixty (40-60) years. Eight (8) teaching and non-teaching staffs were purposively sampled from the Presbyterian College of Education where the researcher works. These eight women were known to the researcher and readily accepted to be participants of the study.

3.4 Instruments for Data Collection

The research instruments employed by the researcher to collect data in the research included guided interview, questionnaire and observation checklist. The structure of the questionnaire comprised of open and close ended questions.

Questionnaire

The main instrument for the study was a questionnaire. A questionnaire is a research instrument consisting of a series of questions based on formulated research questions/objectives of the study for gathering information from respondents. Mellenbergh (2008) contended that a distinction is made between open-ended questions and closed-ended questions. An open-ended question was asked for the respondents to formulate their own answers whilst close-ended questions have the respondents to pick an answer from a given number of options. Questionnaires may be designed to gather either qualitative or quantitative data. When a questionnaire is administered, the researcher"s control over the environment is somewhat limited. The questionnaire used in the study comprised of five sections. The first section asked the respondents to make available their biodata (Demographic information or background information), this included their highest education level, the next section dwelt on the awareness level of menopausal symptoms, the third section was based on food preferences, and the fourth and the final section dealt with the nutrition related health status of menopausal women.

Interview

Guided interview using the questionnaire formed part of the data collection procedure. It was used for the illiterate menopause women. Here the researcher reads the questions on the questionnaire to the respondents and responses recorded. One advantage for guided interview is that it can focus attention areas of particular importance or to exclude questions the researcher has found to be unproductive (Leftland & Leftland, 1984). Gall, Borg and Gall (1996) were of the view that interviews permit open-ended exploration of the topic as well as elicit responses that are couched in the unique words of the respondents. Opportunities were given to all

the one hundred and twenty (120) participants to respond to the questions without intimidation.

According to Cohen et al. (2007), interview is used as a principal means of gathering information having direct bearing on the research objectives. The interview guide reflected on the key themes raised in the research questions and ensure that the information were obtained from each respondent and answers given to the question were recorded and transcribed.

Observation Checklist

The observation process was used to capture the menopausal women in their natural setting for additional information beyond the questionnaire involving weight gain, clinical status and also to cross-check the responses given by respondents in the questionnaires.

3.5 Validity and Reliability

To ensure content validity and reliability in this study, the researcher discussed the questionnaire with some of the lecturers of Home Economics Department in the first place. The researcher later handed them over to her supervisor for careful inspection, after which some items were eliminated and others reframed. Ten (10) copies of the questionnaire were tested on menopausal women at the University of Education, Winneba Campus. This was done to find out whether the questions were clear, specific and capable of measuring what were intended to measure. According to Wisker (2008), a research is considered reliable if another researcher using the same procedure would likely replicate the findings – although the findings need not be identical.

3.6 Procedure for Data Collection

Most of the respondents were personally known to the researcher and they were briefed before time to prepare them for the survey. All the respondents were assured of anonymity to safeguard their interest in case of special problems or issues. The respondents were visited in their homes and workplaces where the questionnaire was given to them to respond to appropriately. With regards to interview of illiterate women an appointment was booked with the respondents to enable them to have their privacy. Cohen et al. (2007) were of the view that when researchers proceed ethically, it does not threaten the validity of the research endeavour. Ethical issues may stem from the kind of problems investigated by the researchers and the methods they used to obtain valid and reliable data. Several ethical considerations guided the data collection procedure. Again, all information was treated with the strictest confidentiality. The respondents were informed that the data were being collected for academic purpose to enable the researcher to meet the requirements of a university degree. The data was collected in the month of April, 2013.

3.7 Data Analysis

Analysing both quantitative and qualitative data requires understanding of how to make sense out of text and images so that one can form answers to reform questions. Data collected were presented in percentages, charts and others to make them pictorially clear. Creswell (2005) defined data analysis as a careful examination of collected information in an organized form in order to understand the growing trend of a situation. Data collected was analysed by the use of the Statistical package for the Social Science (SPSS) Version 16.0 software into tables and percentages. Lastly, the researcher used descriptive statistics to interpret the data.

This was done because most of the responses came from close-ended items that needed grouping and coding. The coding took the form of numerical values for each response, to facilitate electronic analysis. With the electronic analysis, the Statistical Package for the Social Sciences (SPSS) Version 16.0 was used. The analytical software has two steps to complete before tables and other descriptive statistics can be derived. In the end, a leaf was taken from the assertion of Santrock (2004) that descriptive surveys do not typically require the use of complex statistical analysis. In this respect, simple frequencies and percentages were used in the presentation of the information that was derived from the data analysis. Under each table, descriptive comments are made to interpret the content and consequently the resolutions of the research questions affected.

3.8 Summary

This chapter has outlined the practical steps that were taken to implement this study. It has described the design of the study, how the study area and respondents were selected, the instruments used to collect the data, how data were collected, processed and analysed. The processes discussed demonstrate that the research was conducted in a considered and ethical manner to ensure that the integrity of the respondents was maintained. The next chapter presents the results that emerged from this research process and the discussion of findings derived from the data collected.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the analysis of the data obtained from the study. The data are in two parts, the first part (Section A), deals with the biodata. The biodata of the respondents were assessed according to the information they had given. The second part (Section B), presents the results of the study based on the responses from the interview and the questionnaires administered on research objectives 1- 4 as follows:

1. The awareness of menopausal symptoms among women in Agogo?
2. The food preferences of the menopausal women in Agogo?
3. The nutrition related health statuses of the menopausal women in Agogo?
4. Strategies to ensure good and healthy menopause?

Section A

4.1 Biodata of Respondents

The composition of the respondents was one hundred and twenty (120) adult women between the ages of forty to sixty (40- 60), living in Agogo Township. Some of the characteristics discussed under the biodata of the respondents were their age, employment status, level of education, marital status, number of children alive and the people the respondent were living with.

Section A

Table 1a: Age Distribution of Respondents

Age (Years)	**Freq.**	**%**
40 – 45	15	12.5
46 – 50	60	50.0
51 – 55	30	25.0
56 – 60	15	12.5
Total	**120**	**100**

The age characteristics in Table 1a shows that 62.5% of the respondents were between 40 and 50 years; 25% were between 51 – 55 years and 12.5% were above 56years. From the table the dense populated frequencies were in the range of 46 – 55 year. This range reveals the pivotal range for menopausal symptomatic period.

Table 1b: Employment Status of Respondents

Item	**Freq.**	**%m**
Employed	85	70.8
Unemployed	35	29.2
Total	**120**	**100**

The results on employment presented in Table 1b shows that 70.8% of the respondents were employed, while 29.2% were unemployed. Though, the researcher

observed that some of the respondents were employed in the formal sector while the rest were self-employed as petty traders and small scale farmers. Some of the respondents in the informal sector indicated they were not employed, meaning they did not consider farming and petty trading as employment.

Table 1c: Level of Education of Respondents

Education level	**Freq.**	**%**
Secondary Level	40	33.3
Basic Level	35	29.2
None	30	25.0
Tertiary	15	12.5
Total	**120**	**100**

The secondary level spans across all post middle or Junior High Schools. While Basic level of education represents those whose levels of education were up to the then primary to middle school and now Junior High School. The Tertiary represents all post-secondary institutions; university, polytechnic, college of education, nursing colleges etc. The revelation on the educational status of respondents shows how cross sectional the study was, and that all the levels of education were involved in this menopausal life cycle. Table 1b, shows that 33.3% of the respondents reached the Secondary level, 29.2% had basic education and 12.5% of the respondents had Tertiary education while 25.0% did not go to school at all.

Table 1d: Marital Status of the Respondents

Marital status	Freq.	%
Married	90	75.0
Divorced	17	14.2
Widow	10	8.3
Single	3	2.5
Total	**120**	**100**

On the marital status 75.0% of respondents were married and only 2.5% were single with 8.3% widowed and 14.2% divorced.

Table 1e: Number of Children Alive

Number	Freq.	%
5 - 6	36	30.0
3 – 4	35	29.2
1 – 2	30	25.0
> 6	16	13.3
No child	3	2.5
Total	**120**	**100**

Table 1e, shows that 30% of the respondents had 5 – 6 children, 29.2% had 3 – 4, 25% had 1 – 2 children and 13.3% had more than 6 children, while 2.5% had no children.

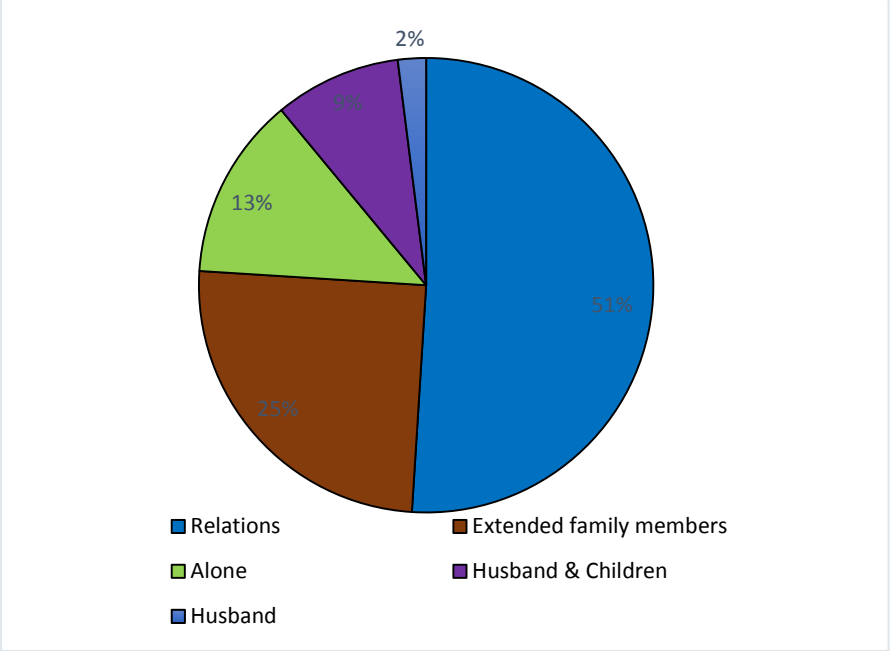

Fig. 1: People Living With Respondents

Fig. 1, shows that 51.0% of the respondents lived with their relations (grandchildren, children and house helps), 25% lived with their extended family members, 13% lived alone and 9% lived with their husbands and children while 2% lived with their husbands alone.

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SECTION B

4.2. Awareness of menopausal symptoms among women in Agogo

This section was to ascertain information on respondents‟ awareness of menopausal symptoms, their sources of awareness, the levels of awareness of specific symptoms and their personal experiences of some symptoms (psychological, physiological and behavioural symptoms).

Table 2a: Respondents Awareness of Menopausal Symptoms

Item	Freq.	%
Aware	109	90.8
Not Aware	8	6.7
No response	3	2.5
Totals	**120**	**100**

From table 2a, 90.8% of respondents were aware of menopausal symptoms and considered it as a normal developmental state, while 6.7% were not aware and 2.5% did not respond. From the above data, it is clear that majority of the respondents had heard or were aware of menopausal symptoms.

Table 2b: Sources of Awareness of Menopausal Symptoms

Source	Freq.	%
Children	60	50.0
Parent	30	25.0
Radio and Television	20	16.7
Friends	15	12.5
Relatives	15	12.5
Total	***140**	***116.7**

***Multiple Responses**

The above multiple responses were ascertained from the respondent on their sources of awareness or information. It was revealed that 50% of respondents became aware through their children, 25.0% through parents, 16.7% of respondents indicated radio and television (media), while 12.5% each of respondents indicated their source of awareness to friends and relatives. The information above makes it clear that majority of respondents were aware of menopausal symptoms in one way or the other.

Respondents' Awareness of Specific Menopausal Symptoms

The following responses were made by the respondents to ascertain the specific symptoms they were aware of and those they had experienced; physiologically, psychologically or behaviourally. A lot of responses were made to cover a variety of symptoms evident during menopause. One hundred and nine responses were made to each symptom, either aware, not aware and others not responding at all. These responses have been presented in frequencies and percentages in tables 2c, 2d, 2e, 2f, 2g, and 2h to reflect the levels of awareness of specific menopausal symptoms.

Table 2c: Respondents Awareness of Psychological Menopausal Symptom

Symptoms	Aware		Not Aware		No Response	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
Emotional instability	102	85.0	6	5.0	1	0.8
Fatigue	80	66.7	27	22.5	2	1.7
Irregular menstrual bleeding	66	55.0	39	32.5	4	3.3
Irritability	60	50.0	44	36.7	5	4.2
Anxiety	59	49.2	47	39.2	3	2.5
Depression	35	29.2	74	61.7	-	-
Forgetfulness	28	23.3	78	65.0	3	2.5
Stressful feelings	23	19.2	86	71.7	-	-
Total	***453**	***337.6**	***401**	***396.0**	***18**	***15.0**

***Multiple Responses**

Table 2c shows respondents‟ awareness of certain psychological menopausal symptoms; emotional instability (85%), fatigue (66.7%), irregular menstrual bleeding (55%) and irritability (50%) while anxiety, depression, forgetfulness and stressful feeling respectively had (49.2%), (29.2%), (23.3%) and (19.2%).

Table 2d: Respondents Awareness of Behavioural Menopausal Symptoms

Symptoms	Aware		Not Aware		No Response	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
Talkativeness	100	83.3	9	7.5	-	-
Quarrelsome	60	50.0	47	39.2	2	1.7
Staying in bed	40	33.3	69	57.5	-	-
Lowered work output	18	15.0	89	74.2	2	1.7
Avoiding social activity	7	5.8	102	85.0	-	-
Crying spells	5	4.2	96	80.0	8	6.7
Incontinent	2	1.6	102	85.0	5	4.2
Total	***232**	***193.2**	***514**	***418.4**	***17**	***14.3**

***Multiple Responses**

Table 2d shows the awareness of some behavioural menopause symptoms of respondents. Eighty three point three percent (83.3%) were aware of talkativeness as a symptom of menopause, 50% were aware of quarrelsomeness, 33.3% indicated staying in bed while 15%, 5.8%, 4.2%, 1.6%, respectively indicated low work output, avoiding social activity, crying spells and incontinent. Majority were therefore aware of talkativeness and blamed menopause for that behaviour.

Table 2e: Respondents awareness of Physiological Menopausal Symptoms

Symptoms	Aware		Not aware		No response	
	Freq.	%	Freq.	%	Freq.	%
Hot flushes	80	66.7	24	20.0	5	4.2
Skin & hair disorders	55	45.8	51	42.5	3	2.5
Headaches	50	41.7	57	47.5	2	1.7
Weight gain	35	29.2	74	61.7	-	-
Breast tenderness (loss of size)	15	12.5	94	78.3	-	-
Pelvic discomfort	10	8.3	94	78.3	5	5.2
Reduced ability to coordinate	10	8.3	99	82.5	-	-
Anorexia nervosa	5	4.2	104	86.7	-	-
Total	***301**	***249.3**	***588**	***490.3**	***31**	***25.9**

***Multiple Responses**

Table 2e shows that 66.7% of the respondents were aware of hot flushes as menopausal symptoms, with 45.8% indicating skin and hair disorders and 41.7%indicated headaches, while 29.2%, 12.5%, 8.3%, 8.3% and 4.2% respectively, indicated weight gain, breast tenderness, pelvic discomfort, reduced ability to

coordinate and anorexia nervosa. Hot flushes, therefore was known by majority of the respondents, while anorexia nervosa was apparently unknown to the majority of them.

Table 2f: Type of Psychological symptoms Respondents Experienced

Menopausal Symptoms	**Freq.**	**(%)**
Emotional instability	100	83.3
Fatigue	50	41.7
Irritability	38	31.7
Depression	25	20.8
Stressful feeling	23	19.2
Forgetfulness	15	12.5
No response	2	1.7
Total	***253**	***210.9**

***Multiple Responses**

Table 2f presents the percentages of respondents who had experienced or were experiencing the above psychological menopausal symptoms. Eighty three point three percent (83.3%) of the respondents experienced emotional instability, 41.7% experienced fatigue, 31.7% experienced irritability, while 20.8% experienced depression, stressful feeling and forgetfulness were experienced by 19.2% and 12.5% of the respondents respectively. One point seven percent (1.7%) did not answer this question. Majority of the respondents therefore experienced emotional instability as a result of menopause.

Table 2g: Type of Behavioural Symptoms Experienced by the Respondents

Symptoms	Freq.	%
Talkativeness	73	60.8
Quarrelsome	46	38.3
Staying in bed	25	20.8
Lowered work output	18	15.0
Total	***179**	***134.9**

***Multiple Responses**

Table 2g shows that 60.8% of the respondents experienced talkativeness as a major behavioural symptom of menopause, 38.3% of the respondents indicated quarrelsome and 20.8% experienced staying in bed, while 15.0% indicated lowered work output.

Table 2h: Physiological Symptoms Experienced by Respondents.

Symptoms	Freq.	%
Hot flushes	75	62.5
Weight gain	70	58.3
Skin and hair disorders	50	41.7
Breast tenderness	25	20.8
Reduced ability to coordinate	10	8.3
Total	***165**	***191.6**

***Multiple Responses**

From table 2h, the respondent gave multiple responses on their physical experiences of symptoms of menopause to this effect; sixty two point five percent (62.5%) of respondents experienced hot flushes, 58.3% indicated weight gain and 41.7% recorded skin and hair disorders, while 20.8% and 8.3% indicated breast tenderness and reduced ability to co-ordinate respectively.

4.3 Food Preferences of Menopausal Women in Agogo

This section presents the responses of the respondents of this study on the foods that they prefer to eat often. The food preferences were selected from the six staple food groups in Ghana, namely, Animal and animal products, Beans, nuts and oily seeds, cereals, starchy roots and plantain, fats and oils and Fruits and vegetables.

Table 3 a; Animal and Animal Products Often Consumed by Respondents.

Animal food	**Freq.**	**%**
Fish	98	81.7
Meat	40	33.3
Snail	34	28.3
Game	30	25.0
Chicken	22	18.3
Milk	12	10.0
Wagashie	10	8.3
Egg	7	5.8
Total	***253**	***210.7**

***Multiple Respondents**

Table 3a shows that 81.7% of the respondents ate fish, 33.3% ate meat, snail had 28.3%, game was consumed by 25.0% of the respondents, chicken had 18.3%, while milk, wagashie and egg recorded 10.0%, 8.3% and 5.8% respectively. This

shows that fish was the commonly eaten animal food and the underlining reason could be its cheapness compared to the other animal foods and products.

Table 3b: Consumption of Cereal by Menopausal Women

Cereals	**Freq.**	**%**
Maize	90	75.0
Rice	76	63.3
Wheat	62	51.7
Millet	31	25.8
Total	***259**	***215.8**

***Multiple Respondents**

Table 3b indicates that 75.0% of respondents ate maize, sixty three point three percent (63.3%) ate rice and 51.7% preferred wheat, while 25.8% indicated they ate millet.

Table 3c: Consumption Starchy Roots, Tubers and Plantain.

Food	**Freq.**	**%**
Cassava	50	41.6
Plantain	44	36.6
Yam	35	29.2
Cocoyam	21	17.5
Sweet potato	8	6.6
Total	***158**	***131.5**

***Multiple Responses**

Table 3c shows multiple responses on the type of starchy roots and plantain that respondents consumed often, forty one point six percent (41.6%) of respondents ate cassava, 36.6% ate plantain, 29.2% ate yam, 17.5% ate cocoyam, while 6.6% ate sweet potato.

Table 3d: Consumption of Beans, Nuts and Oily Seeds

Foods	**Freq.**	**%**
Cowpea	70	58.3
Agushie	50	41.6
Groundnut	32	26.6
Soya bean	20	16.6
Neri	11	9.2
Total	***183**	***152.3**

***Multiple Responses**

Table 3d shows that 58.3% of the respondents ate cowpea, 41.6% ate agushie, 26.6% ate groundnuts, and 16.6% ate soya beans, while 9.2% ate neri.

Table 3e: Fats and Oils Consumed by Menopause Women

Specific oil	Freq.	%
Palm oil	101	84.2
Soya oil	80	66.6
Groundnut oil	29	24/2
Total	***210**	***175.0**

***Multiple Responses**

Table 3e indicates that 84.2% of the respondents chose palm oil, with 66.6% indicating their preferences for soy oil and 24.2% indicating groundnut oil.

Table 3f: Consumption of Fruits and Vegetables by Menopausal Women.

Fruits and vegetables	Freq.	%
Fruits		
Mangoes, Oranges, Apples, Bananas	96	80.0
Pawpaw, watermelon, Guava, Avocado Pear	94	78.3
Vegetables		
Tomatoes, Onions, Pepper	120	100.0
Green Pepper, Lettuce, Carrots, Cabbage	23	19.2
Cucumber, French Beans and Spring Onion.	14	11.7
Total	***157**	***289.2**

***Multiple Responses**

Table 3f, shows that 80% of the respondents preferred and ate mangoes, oranges, apples and bananas and 78.3% ate pawpaw, watermelon, guava and avocado pear. All the respondents (100%) ate tomatoes, onions and pepper, 19.2% ate green pepper, lettuce, cabbage and carrot while 11.7% ate cucumber, French beans and spring onions.

4.4 Nutrition Related Health Status of Menopausal Women in Agogo

This section presents results on Nutrition related Health status of the respondents. It covers their fluid intake, exercise pattern, rest and sleep pattern, non-communicable diseases experienced and the morbidity status of the respondents.

Table 4a: Respondents Fluid Intake

Fluid	**Freq.**	**%**
Water	120	100.0
Beverage	58	48.3
Fruit drink	17	14.2
Fresh fruit juice	17	14.2
Total	***212**	***176.7**

***Multiple Responses**

Table 4a shows that for fluid intake 100.0% of the respondents drank mainly water, 48.3% drank beverages, while 14.2% respectively drank fruit drink and fresh fruit juice.

Table 4b: Respondents Engagement in Exercise

Engagements	Freq.	%
Daily Exercise	80	66.7
Occasional Exercise	20	16.7
No Exercise	20	16.7
Total	**120**	**100**

Table 4b shows that 66.7% of the respondents engaged in daily exercises, 16.7% occasionally engaged in exercises while another 16.6% did not engage in any exercise.

Table 4c: Kind and Intensity of Exercise Respondents Engaged in

Kind of sporting activity	Freq.	%	Duration (mins)	Freq.	%
Walking	120	100	5 – 10	55	45.8
Walking briskly	20	16.7	5 – 15	25	20.8
Jogging	10	8.3	5 – 20	25	20.8
Skipping	10	8.3	5 – 25	10	8.3
No response	4.2	4.2	>30	5	4.2
Total	***165**	***137.5**		***130**	***99.9**

***Multiple Responses**

The type of exercise performed by all (100%) of the respondents was walking, 16.7% walked briskly, 8.3% skipped while another 8.3% jogged. However, 4.2% of the respondents did not respond. Regarding the duration the exercise, 45.8% exercised for 5 – 10 minutes; about 50.6% exercised within 5 – 20 minutes and 8.3 within 5 – 25 minutes while 4.2% exercised for more than 30 minutes.

Figure 2 and 3 indicate the percentage responses of the respondents on items covering nap taking during the day and hours of sleep at night.

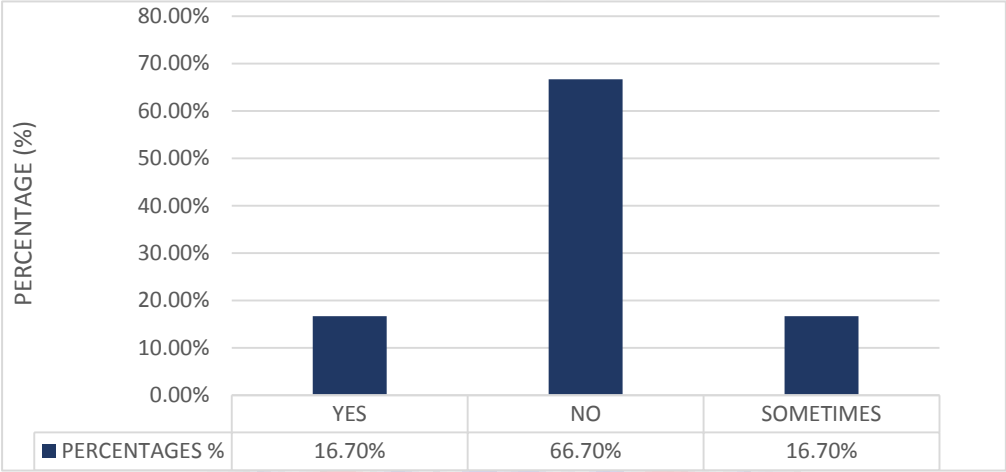

Figure 2: Nap taking during the Day

Figure 2 shows that during the day, 66.7% of the respondents did not take any nap. Only 16.7% took a nap during the day and another 16.7% indicated that they sometimes took a nap during the day.

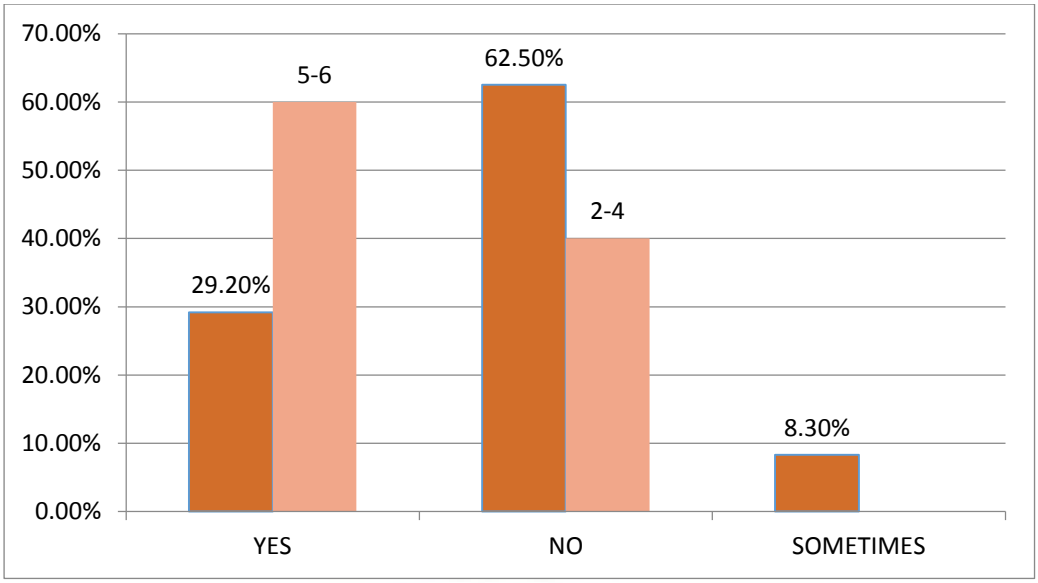

Figure 3: Respondents Response on Adequacy of Sleep at Night

Figure 3 indicates that 62.5% of respondents did not sleep adequately (2 – 4hours) at night and only 29.2% had adequate sleep (5 – 6hours), while 8.3% indicated they occasionally slept adequately.

Table 4d: Nutrition Related Non-Communicable Diseases Experienced by Respondents.

Disease	**Freq.**	**%**
Arthritis (joint pain)	80	66.8
Blood pressure (Hypertension)	51	42.5
Diabetes	30	25.0
Obesity	26	21.6
None	10	8.3
Total	***197**	***154.1**

***Multiple Responses**

Table 4d indicates that Arthritis (joint pain) was experienced by 66.8% of respondents. Forty two point percent (42.5%) suffered from hypertension. Diabetes among the menopausal women was 25.0%, with Obesity affecting 21.6% of the respondent. Eight point three percent (8.3%) did not indicate their experience of any nutrition related non-communicable disease.

Table 4e: Morbidity among the Menopausal Women

Morbidity status	**Freq.**	**%**
Headache	90	75.0
Fever	70	58.3
Constipation	20	16.7
Toothache	13	10.8
Diarrhoea	2	1.6
Total	***212**	***176.6**

***Multiple Responses**

Table 5e shows multiple responses on morbidity. Seventy-five percent (75.0%) of respondents suffered from headache, 58.3% suffered fever, with 16.7% suffering from constipation and 16.7% and 10.8% respectively, suffering from cough and toothache. Only 1.6% suffered from diarrhoea.

4.5 Strategies to Manage and Ensure Good and Health Menopause

Result on strategies recommended by the respondents to manage and ensure good and healthy menopause is presented in table 5.

Table 5: Recommended Strategies for Good and Healthy Menopause

Strategies	Freq.	%
Intensive education and counselling sessions on symptoms and its management to potential menopausal women by health professionals.	54	45.0
Eating nutritious food	41	34.2
Daily exercise, rest and taking medication	30	25.0
Eating more fruits and vegetables	30	25.0
Awareness creation and moral support	20	16.7
Positive thinking, singing and listening to good music, and watching films to relax the brain.	10	8.3
Total	***185**	***154.1**

***Multiple Responses**

Table 5 indicates that 54% of the respondents suggested Intensive education and Counselling sessions on symptoms and its management to potential menopausal women by health professionals. Thirty four point two percent (34.2%) of the respondents suggested the consumption of nutritious food, while 25.0% each

recommended exercises, rest and taking medication, and fruits and vegetables. Sixteen point seven percent (16.7%) of the respondents suggested awareness creation and moral support, while 8.3% suggested positive thinking, singing and listening to good gospel music and watching films to relax the brain.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This chapter presents the discussion of the findings generated from the responses of the participants of the study.

5.1. Discussion of Findings

The discussion was done under themes that reflected the research objectives formulated for the study. These were supported with related literature on the topic.

5.1.1 Biodata of the Menopausal Women Studied

The study results showed that 12.5% of the menopausal women in Agogo were in their early menopause or pre-menopause (40 – 45 years), 75.0% in their peri-menopause (46-55years) and 12.5% in their post-menopause phase (55 – 60 years), according to the classification of Maltais et al.,(2004). Devi *et al*. (2003), the common menopausal age in India was between 40 – 55 years which corresponded to pre-menopausal and peri-menopausal stages of menopause. Similarly Burger (1999) found that menopause typically occurred in a woman‟s life in the mid-40s to early 50s. It was found in the present study that 25% of the respondents were illiterates. The rest had formal education up to the Basic Level (29.2%), Secondary Level (33.3%) and Tertiary level (12.5%). The fact that 75% of the respondents had had formal education of some sort was highly commendable and might have contributed to their awareness of some menopausal symptoms. Majority of the respondents (70.8%) were employed. Though 75% were married, only 11% lived with their husbands alone or with children. This is against the back drop only 8.3% were widowed. The rest lived alone, with relations or with extended family members. Fifty nine point two percent

(59.2%) lived with 3 – 6 children, with 25% living with 1 – 2 children and 13.3% respondents lived with more than six children while 3.3% lived with no children. This reveals that majority of the respondents had children or were staying with some people in one way or the other.

5.1.2 Awareness and Experiences of Menopausal Symptoms

Majority of the respondents (90.8%) were aware of menopausal symptoms, which they considered as a normal developmental state of every woman. The sources of their awareness of menopausal symptoms were particularly from their adult children (50.0%), parents (25.0%), media; television and radio (16.7%) and from friends and relatives (12.8%) each. The respondents‟ awareness of specific menopausal symptoms was revealed in a wide range of almost twenty three symptoms covering emotional instability (85%) and fatigue (66.7%) to stressful feeling (19.2%) for psychological symptoms. Behavioural symptoms ranged from talkativeness (83%) and quarrelsomeness (50%) to incontinent (1.6%), while physiological symptoms ranged from hot flushes (66.7%) and skin and hair disorders (45.8%) to anorexia nervosa (4.5%). Other respondents were either not aware or did not give any response to specific symptoms. McPherson (2002) asserted that discourses of menopause are varied just as the lives of women themselves are diverse and multifaceted.

On the symptoms they had experienced, the respondents were emphatic in pointing to the following symptoms; 83.3% of the respondents experienced emotional instability; fatigue, irritability and depression covered 41.7%, 31.7%, and 20.8% respectively. Stressful feelings had 19.2% while forgetfulness covered12.5% of respondents as the main psychological symptoms. Talkativeness (60.8%) was the main behavioural symptom experienced by respondents; others were quarrelsomeness (38.3%), staying

in bed (20.8%) and lowered work output (15.0%). The above mentioned behavioural symptoms are all related, and have serious economic consequences for employers and the nation. Fatigue and stressful feeling could arise from sleep disturbances, or inadequate sleep in the night, as a result of hot flashes and all these would have impact on job efficiency. The Ministry of Health Report (2003) urged that a good health status is desirable in itself, its direct impact on labour productivity and ultimately on economic growth makes it even more imperative for the government to ensure easy access to modern health facilities to as many Ghanaians as possible. The disturbing problems were that 62.5% had hot flushes, 58.3% had weight problems and 41.7% expressed skin and hair disorders while 20.8% experienced breast tenderness. The North America Menopause Society (2004) stated that hot flushes were the most noticeable and clinically observable physical change resulting from hormonal fluctuations that many menopause women undergo. In spite of the discomfort of hot flushes experienced by menopausal women, they are not considered harmful by physicians. Cashman (2007) argued that people who consume predominantly plant-based diet like the Japanese are likely to have a high intake of phyto-oestrogens, and that explains why hot flushes and other menopausal symptoms are rarely experienced by women in Japan.

Mahan and Escott-Stump (2008) have stated women that are at risk of weight gain during and after menopause. This is because age-related decline in resting metabolic rate driven by sarcopenia increases the risk of weight gain and hormonal changes contribute to body fat redistribution in the abdominal area. In this study 58.3% of the respondents had weight problems and this was observed by the researcher as added evidence to the study especially around the abdominal area of the respondents. Menopausal women therefore need to be aware of their dietary intake

and learn to set boundaries on empty calories in order to maintain or lose weight as they age. (Dietary Guidelines for Americans- CNPP, 2010).

5.1.3 Food Preferences of Menopausal Women in Agogo

Fish was predominantly the animal protein consumed (81.67%), followed by meat (33.3%), snail (28.3%), game (bush meat) (25.0%) and chicken (18.3%). The emphasis on white flesh meat or fish is healthful because they contain less fat and provides protein of high biological value which contains all the essential amino acids necessary for maintenance and repair of worn out tissues of menopausal women. Fish is usually presented in many forms (smoked, fresh, and canned) and also prepared using a variety of methods like boiling, steaming, stewing and others. Peohlman and Horton (1999) explained that protein food helps preserve muscles and bone mass besides the maintenance of other body processes. Wardlaw (2003) found that calcium in fish is an essential substance for every woman and especially for menopausal women. Additionally Mahan and Escott-Stump (2008) found that essential fatty acids concentrated mostly in oily fish work to reduce inflammation, regulate cellular function to include neurological function. The deficiency of essential fatty acids can result in dry skin, lifeless hair, cracked nails, fatigue, depression, dry eyes, aching joint, difficulty in losing weight and breast pain which are all typical symptoms of menopause. Cassidy (2003a) added that there is a direct relationship between lack of oestrogen after menopause and the development of weakened bones called osteoporosis while other nutrients increase bone mineral density. According to Institute of Medicine, Food and Nutrition Board (2001), calcium and magnesium in food also produce calming effects on the brain and have a sedative effect on the body. They are essential for normal sleep when taken forty-five (45) minutes before sleep

has a tranquilizing effect. Calcium and magnesium are particularly important to Agogo menopausal women of whom 62.9% have sleep problems.

The main cereal consumed by menopausal women were found to be maize (75.0%), followed by rice (63.3%), wheat (51.7%) and millet (25.8%). Regarding preferred carbohydrate food items eaten were cassava 41.6%, plantain (36.6%), yam (29.2%) with cocoyam (17.5%). The American Dietetic Association (2000) advised that carbohydrates composition of the diet must be shifted to emphasize complex carbohydrates like starches and cellulose while minimizing the intake of simple carbohydrates such as the sugars. This assists the body to control blood glucose, stay within caloric bound and reduce the risk of diabetes, colon cancer and cardiovascular diseases.

Cowpea (58.3%), *agushie (*41.6%), groundnut (26.6%), soya beans (16.6%) are the leguminous seeds and nuts consumed the most by the respondents in Agogo. According to Cashman (2007) legumes are excellent sources of minerals needed by menopausal women; containing calcium, magnesium, potassium and also high in iron and vitamin B complex. These are important nutrients for the health of the liver which plays a role in the metabolism of oestrogen. Palm oil (84.2%) and soybean oil (66.6%) were the predominant oil consumed by menopausal women in Agogo. These contain considerable amounts of vitamin A and are needed for proper eye sight or clear vision in menopause. It also helps to fight cancer and prevent stroke because of its high vitamin E content. However it should be taken in moderation.

Mangoes, oranges, watermelon, avocado pear and banana were most consumed (80%) because they were the major fruits grown in Agogo. Pawpaw, apple and guava (78.3%) were relatively less consumed because they were seasonal fruits and

therefore costly. Yet still, some respondents ate these fruits grown in the homes or in backyard gardens and on their farms. The vegetables most consumed were onions, tomatoes, pepper and green leaves used normally in everyday cuisine stews and soups (100%). The other vegetables which were not much patronized were green pepper, lettuce, cabbage carrot and cucumber, french beans and spring onions. Yet, the latter are very important in menopausal women‟s diet.

Wardlaw (2003) asserted that consuming a wide variety of foods is the best way to ensure a balance of nutrients in diets. Not only are fruits and vegetables the most visually appealing foods, they are extremely good for providing vitamins and minerals essential for growth, repair and protection of the human body. According to Matin (2004) fruits and vegetables are low in calories, very good source of fibre, vitamin C, responsible for regulating the body‟s metabolic processes and controlling the composition of fluids in body cells. Cashman (2007) recognized that vitamin C intake is especially important for women approaching menopause because physical and emotional stresses alone greatly increase the need for vitamin C since stress triggers the synthesis and secretion of adrenaline which is vitamin C dependent. Additionally, vitamin C helps to reduce the risk of mortality from both heart disease and cancer.

Weber (2009) recommended that menopausal women should get enough calcium by eating and drinking two to four servings of dairy products and calcium-rich foods a day to help ensure that they are getting enough calcium in their daily diet. An adequate intake of calcium for women aged 51 and older is 1,200 milligrams per day. Since the recommended dietary allowance for iron in older women is eight milligrams a day, menopausal women should endeavour to pump up their iron intake by eating at least three servings of iron-rich foods a day. They should eat enough fibre from foods

high in fibre such as whole-grain bread, cereals, fresh fruits and vegetables about 21 grams of fibre a day and drink plenty of water. As a general rule, drinking eight glasses of water everyday fulfils the daily requirement for most healthy adults. Additionally, menopausal women should maintain a healthy weight, reduce food high in fat, use sugar and salt in moderation and limit alcohol intake (Weber, 2009).

Majority of the respondent (100%) drank water and beverage (48.3%) as their main source of fluid while fruit drinks and juices represent 28.4%. These are fairly good. Mahan and Scott-Stump (2008) agreed with the World Health Organization (1994) that dehydration is a risk factor for women as they age particularly in menopausal women because sensation of thirst decreases4while various factors increased the risk of dehydration. Many women restrict fluids due to the fear of leakage and incontinence. According to Women‟s Health Connection (2003) adequate intake of water prevents dehydration and electrolyte imbalances which can result in disorientation and mental confusion, constipation, impacted faecal matter and even death. Mahan and Scott-Stump (2008), therefore cautioned that the quantity of water drank should measure up to the recommended daily allowance (RDA) of 2.7litres of water per day for women should be adhered to.

5.1.4. Relationship Between Diet and Menopausal Symptoms

Oestrogen is a hormone which helps with maturation and shedding of ovaries at menses and appears to naturally protect women from heart diseases. Decline in oestrogen leads to a lot of symptoms as one approaches menopause. Menopausal symptoms such as hot flushes, weight gain, hypertension, diabetes, obesity, hair and skin disorders can be ameliorated with balanced and adequate diet.

Phyto-oestrogen are plant chemical substances that are very similar in structure to oestrogen and may act as animal oestrogen in the body. According to Cashman (2007), foods like apples, soy beans, carrots, green beans, peas, potatoes, red beans, brown rice, whole wheat and seeds contain phyto-oestrogen. Again Horton (1999) expressed that vegetables such as asparagus, beets, bell pepper, broccoli-stems, cabbage, cauliflower, carrots, cucumber, onion, sweet potatoes, turnips and wheat ameliorate symptoms of menopause. Peohlman and Horton (1999) stated that menopause was a risk factor to hypertension, diabetes and obesity and these diseases can be prevented or reduced with adequate intake of fluid, regular exercises and with fruits and vegetables. The fruits and vegetables are rich in vitamins A, C, plus folate and other chemo protective nutrients such as fiber and antioxidants.

When oestrogen levels drop hot-flushes and night sweats may be triggered. However, it has been demonstrated that three table spoonful of ground flax seeds per day reduce the frequency and severity of hot flushes (Pruthi et al, 2007). Flax seed is rich in lignin which helps to stabilize hormone level and supplementation with vitamin E (400 IU) for four (4) weeks significantly reduced the frequency and severity of hot flushes.

Menopausal women need to be aware of the dietary intake and learn to set boundaries on empty calories in order to maintain and lose weight as they age. Proper nutrition in menopause will provide the body with the nutrients needed to support the various changes that occur during menopause. The eating of a balanced diet helps prevent long term health conditions including heart diseases and menopausal symptoms.

5.1.5 Nutrition- Related Health Status of Menopausal women in Agogo

The study revealed that 66.7% of the respondents engaged in daily exercise while another 16.6% each did not either engage in any exercise or occasionally engaged in exercise. All the respondents engaged in exercises such as normal walking which reveals that some of the respondents took the daily walking as an exercise. Brisk walking was 16.7% while 16.6% occasionally indulged in jogging and skipping. Concerning the duration of exercise 45.8% exercised for 5 – 10 minutes; 41.6% exercised for 5 – 20 minutes while 8.3% and 4.2% exercised for 5 – 25 minutes and more than 30 minutes respective. Otten et al., (2009) asserted that establishing regular exercise program made bone and muscles stronger and helped prevent bone loss. It also helps one to stay active and mobile and that good weight-bearing exercise like dancing, jogging and skipping done three or four times a week, are best for preventing osteoporosis which is very prominent during post menopause. In addition strength and balance exercises may help avoid falls and decrease the chance of breaking a bone. According to Freeman *et al*. (2006) regular exercise benefits the heart and bones, helps to regulate weight and contributes to a sense of overall wellbeing and improvement in mood. Keeping physically active during menopause can help with many different health aspects; appetite, digestion, weight control, heart health and bone health, which can have a powerful positive effect on emotions, mental health and love life. Sixty-two point five percent (62.5%) of the respondents complained they had inadequate sleep of 2 – 4 hours during the night; only 29.2% had 5 – 6 hours of sleep in the night with 8.3% occasionally sleeping adequately. Sixty six point seven percent (66.7%) did not take any nap during the day, only 16.6% took naps during the day with another 16.7% occasionally taking naps during the day. Allen (2009) and many studies have found that vitamin B12 promotes sleep especially in people with

sleep disorders like menopausal women and restores sleep by working with melatonin, a hormone that is involved in maintaining the body‟s internal clock. According to the American Dietetic Association (2000) small servings of carbohydrate-rich food eaten before bed curb sleep problems. Carbohydrate-containing foods, such as milk, cereal or slice of toast, provide the brain with an amino acid called tryptophan. The brain uses tryptophan as a building block to manufacture serotonin, a brain chemical that has been shown to facilitate sleep, improve mood, diminish pain and even reduce appetite. It also helps to reduce fuzzy thinking in menopausal women. Poehlman et al., (1999) asserted that closing the eye during rest makes one look healthier and more attractive, keeps one‟s figure, concentrate better, be in great mood and have the ability to make better informed decisions. They continued that it makes one live longer, less likely to get ill, remember things clearly, have better sexual relationship and be a winner.

The study again revealed that with the non-communicable diseases, sixty six point eight percent (66.8%) of the respondents complained of arthritis (joint pain), 42.5% suffered from hypertension, 25% had diabetes and 21.6% complained of obesity. According to Dawson-Hughes (2008) potassium is related to blood pressure regulation and that insufficient potassium can contribute to hypertension. Potassium is widespread in plants foods, but many menopausal women are not meeting the daily recommendation. Therefore eating will abundance of vegetables, fruits and legumes will ensure adequate consumption of potassium.

Regarding morbidity condition among the respondents, it was realized that headache (75%), fever (58.3%) and constipation (16.7%) were the commonest condition. According to Mahan and Escott-Stump (2008), the diverticulitis caused by

straining associated with constipation is even more common in adult women than men and that with proper attention to a high-fibre diet and adequate fluids, constipation can be prevented and the risk of straining during constipation, progressing into painful diverticulitis reduces.

5.1.6 Strategies to Ensure Good and Healthy Menopause

Fifty four percent (54%) of the respondents suggested intensive education and counselling sessions on symptoms of menopause and its management to potential menopausal women by health professionals. Thirty four point two percent (34.2%) suggested consumption of nutritious food, 25.0% each of respondents recommended exercises, rest, adherences to medical advice and eating of fruits and vegetables, 16.7% suggested awareness creation and moral support and 8.3% suggested positive thinking singing and listening to good gospel music and watching films to relax the brain. The suggestion of nutritious food was in agreement with Cashman (2007) that there is the need for proper nutrition for menopausal women because that will provide the female body with the nutrients needed to support the various physical change that occur, as well as encouraging a balanced diet that helps prevent long term concerns such as breast cancer and heart disease. Again, Tuckwell (2007) had this to say on exercises, that an active lifestyle with regular exercises help reduce some non-communicable diseases like hypertension, obesity, diabetes and makes muscles stronger, prevents bone loss, help to stay active and highly best to prevent osteoporosis, which is very prominent during post menopause. Freeman *et al*. (2006) insisted that keeping physical active during menopause can help with many different health aspects such as appetite digestion, weight control, agility, heart health and bone

health and can have a powerful positive effect on emotions, mental health and love life.

Consumption of fruits and vegetables were recommended by 25% of the respondents. According to Poehlman et al. (1999), fruits are not only delicious but healthful too. Rich in vitamin A and C, plus folate and other essential nutrients may help prevent heart disease and stroke, control blood pressure and cholesterol, prevent some types of cancer and guard against vision loss. They are a complex combination of fibre, minerals, antioxidants and phyto-chemicals as well as the vitamins that work in contribution to provide protective benefits. In the same vein, Cashman (1996) contributed that the mineral boron is another beneficial element of fruits and vegetables, which seems to increase the body‟s ability to hold onto oestrogen and it also helps to keep the bones stronger by decreasing the amount of calcium excretes each day. On suggestions of intensive education and counselling sessions on symptoms of menopause and their management by health professionals; Utian et al., (2008) asserted that most menopausal women are not aware about the symptoms of menopause, their effects on health status and their remedial measures. Therefore, it is important to educate menopausal women about how to combat and tackle this important phase in their lives of which very few studies have been conducted on their nutritional status. Hence, it reinforces the debate on the need for special attention to this group by health care centres.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

This chapter provides the summary of findings, conclusions, recommendations and the study‟s implication for future research.

6.2. Summary of Findings

The study was a cross-sectional survey, a type of descriptive research which focused on investigating menopause and nutrition among the women of Agogo in Asante-Akim North of Ashanti Region in Ghana. The aim of the study was to find out, whether menopausal women in Agogo in Asante-Akim North were aware of menopause and menopausal symptoms and ensured effective management of their nutrition related menopausal symptoms. The study sought to find out: (a) the level of awareness of menopausal symptoms; (b) food preferences of menopausal women; (c) nutrition related health status of the menopausal women and (d) strategies for management to ensure good and healthy menopause. The target population for the study comprised all menopausal women between the ages of 40 and 60 years. In all, one hundred and twenty (120) women were selected purposively with snow-balling method to participate in the study, from two orthodox, one Pentecostal denomination and two work places namely: Methodist, Roman Catholic, Christ Apostolic churches, Agogo Presbyterian Hospital and Agogo Presbyterian College of Education. Instruments used to generate data for the study included questionnaire, guided interviews and observation checklist. Descriptive survey design was used to collect the data.

Main Findings

Biodata Characteristics

The study revealed that 12.5% of the menopausal women in Agogo were in their early menopause (40 – 45yrs) that is pre-menopause, 70% in their peri – menopause (50 – 55yrs) and 12.5% in their post-menopause phase (56 – 60yrs). It was also found that only 25% of the menopausal women were illiterate. The rest had at least basic education 29.2%, Secondary Education 33.3% and tertiary education had 12.5%. Majority (70.8%) of the menopausal women were employed. Though 75% were married, only 11% lived with their husbands and children. This is against the back drop that only 8.3% were widowed. The rest lived alone or with relations. Fifty nine point two percent (59.2%) had 3 – 6 children while 25% had up to 2 children and 13.3% had more than six children, only 3.3% had no children.

Awareness of Menopausal Symptoms

a. It was realized that as high as 90.8% of the respondents were aware of menopausal symptoms and considered them as a normal development of women. Their main sources of awareness were from their adult children (50%), parents (25%), radio and television (16.7%) and friends and relatives (12.5%) each.
b. Emotional instability (85%), fatigue (66.7%), irregular menstrual bleeding (55%), irritability (50%) and anxiety (49.2%) were the main psychological symptoms respondents were aware of. The others were depression (29.2%), forgetfulness (23.3%) and stressful feeling (19.2%).
c. Talkativeness (83.3%), quarrelsomeness (50%) and staying in bed (33.3%) were the main behavioural symptoms known.

d. The physiological symptoms respondent were aware of, were hot flushes (66.7%), skin and hair disorders (45.8%), headaches (41.7%) and weight gain (27.2%)

e. The major psychological, behavioural and physiological menopausal symptoms experienced by the respondent were emotional instability (83%), talkativeness (60%), hot flushes (62%), weight gain (58.3%), fatigue, skin and hair disorders (41.7%) each, and depression (31.7%), while quarrelsome, stressful feeling and staying in bed had 20.8% each.

Food Preferences

a. Animal protein foods predominantly eaten by the respondents were fish (81.7%), followed by meat (33.3%), snail (28.3%), game (25%) and chicken (18.3%).

b. Cowpea (58.3%), *agushie* (41.6%) ground nut (26.6%) and soya bean (16.6%) were the leguminous seeds and nuts consumed the most by the respondents.

c. The main carbohydrate foods consumed were maize (75%) followed by rice (63.3%) and Wheat (51.7%), cassava (41.6%), plantain (36.6%), yam (29.2%) and millet (25.8%).

d. Palm oil (84.2%), soybean oil (66.6%) and groundnut oil (24.2%) were the predominant oils consumed.

e. Mangoes, oranges, watermelon, avocado pear and bananas were the most consumed fruits (80%) while Pawpaw, apple and guava (78.3%) were relatively less consumed fruits. Tomatoes, onion, pepper and green leaves (100%) were the predominant vegetables consumed. The other vegetables which were not much patronized 30.9% were green pepper and green leaves

(100%) were the predominant vegetables consumed. The other vegetables which were not much predominant vegetable consumed. The other vegetables which were not much patronized (30.9%) were green pepper, lettuce, cabbage, carrots, cucumber, French beans and spring onions. Yet, they are important in menopausal women‟s diet.

Nutrition- Related Health Status

a. Sixty two point five percent (62.5%) complained they had inadequate sleep as they slept for 2 – 4 hours at night; and 29.2% had adequate sleep for 5 – 6 hours. 66.7% did not take any nap during the day. Only 16.6% regularly took nap during the day. Only 16.6% regularly took nap during the day while16.6% occasionally took nap during the day.
b. Non-communicable diseases experienced by the respondents were arthritis or joint pain (66.8%), hypertension (42.5%), diabetes (25%) and obesity (21.6%). The most common morbidity condition experienced were headache (75%) fever (58.3%), constipation (16.7%) and toothache (10.8%).

Practices Engaged by the Respondents to keep them Healthy

a. Majority of the respondents (100%) drank water as their main source of fluid. Additional sources of fluid were beverages (48.3%), fresh fruit juice (14.2%) and fruit drink (14.2%). A high percentage 66.8% engaged in exercises, 16.6% exercise some times and 16.6% did not engage in exercises at all.
b. Majority of the respondents (100%) engaged in daily walking as an exercise, 16.7% engaged in brisk walking while 8.3% each occasionally engaged in jogging and skipping. In regards to the duration for the sporting activity,

45.8% exercised for 5 – 10 minutes, 51.6% for 5 – 20 minutes and 8.3%, 4.2% respectively exercised for 5 – 25 minutes and more than 30 minutes.

Respondents Recommended strategies, for Ensuring Good and healthy Menopause

Thirty four point two percent (34.2%) of respondents suggested consumption of nutritious foods, 25% suggested consumption of more fruits and vegetables; 25% recommended exercises, rest and adherence to medical advice and 45% suggested intensive education and counselling sessions for menopausal women on menopausal symptoms and its management by health professionals while 16.7% suggested awareness creation and moral support by dieticians, health professionals and society at large.

6.3 Conclusion

The study revealed that the menopausal age for women in Agogo was between the ages of 46 to 55years. The average age was 51years and 5months. Awareness of menopausal symptoms was very high and the sources of information were through adult children, parents, friends and relations. Of all the psychological, behavioural and physiological symptoms; emotional instability, talkativeness, hot flushes and weight gain were the predominant symptoms. The diets of the respondents were diversified as they frequently consumed food items from all the six food groups. However, more legumes, pulses, fruits and vegetables were needed to boost pyto-estrogen level which could have more positive impact on their nutritional status.

Major nutrition – related health problems experienced by menopausal women in Agogo were arthritis, hypertension, diabetes and obesity.These conditions could be

managed with diet and exercise. It was found that exercise was important for the health of menopausal women in Agogo but the duration of the exercises among menopausal women was short. Strategies recommended to ensure healthy menopause among menopausal women included intensive education and counselling on symptoms and management, good nutrition, adequate rest as well as awareness creation and moral support from the community which were adequate.

6.4 Recommendations

Based on the finding and conclusions of the study, it is recommended that:

1. Though the rate of awareness of menopause is considerably high, there is the need to intensify the awareness level through the media; radio, television and even newspapers.
2. Since Menopausal women have deficient estrogen levels, it is recommended that they boost up their oestrogen levels by consuming more legumes and pulses which contain phyto-estrogen.
3. The range of fruits and vegetables consumption was limited; therefore it is recommended that a greater variety of fruits and vegetables should be consumed.
4. Though menopausal women jog, skip, dance, and play tennis as forms of exercise, it was found that the durations were not enough and therefore should be extended.
5. Since the menopausal women in Agogo were aware of strategies for controlling menopausal symptoms, their current level of awareness should be maintained.

6.5. Suggestions for Future Research

Based on the findings of this study, it will be useful to conduct further research into:

1. The quantities of nutrient intake during pre, peri and post menopausal stages.
2. Feasibility studies to assess the impact of menopausal symptoms on work attitudes.
3. Menopausal women‟s perceptions, attitudes and their practices in managing menopausal symptoms.

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APPENDIX A

LETTER OF INFORMED CONENT TO PARTICIPATE IN RESEARCH

University of Education, Winneba

Department of Home Economics

Box 25, Winneba

8th February, 2013

Dear Madam,

LETTER OF CONSENT TO PARTICIPATE IN RESEARCH

Thank you in advance for granting me audience. I‟m a student at the University of Education Winneba pursuing a Master‟s Degree course in Home Economics. I am to conduct research on the topic, Menopause and Nutrition among Women in Agogo, Asante-Akim-North. The aim of the study was to find out whether menopausal women in Agogo were aware of menopausal symptoms and ensures effective management of the nutrition related menopausal symptoms. I am happy to inform you that, you have been selected to participate in this study. All information provided will solely be used for research purposes only and shall treated with utmost confidentially. On your part, you are required to decide voluntarily by signing below if you accept to be a participant in this research. Please do not write your name in this letter. Thanks.

…… ……..

Participant Magdalene Aba Aggrey

(Please, signature only) (Researcher)

APPENDIX B

QUESTIONNAIRE FOR MENOPAUSAL WOMEN

INSTRUCTION

In order to answer the questions as honestly as possible, your name need not appear anywhere on the questionnaire. Confidentiality is assured in this regard. There are no right or wrong answers. Your help in completing the questionnaire is of vital importance, although participation is entirely voluntary.

Please tick [√] the box that corresponds with your choice of responses concerning each question or write your response in the space provided.

Section A

BIODATA (Demographic Information)

1. Age: (a) 40 – 45 [ ] (b) 46 – 50 [ ] (c) 51 – 55 [ ] (d) 56 – 60 [ ]
2. Educational Level: (a) Basic level [ ] (b) Secondary Level [ ] (c) Tertiary [ ] (d) No School [ ]
3. Occupation: (a) Employed [ ] (b) Unemployed [ ]
4. Marital Status: (a) Married [ ] (b) Divorced [ ] (c) Single [ ] (d) widow [ ]
5. Number of Children Alive: …….
6. Which people do you live with: a. Husband [ ] b. Husband and Children [ ] c. Other Relations [ ] d. Alone [ ]

Section B

Research Objective 1: Level of Awareness of Menopause Symptoms among the Menopause Women in Agogo?

1. Have you heard about Menopause and menopausal symptoms? Yes [ ]No [ ]

   ……..

   ……..

2. Where did you hear about menopausal symptoms?

   ……..

   ……..

3. Do you consider menopause as a normal developmental state?Yes [ ] No [ ]
4. Are you aware of the symptoms of menopause? Yes [ ] No [ ]
5. Which of these symptoms are you aware of?

Emotional instability		Avoiding social activity		Hot flashes	
Depression		Crying spells		Cold sweat	
Irritability		Inability to enjoy sex		Loss of breast size	
Anxiety		Lowered work output		Pelvic discomfort	
Forgetfulness		Staying in bed		Reduced ability to co-ordinate	
Fatigue		Talkativeness		Weight gain	
Stressful feeling		Quarrelsome		Skin and hair disorders	

6. Which of these have you experienced/or are you experiencing

Emotional instability		Avoiding social activities	
Depression		Staying at home	
Irritability		Staying in bed	
Crying spells		Lowered work out-put	
Forgetfulness		Inability to enjoy sex	
Fatigue		Quarrelsome	
Stressful feeling		Talkativeness	
Hot flashes		Loss of breast size	
Cold sweat		Pelvic discomfort	
Reduced ability to co-ordinate		Weight gain	
Skin Disorders (Dryness)		Hair disorder	

Research Objective 2:

Food Preference of Menopausal women in Agogo:

7. Which of the following food items do you normally consume?

Animal and animal products		Cereals and grains		Starchy foods		Beans, Nuts and seeds		Fats and oil		Fruits and Vegetables
Crab		Rice		Yam		Cashew nut		Groundnut oil		Mangoes
Snail		Wheat		Cocoyam		Coconut		Coconut oil		Tomatoes
Meat		Maize		Potato		Cowpea		Palm oil		Onion
Fish		Barley		Sweet potato		Groundnut		Butter		Pepper
Milk		Guinea corn		Water yam		Agushie		Margarine		Lettuce
Cheese		Millet		Plantain		Gingerly seeds		Lard		Cabbage
Chicken				Cassava		Soya bean		Palm kernel oil		Pawpaw
Egg						Neri		All cooking oil		Cucumber
Sausage						Tiger nut				Carrots
Mushroom										Radish
										Apple
										Guava
										Banana

										French beans
										Green pepper
										Leafy vegetables

8. What kind of fluid do you normally drink? (a) fresh fruit juice [ ] (b) Water [ ] (c) Beverage [ ] (d) Fruit drink [ ]

Research Objective 3

Nutrition Related Health Status of Menopausal Women in Agogo, Physical Activity and Sleep.

9. Do you exercise? Yes [ ] No [ ]

10. What kind of exercise do you do? Walking briskly [ ] Walking [ ] Jogging [ ] Skipping [ ]

11. How long do you exercise? 5 – 10 [ ] 5 – 15 [ ] 5 – 20 [ ] 5 – 25 [ ] >30 [ ]

12. i. Do you have adequate sleep at night? Yes [ ] No [ ] If any specify [ ]

    ii. Do you take nap during the day? Yes [ ] No [] If any specify [ ]

13. Which of these non-communicable diseases have you experienced or experiencing?

    Disease [ ]

Obesity [ ]

Diabetes [ ]

Cardiovascular diseases [ ]

Arthritis (Joint pain) [ ]

Blood pressure (Hypertension) [ ]

Any other, specify [ ]

14. Which of these morbidity conditions do you experience?

Fever [ ]

Cough [ ]

Cold [ ]

Headache [ ]

Diarrhoea [ ]

Any other, specify [ ]

Research objectives 4:

What would you recommend for managing a healthy menopause? (Please write your response in the space provided below.)

…….

……..

……

APPENDIX C

OBSERVATION CHECKLIST ON MENOPAUSAL WOMEN

1. Are menopausal women suffering from weight gain?
2. Which part of the body are mostly affected or increased?
3. Do menopausal women talk length, plenty or normal?
4. How do the skins and hairs look like?
5. Do they look healthy and bouncing?