"TO ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH THE QUALITY OF POST MENOPAUSAL WOMEN"

DISSERTATION SUBMITTED

In Partial Fulfilment of the Requirement for the Award of the degree of

MASTER'S PROGRAMME IN

CLINICAL NUTRITION AND DIETETICS

BY

ANNA REENU SHAJI

(Register No: SM19MCN005)

DEPARTMENT OF CLINICAL NUTRITION AND DIETETICS

WOMEN'S STUDY CENTRE

ST. TERESA'S COLLEGE (AUTONOMOUS)

ERNAKULAM

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Signature of HOD

Signature of Guide

DECLARATION

I hereby declare that the thesis entitles "**TO ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)**" submitted in partial fulfilment of the requirement for the award of the degree of Master's Programme in Clinical Nutrition and Dietetics is a record of original research work done by me under the supervision and guidance of **Ms. L R Rajani** ,Assistant professor ,Department of Clinical Nutrition and Dietetics, Women's study centre, St. Teresa' s College (Autonomous),Ernakulum and that not been submitted in part or full or any other degree/diploma/fellowship or the similar titles to any candidate of any other university.

Place: (Your Name)

Date:

CERTIFICATE

I here certify that the dissertation entitles "**TO ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)** "submitted in partial fulfilment of the requirement for the award of the Degree of Master's Programme in Clinical Nutrition and Dietetics is a record of original work done by Ms. ANNA REENU SHAJI during the period of her study under my guidance and supervision.

Signature of the HOD

Signature of the
Research Guide

Mrs.L R Rajani

Assistant professor

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ABSTRACT

ABSTRACT

Menopause is the permanent cessation of menses for 12 months resulting from oestrogen deficiency. Post menopause refers to the phase after twelve consecutive months of amenorrhea. The primary effects of menopause are associated with oestrogen deficiency. The study was undertaken to find the quality of life and nutritional status of the post-menopausal women. Hormonal changes that begin during the menopausal transition result in physiological changes and various other symptoms. For this reason, women often experience a wide range of symptoms, the menopause-related conditions lead to reduced quality of life among women. Seventy-five subjects of age 45-60 years were taken from aluva taluk (Ernakulam) for the study. Anthropometric was also taken.WHO QOL BREF (WHO quality of life) scale was used to find the factors affecting the quality of post-menopausal women , for that the correlation between WHO QOL BREF scale with MRS (menopause rating scale)and DASS (depression ,anxiety and stress scale) scale was found , the results obtained shows that there is a negative correlation between them.Nutritional status of 75 subjects using the 24 hr recall it was found that the nutrient intake is not adequate as per RDA.The intake of calcium and phytoestrogen was also found to be less. The study concluded that menopause related symptoms had a negative effect on quality of life of post-menopausal women. Hence this study can help in creating more awareness in educating women about the impact and diagnosis of the common menopausal symptoms and the importance of phytoestrogens to maintain good nutritional status.

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INTRODUCTION

1.INTRODUCTION

Menopause is the permanent cessation of menses for 12 months resulting from oestrogen deficiency and is not associated with a pathology. The median age of menopause is 51. Most women experience vasomotor symptoms, but menopause affects many other areas of the body, such as urogenital, psychogenic, and cardiovascular. As women grow older, their ovarian follicles diminish in number. There is a decline in granulosa cells of the ovary, which were the main producers of estradiol and inhibin, with the lack of inhibition from oestrogen and inhibin on gonadotropins, follicle-stimulating hormone (FSH), and luteinizing hormone (LH) production increases. FSH levels are usually higher than LH levels because LH is cleared from the blood faster. The decline in oestrogen levels disrupts the hypothalamic-pituitary-ovarian axis. As a result, a failure of endometrial development occurs, causing irregular menstrual cycles until they stop altogether (Peacock K et al., 2021).

Menopause may occur due to surgical procedures such as a hysterectomy with bilateral oophorectomy. Menopause can be caused via treatment for certain conditions, like endometriosis and breast cancer with antiestrogens, and other cancers due to chemotherapy medications (Peacock K et al., 2021) .WHO (1990) has defined the term menopause (natural menopause) as permanent cessation of menstruation resulting from the loss of ovarian follicular activity. Natural menopause is recognized to have occurred after 12 consecutive months of amenorrhea, for which there is no other obvious pathological or physiological cause. The term menopausal transition refers to the time before the final menstrual period when variability in the menstrual cycle is usually increased. The time period immediately prior to the menopause and the first year after initiation of menopausal transition is called peri menopause (WHO, 1990).

Post menopause refers to the phase after twelve consecutive months of amenorrhea (WHO, 1981). According to the definition of the WHO (1998), the post-menopausal period lasts until death. The term post menopause is applied to women who still have a uterus, who are not pregnant or lactating and who have not experienced a menstrual bleed for at least twelve months. Natural menopause occurs between 45 and 55 years of age for women and the median age of menopause has been estimated to be around 50 years worldwide.

Globally Statistics shows that the number of postmenopausal women in 1990 is 476 million which will increase to 1200 million in 2030. A large proportion of women lives more than quarter of their life after menopause. Developing countries also expected to show a change in the number of postmenopausal women from 40% to 60% (Sakineh Mohammed (2012)). The average age of menopause is 51 years globally but there is a wide range of age distribution. In US the average life expectancy of woman today is 84 years and approximately 1.3 million women become menopausal each year. According to Mac Mahon, B Worcester ,Globally the natural menopause happens between the age of 45-55years (WHO,1996). As per report of North American Society (2002) the age at natural menopause varies between 40-58 years with a mean age of 51.4 years.

According to Freedman . R (2001) during menopause due to aging the number of ovarian follicles decreased and they become resistant to pituitary gonadotropins.. With ovarian aging, the concentration of FSH increases in the early follicular phase leading to estradiol elevation resulting in a shorter duration of follicular phase with premature growth of follicles. In contrast, the length of the luteal phase and level of progesterone remain the same until in the last phase of ageing process, which ends up with shorter reproductive cycles. The concentrations of inhibins are also affected by ovarian ageing. This decreases the negative feedback effect on hypothalamo pituitary axis resulting increase in FSH. So postmenopausal stage is referred as a state of hyper gonadotrophic hypogondism.

A study conducted in Karnataka by Avin B.R and Chethan,T.K (2016) to assess the menopause related health problems among pre and post menopausal women and the relationship of menopause status with family structure, menstrual history, presence of health problem, past medical history, family history, personal history and dietary habits. The study found the average age of menopause was 45.32 years. Muscle , joint pain, vasomotor symptoms, urological symptoms, vulva vaginal symptoms, hot flushes, were reported by postmenopausal women.

Oaebi M et al., (2018) found that Intensity and duration of menopausal symptoms differ from person to person and in different societies. Some women experience very severe symptoms which have negative impact on women's health and wellbeing resulting in serious issues in life. Therefore menopausal symptoms closely related with the quality of life of postmenopausal women both physiologically and psychologically.

There are racial or ethnic differences in symptom reporting and menopausal status. A study done by Avis et al., (2001) to determine the variation in symptom occurrence and reporting of mid aged women across different menopausal status among 14906 ethnically, racially, and culturally diverse women in the United States. Controlling for age, education, health, and economic status, the classical menopause symptoms like hot flushes and night sweats were more likely to be reported by African-American women and psychosomatic symptoms were reported by Caucasian women. Asian women were significantly less likely to report vasomotor symptoms than any other ethnic groups. Peri menopausal women reported more psychosomatic symptoms than pre- or postmenopausal women .It was also found that Perimenopausal women, hormone users, and women who had a surgical menopause reported significantly more vasomotor symptoms. The symptoms depended not only on the physiologic changes during women's midlife but also on ethnicity.

In a study conducted by Ranasighe et al., (2017) to determine the dietary intake, physical activity, and assess the body mass index (BMI) among postmenopausal women (40–70 years) from Udupi, Manipal areas of Karnataka it was found out that there is a poor intake of energy,carbohydrate, protein, mono unsaturated fat,polyunsaturated fat, sodium and fiber, only calcium and saturated fat intakes were meeting the RDA for postmenopausal women. Based on the observed results among

the postmenopausal women in Udupi and Manipal areas of Karnataka, he also found that all food group intakes were inadequate except milk and milk products, fruits, and sugars. Majority of the postmenopausal women had a normal BMI and they were leading a sedentary life style according to physical activity level assessment.

Mahmoud Mohammed SF and Mohammed NS (2018) did a cross- sectional study on 200 menopausal women .They found that Nearly half of the studied women had severe menopausal symptoms and more than one-third had mild depression and more than half of them had severe anxiety. There were positive statistically significant correlations among total menopausal symptom, anxiety, and depression scores. They also found a statistically significant relations between total menopausal symptom score and both educational level and duration of menopause .They concluded that anxiety and depression are common among the middle aged women so proper screening should be done during the menopause transition period .

The physical and psychological symptoms that sometimes accompany menopause are caused by hormonal changes or by various psychological and socio-cultural factors.Results of the five cross-cultural studies conducted in Israel, North America, Japan, Peru, the Yucatan and the Greek island of Evia indicate that there are enormous difference in the experience of menopause among women in the same culture and among women in different cultures. The author concludes that menopausal symptoms are the result of not only physical factors, but also psychological and cultural influences . Robinson Gail (2002).

Several researchers (Mc Elmurry & Huddleston, 1991) observed emotional lability, nervousness, depression, moodiness, lack of interest in life and feeling of neglect experienced by the women in their menopausal stage. Their compensatory behaviour of improving their physical appearance resulted in feeling of being unfeminine and their unwillingness to participate in sexual activities. Samant (2000), proposed that emotional upset in post menopausal women is due to the fact and the feeling that menopause means end of reproduction, fear of loss of feminity and loss of husband's affection which is particularly exaggerated by old folk.

According to Archer, D.F. (2007) Hormone therapy, estrogen or combination, is the type of therapy most widely prescribed for postmenopausal women in developed countries. Hormone therapy is used to treat the symptoms of menopause (climacteric syndrome), to prevent the occurrence of chronic diseases such as osteoporosis, coronary heart disease, hyperlipidemia, and Alzheimer.

Rietjens et al., (2016) investigated the potential health effects of dietary phytoestrogens .They found that various beneficial health effects have been ascribed to phytoestrogens, such as a lowered risk of menopausal symptoms like hot flushes and osteoporosis,lowered risks of cardiovascular disease,obesity, metabolic syndrome and type 2 diabetes, brain function disorders, breast cancer, prostate cancer, bowel cancer and other cancers. In

contrast to these beneficial health claims they also found (anti)oestrogenic properties of phytoestrogens which raised concerns since they might act as endocrine disruptors, indicating a potential to cause adverse health effects.

Isoflavone is a type of phytoestrogen and some researches indicate that isoflavone is the best type of phytoestrogen which is found in soybeans widely consumed by the people in Asia, including Indonesia. Soy isoflavone is often found in fruits, green tea, soybeans such as tempeh, tofu, and tauco. These meals are daily food in Indonesia and their prices are affordable. Daidzein is one of several potentially-known isoflavones and daidzein glycosides is the second largest one after genistein found in soybeans and their products. (Fritz, M.A. and Speroff, L. (2011))

In a study conducted by Som et al., (2012) in urban West Bengal, it was found that menopause-specific quality of life of women improves with the rise in educational attainment of both spouses. The studies of Papini (2002) and Epinosa Hernandez (2003) it was found that better educated women are more optimistic towards menopause as they are more aware of their health conditions and better equipped to take care of themselves.

Menopausal health assumes greater significance especially for those who suffer symptoms and substantial morbidity. Moreover, menopausal health which signifies overall health and well being status of a woman during and beyond middle age is also linked to various socio-economic, cultural, physiological as well as psychological factors (Sengupta and Srinivasan, 2010).

Samir Tursunov et al., (2014) did a study to determine the degree of nutritional status in postmenopausal women and to determine the degree of correlation between nutritional status and dietary habits of women with menopausal symptoms and the frequency of certain health disorders. The study found that BMI was significantly higher in patients with an increased intake of soft drinks, sweets and white bread and Soy as a food is present in the diet in only 18% of respondents also women who have never had symptoms of menopause and menopausal disorders have significantly lower BMI

SIGNIFICANCE OF THE STUDY

The state of menopause is stressful and produces changes in vital parameters which may
affect their physical and mental health of the menopausal women.In the Indian scenario however, emphasis is given to women during their childbearing years and there is total neglect after this period.There is a need to create awareness among the postmenopausal women about the physiology of menopause so that they can improve the quality of life. Women in their menopausal stage experience a wide range of problems which includes nutritional problems like bad eating habits, their food habits indicate insufficient knowledge of the nutritional needs .Diet during this period is more important because

it help them to cope with the health problems commonly seen in post menopausal women such as the osteoporosis, hot flushes ,urinary problems ,back ache , cardiovascular diseases and vaginal dryness etc.Family support should be ensured by creating awareness in community.Mild exercise should be encouraged and the avoidance of a sedentary lifestyle or living in isolation should be discouraged .This will help in coping with the challenges of this period.

Proper dietary modifications should be done to cope up with the psychological changes that the body undergoes after menopause especially hormonal imbalance and vitamin and mineral deficiencies with this aim ,I opted this topic for research and the topic of my study is " To assess the nutritional status and factors associated with quality of life of post menopausal women" and the major objectives include:

- To assess the factors associated with quality of life of post menopausal women using WHOQOL-BREF (WHO quality of life scale) .
- To assess the nutritional status of the post menopausal women.
- To assess the mental health of post menopausal women using DASS 21 scale.
- To find the severity of menopausal symptoms using MRS (menopause rating scale).
- To upload an informative video in a popular media.

REVIEW OF LITERATURE

2. REVIEW OF LITERATURE

The retrieval of relevant literature pertaining to the study "TO **ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)''** was done from published articles, journals, books, and other related sources. The keywords like symptoms in post-menopausal women, nutritional status of post-menopausal women, stress and anxiety in postmenopausal women and quality of life were used to retrieve the relevant literature from various data bases. The obtained literature reviews were categorized and presented in the following sections:

2.1) Definition of menopause and post menopause.

2.2) To understand quality of life in postmenopausal women.

2.3) To identify the common symptoms and influence of other factors in postmenopausal women.

2.4) Nutritional status and influence of diet in post-menopausal women.

2.5) Psychological disorders in post-menopausal women.

2.6) Health seeking behaviour of post-menopausal women.

2.7) Importance of phytoestrogens and functional foods to improve quality of life.

2.8) Role of hormone replacement therapy in menopausal problems.

2.9) Relationship between nutrition and psychological problems during different menopausal stages.

2.10) To identify the validity of DASS 21 scale, WHOQOL –BREF scale and Menopause rating scale.

2.1) Definition of post-menopausal women

WHO (1990) has defined the term menopause (natural menopause) as "permanent cessation of menstruation resulting from the loss of ovarian follicular activity. Natural menopause is recognized to have occurred after 12 consecutive months of amenorrhea, for which there is no other obvious pathological or physiological cause." The term menopausal transition refers to the time before the final menstrual period when variability in the menstrual cycle is usually increased. The time period immediately prior to the menopause and the first year after initiation of menopausal transition is called peri menopause.

According to Blagosklonny (2010) menopause is not caused by any specific program. It is a quasi-program, caused by ever-increasing resistance of hypothalamus to estrogen (and other hormones) which was initiated during puberty to root menstruation. It means both initiation and termination of the menstrual cycle is caused by increase in resistance of hypothalamus to estrogen. The program which started the reproductive process in women only ended the same.

Post menopause refers to the phase after twelve consecutive months of amenorrhea . According to the definition of the WHO (1998), the post menopausal period lasts until death. The term post menopause is applied to women who still have a uterus, who are not pregnant or lactating and who have not experienced a menstrual bleed for at least twelve months. Natural menopause occurs between 45 and 55 years of age for women and the median age of menopause has been estimated to be around 50 years worldwide. The age at menopause is lower in developing countries with the mean age at menopause being 44-45 years (Singh and Arora, 2005; Agwu et al., 2008).

2.2) To understand quality of life of post-menopausal women

Al Dughaither et al.,(2015) examined the prevalence of menopausal symptoms and its impact on quality of life in Saudi Arabia and it was found that Somatic and psychological symptoms were high and women with mild symptoms, reflecting better quality of life and coping ability with climacteric symptoms.

Kothiyal Pand and Monika Sharma (2013) reviewed the post menopausal symptoms and associated factors. Regular physical activity, balanced diet, sexual health and education improved the quality of life among post-menopausal women .Smoking and alcohol consumption influence the quality of life because of the reaction with female reproductive hormones.

Rao SG et al., (2017) compared the psychological distress and quality of life of women who's attaining natural menopause and induced menopause and found that the menopausal age was lower in induced menopause compared to those who attain natural menopause .
Some of the psychological problems like depression ,anxiety and stress was found to be higher in women with induced menopause compared to the other and some of the most common menopausal symptoms found using MRS were depression ,hot flushes ,vaginal dryness, sleep problems ,bladder problems etc .

A cross-sectional study done by Soheila Nazarpour et al., (2020) to determine the factors associated with quality of life among postmenopausal women ,the relationship between QoL and its potentially correlated factors was examined using t-test, ANOVA, Pearson's correlation, Spearman's correlation coefficient, and multiple linear regression. It was found that a negative correlation was found between the scores of QoL (total and all subscales) and the MRS total scores.. Multiple-linear-regression analysis showed that the total score of QoL decreased with inadequate income, waist-to-hip ratio, and the total score of MRS.There was not any significant correlation between age and QoL.A positive correlation

was found between level of education (among the women and their spouses) and the total score of QoL along with all of its domain scores except the domain of relationships.

2.3)To identify the common symptoms and influence of other factors in post menopausal women

Makara SM et al., (2015)evaluated the influence of selected socio demographic variables on menopausal symptoms and found severe symptoms in women with low level of education, unemployed and with bad or average family situation. The common symptoms found were physical and mental fatigue , depression and muscle and joint pain.

There are racial or ethnic differences in symptom reporting and menopausal status. A study done by Avis et al., (2001) to determine the variation in symptom occurrence and reporting of mid aged women across different menopausal status among 14,906 ethnically, racially, and culturally diverse women in the United States. Controlling for age, education, health, and economic status, the classical menopause symptoms like hot flushes and night sweats were more likely to be reported by African-American women and psychosomatic symptoms were more likely to be reported by Caucasian women. Asian women were significantly less likely to report vasomotor symptoms than any other ethnic groups. Peri menopausal women reported more psychosomatic symptoms than pre- or postmenopausal women it was also found that Peri menopausal women, hormone users, and women who had a surgical menopause reported significantly more vasomotor symptoms. The symptoms depended not only on the physiologic changes during women‘s midlife but also on ethnicity.

According to Grigoriou et al., (2013) 33% women experienced moderate to severe menopause related symptoms in menopausal transition time or early post menopausal phase in a study based in Greece. Four out of ten women in this group (40%) had moderate to severe vasomotor symptoms, while 30 % of women were affected by more than one symptom in different domains like psychological, psychosomatic, sexual and vasomotor .The study also found that early age at menopause had a positive relation with the prevalence of menopause related morbidity.

Zolnierczuk KD et al.,(2014) conducted study on 45 – 65 year old women living in Poland to identify the impact of socio demographic factors on quality of life of the women and he came to a conclusion that women with better education ,employment , better financial status and long lasting relationship had a better quality of life.

Parsa et al.,(2017) conducted a quasi experimental study among 80 postmenopausal Iranian women after group counselling and came to the conclusion about the importance of counselling during the post menopausal period .The training program included 45 - 60 min consulting sessions. In,case group a reduction in physical and sexual symptoms and an increase in psychological and sexual symptoms were found in control group.

A cross sectional study conducted by Oppermann et al., (2012) in Brazil in a multi ethnic group of women to examine the association between psychiatric disorders in different phases of menopause with physical, psychological menopause related symptoms, using a standardized tool found that women in menopausal transition showed higher rates of vasomotor symptoms and vaginal dryness with significant associations with minor psychiatric disorder. The study also found that memory loss was associated with menopausal transition and peri menopause, which has a positive relation with minor psychiatric disorders. The cumulative factors resulting from menopause with low educational status is an indicator of minor psychiatric ailments , low socio demographics and psychological factors leading to more non specific somatic and psychological symptoms in them. The study recommended good education and special focus on critical window of menopausal transition.

Ruby Yu et al., (2010) did a study on 509 post menopausal women (50- 64 years) from china.The interview included the PSS , the center of the Epidemiological study of Depression Scale (CES - D), the state trait Anxiety inventory (STAI), the menopausal symptoms check list and questions on socio demographic characteristics and health behaviors, to examine the psychometric properties of the Perceived Stress Scale (PSS) .They concluded that PSS is an instrument with adequate psychometric properties (consistent internal structure, high reliability and validity).

Rayan et al.,(2010) did a prospective study on post menopausal women to evaluate the association between the depressive symptoms and the endogenous hormones and he found that there is a decreased serum estradiol concentration during the menopausal transition period which resulted in three times increased risk of depressive symptoms and a greater FSH level during the transition period which resulted in depressive symptoms .

In a study conducted by Khan and Hallad (2006) in a village in north Karnataka in 2004-05, it was found that 78% of postmenopausal women and 58% of perimenopausal women did not contacted any health personnel when they had menopausal symptoms like irregular periods the major reasons they pointed out was financial problems ,lack of awareness etc

In a study conducted by Khan.S et al.,(2016) including all the households registered under Urban Health Training Centre (UHTC) and Rural Health Training Centre (RHTC), Department of Community Medicine, JNMCH, Aligarh were taken under the sampling frame it was found that Psychological symptoms were reported by 34.3%, somatological symptoms by 60.1% and urogenital symptoms by 59.6% of the study population. To deal with these problems, majority in urban areas had a opinion that a doctor should be consulted whereas majority in rural areas either said that they did not know what could be done or traditional or home-based measures should be resorted to.They also found that a large majority suffered from ill-health and most rural women had no access to health services lack of knowledge and traditional practices were barriers to utilization of services.

A cross-sectional study was performed by Yoshany et al.,(2020) using stratified random sampling with 343 postmenopausal women who had experienced natural menopause for 1-5 years, and did not have any chronic or debilitating disease .The study was conducted in 2017

in Yazd city, Iran. The data was collected using Walker's Health Promoting Lifestyle Profile II (HPLP2) and Menopause Rating Scale (MRS) questionnaires. A multiple hierarchical linear regression was used to investigate the association between lifestyle and severity of menopausal symptoms and they concluded that healthier lifestyle reduces the severity of menopausal symptoms. Special attention should be payed to have a healthy lifestyles, it also focus on the importance of physical activity and healthy diet in decreasing menopausal symptoms.

2.4) Nutritional status and influence of diet in post-menopausal women

In a study conducted by Ranasighe et al.,(2017) to determine the dietary intake, physical activity, and assess the body mass index (BMI) among postmenopausal women (40–70 years) from Udupi, Manipal areas of Karnataka it was found out that there is a poor intake of energy,carbohydrate, protein, mono unsaturated fat, polyunsaturated fat, sodium and fiber, only calcium and saturated fat intakes were meeting the RDA for postmenopausal women. Based on the observed results among the postmenopausal women in Udupi and Manipal areas of Karnataka, he also found that all food group intakes were inadequate except milk and milk products, fruits, and sugars. Majority of the postmenopausal women had a normal BMI and they were leading a sedentary life style according to physical activity level assessment.

Study done on menopausal women and their changing nutritional status by Samir Tursunov et al.,(2014) .It was found that there is a change in the nutritional status of the women mainly due to hormonal changes, bad eating habits, heredity, lifestyle etc. The most common symptoms of menopause are hot flushes, sweats and mood swings.

Tardivo et al.,(2010) Investigated on the associations between healthy eating patterns and indicators of metabolic risk in postmenopausal women and they found that Overweight and obesity were observed in 75.7% of the participants. Excessive %BF and reduced %LM was observed in the post menopausal women ,WC was elevated in 72.3%. It was also found that , 75% of women had high intakes of lipids , predominantly saturated and monounsaturated fat ,plasma TC, LDLC, and TG levels were higher in the women, while HDLC was low in 50.8%. They concluded that the studied post menopausal women had a poor dietary pattern (high in saturated fat) .

Samir Tursunov et al., (2014) did a study to determine the degree of nutritional status in postmenopausal women and to determine the degree of correlation between nutritional status and dietary habits of women with menopausal symptoms and the frequency of certain health disorders. The study found that BMI was significantly higher in patients with an increased intake of soft drinks, sweets and white bread and Soy as a food is present in the diet in only 18% of respondents also women who have never had symptoms of menopause and menopausal disorders have significantly lower BMI

2.5) Psychological disorders in post-menopausal women

An observational study was carried out by Tamaria A et al.,(2007) in North India tertiary care hospital, in the Department of Obstetrics and Gynaecology with 200 postmenopausal females attending the Gynaecology OPD and Menopause Clinic over a period of six months .It was found that the commonest gynaecological presenting symptom was vaginal dryness, while the commonest vasomotor symptom was hot flashes. Fatigability/lack of energy was the most frequently encountered psychological symptom. Amongst the risk factors for psychological disorders, a history of excessive vasomotor symptoms and psychosocial stressors was present in 27% and 14.0% women and it was also found that there is a strong association between vasomotor symptoms and depression . A significant association was also observed between past history of depression and depression and between psychosocial stressors and depression . Poor general health was found in 13% of women.Women's with pre-existing coronary heart disease, osteoporosis, psychological disorders, breast and genital malignancies, surgical/premature menopause (<40 yrs) and noncompliant patients unable to adhere to study protocol were excluded from the study.

Mahmoud Mohammed SF and Mohammed NS (2018) did a cross- sectional study on 200 menopausal women .They found that nearly half of the studied women had severe menopausal symptoms and more than one-third had mild depression and more than half of them had severe anxiety. There were positive statistically significant correlations among total menopausal symptom, anxiety, and depression scores. They also found a statistically significant relations between total menopausal symptom score and both educational level and duration of menopause. Four tools were used for collection of data - interview questionnaire, menopause rating scale, Beck depression inventory scale, and Taylor manifest anxiety scale.They concluded that anxiety and depression are common among the middle aged women so proper screening should be done during the menopause transition period .

According to a cross- sectional observational study done by Rao SG et al., (2017) in 101 women to assess the psychological distress and health-related quality of life in women who have attained natural menopause versus women with induced menopause they found that age of menopause was significantly lower in induced menopause group compared to that in natural menopause group. Depression, anxiety and stress symptoms were the common symptoms found in women with induced menopause as compared to those with natural menopause. Most common menopausal symptoms were exhaustion, depression, joint and muscle discomfort, sleep problems, hot flushes/ night sweats, vaginal dryness, bladder problems etc which was identified using MRS. The prevalence of symptoms was high in both group especially in women with surgical menopause and sexual symptoms were reported higher by women with induced menopause (94%) as compared to those with natural menopause (6%).

A community based cross-sectional study was conducted by Arpita Nath et al., (2017) amongst 260 postmenopausal women to assess the Psychosomatic Problems of Postmenopausal Women in Slums of Dibrugarh Town, Assam they found that , the mean age

of attaining menopause was 45.13 ± 3.84 years and the relevance of psychosomatic problems among postmenopausal women were fatigue (60.4%), muscle and joint pain (55.8%), irritability (53.5%), depression (48.5%), weight gain (45.4%), low backache (43.8%), sleep disturbance (41.9%), forgetfulness (40.4%) and constipation (5.0%). Sociodemographic factors were significantly associated to some of the psychosomatic problems .They came to a conclusion that women need to recognize these symptoms early and seek timely medical care.

A cross-sectional on 1280 postmenopausal women aged between 40 and 65 years was done by Afshari Pet et al.,(2014) to assess the prevalence of depression in the post menopausal women. .Hamilton depression scale and demographic questionnaire were used for gathering information and the data were analyzed using SPSS software. The results showed that 59.8% of the 1280 samples were depressed and 39.8% had mild depression, 16% moderate depression, and 4% severe depression. It was also found that there is a significant and inverse relation between variables of age, exposure to cigarette smoking, and the relationship with their spouses and the level of their depression, so higher age, more exposure to smoking, and better relation with their husbands, lead to the less depression. The results showed that the level of education is associated with depression and the highest rate of depression was in illiterate women, the finding also showed that there is a relationship between income and the severity of depression .

2.6) Health seeking behaviour of post-menopausal women

In a cross sectional study done by Goyal A et al., (2017) to determine the nutritional status and health seeking behaviour of postmenopausal women in North India it was found that postmenopausal women suffer from various physical as well as problems related to menopausal hormonal changes with varied frequencies and there is a need to address their problem and establish health care centers for them.

A study done by Ahlawat P et al., (2016) on the Prevalence of Postmenopausal Symptoms, Health Seeking Behaviour and associated Factors among Postmenopausal Women in an Urban Resettlement Colony of Delhi it was found that the most prevalent symptoms shown by the women are joint pain,weakness,hot flashes and psychological and cognitive symptoms such as irritability and sleep problems .In the study it was also found that 2/3rd did not seek any treatment for the health problems faced during this period.

In the study done to determine the health seeking behaviour among post-menopausal women:a knowledge, attitude and practices study by Khan S et al., (2016) it was found that majority of women took treatment without the consultation of doctor they also had a opinion that all these problems are common and they are self limited suffered from ill health .Lack of knowledge, financial problems and certain traditional practices were the barriers to the utilization of services.

A cross sectional study which aims to find out the pattern of health care seeking behaviour for reproductive health related problems in Beirut, Lebanon by El-Kak et al., (2009) it was found that

around one third of the participants with accessibility to public subsidized care , didn‘t cared about reproductive health problems because of financial constrains. The determinants of positive health seeking behaviour for women were younger ages, severity of the health issue, and presence of health insurance and more than half of the women sought care in private sector and determinants of public sector preference were financial crisis and higher parity.

In a community based cross-sectional study conducted by Khan Set et al.,(2016) in the registered field practice areas of the Department of Community Medicine, Jawahar Lal Nehru Medical College and Hospital, Aligarh from June, 2012 to May, 2013 to find out the health seeking behaviour among post-menopausal women. The tool used for the study was pre-tested and semi-structured proforma and standard Menopausal Rating scale (MRS) questionnaire.The study concluded that psychological symptoms were reported by 34.3%, somatological symptoms by 60.1% and urogenital symptoms by 59.6% of the study population. Majority in urban areas consulted a doctor whereas majority in rural areas either said that they did not know what could be done or traditional or home-based measures should be resorted to deal with the post menopausal symptoms.

A community based cross-sectional study conducted by .ApoorvaMS and Thomas V (2019). To assess the health seeking behaviour among 600 post menopausal women in rural and urban from Hyderabad(300 postmenopausal women from Narsingi (rural) and 300
from Bholakpur (urban)) were included in the study.They found that among the rural women, 100 (25.4%) women did not seek health care and among those who sought health care majority (34.3%) preferred government healthcare services and 23% who consulted private facility. Of the urban women, 14.7% did not seek health care, 42% of the women approached private practitioner followed by 23% who sought health care in government hospital. Majority of the women (42.2%) did not seek health care as they thought they will be normal with time more than one third of the women are not aware of menopause and related problems. Among those who did not seek health care, higher proportion felt they will be Ok with time followed by financial constraints, fear, family problems and lack of transport.

2.7) Importance of phytoestrogens and functional foods to improve quality of life

Dr. Khan Saba Mohd Athar et al.,(2009) did a placebo-controlled randomized single blind study to find out the efficacy of (Withaniasomniferadunn) as an alternative to HRT in the management of postmenopausal syndrome. The study demonstrated significant improvement in hot flushes, night sweats, anxiety, insomnia and serum estrogen levels it also confirms the efficacy of the Asgand as potent anti sedative, anxiolytic and adoptogenic. A Placebo randomized single blind trial was conducted at NIUM to evaluate the efficacy of Kharekhasak in Menopausal transition. The study demonstrated significant improvement in somatic, psychological and urogenital symptoms and confirms the efficacy of the in alleviating menopausal transition related symptoms compared to placebo and can considered as an alternative to HRT for postmenopausal symptoms.

Rietjens et al., (2016) investigated the potential health effects of dietary phytoestrogens .They found that various beneficial health effects have been ascribed to phytoestrogens, such as a

lowered risk of menopausal symptoms like hot flushes and osteoporosis,lowered risks of cardiovascular disease,obesity, metabolic syndrome and type 2 diabetes, brain function disorders, breast cancer, prostate cancer, bowel cancer and other cancers. In contrast to these beneficial health claims hey also found (anti)oestrogenic properties of phytoestrogens which raised concerns since they might act as endocrine disruptors, indicating a potential to cause adverse health effects.

Dalais FS et al., (1998) investigated the effects of dietary phytoestrogens in postmenopausal women . Double-blind, randomized, entry-exit, cross-over study was conducted to assess the effects of three dietary manipulations--soy and linseed diets (high in phytoestrogens) and a wheat diet (low in phytoestrogens) .Postmenopausal women were recruited and randomly assigned to one of the three dietary regimens and urinary phytoestrogen concentrations, hot flush rate, vaginal smears, bone mineral density and bone mineral content were assessed for two 12-week periods. It was found that Comparative analysis showed no significant differences, but, when analyzed separately, groups consuming high phytoestrogen diets had between 10 and 30 times higher urinary excretion of phytoestrogens compared to those consuming the low phytoestrogen diet . Study participants consuming soy, linseed and wheat diets had a reduction in hot flush rate and increase in vaginal cytology maturation index and increase in bone mineral content, respectively and no changes were detected in bone mineral density.

Ghazanfarpour M et al.,(2016) investigated Effects of flaxseed and Hypericum perforatum on hot flash, vaginal atrophy and estrogen-dependent cancers in menopausal women .The results show that flaxseed has beneficial effect on hot flash frequency and intensity, which was not statistically significant and according to two trials, flaxseed showed estrogenic effects , however, cancer promoting or protecting effects were not found.

2.8) Role of hormone replacement therapy in menopausal problems

A comparative clinic biochemical and cytological evaluation of different types of HRT in post menopausal women did by Lalmani (2013) .A total 50 patients with more than 6 months of amenorrhea and panhysterectomy at least one month back with one or more than one climacteric symptoms were selected for the study .She concluded that HRT is essential for menopausal women (surgical or natural)not only for early symptom but also prophylaxes for late concequence such as cardiovascular diseases and osteoporosis.

According to a study did by Pathak and Jaya (2013) to study the effect of hormone replacement therapy versus Raloxifene therapy on post menopausal symptoms ,lipid profile,bone mineral density and endometrial biopsy in subjects with natural or surgical menopause ,having post menopausal symptoms . 50 subjects were taken for the study and was divided into 2 groups .Group 1 were given oral conjugated equine estrogen .625 mg per day AND group 2 included 25 subjects who were given tab Raloxifene ..It was found that there was marked improvement in hot flashes ,sweating, nervousness and palpitation in group 1 during and after the therapy whereas there was no significant improvement in group 2 .In group 1 individuals level of LDL – C decreased by 7.72% and this decrease was statistically significant .Almost similar decrease of 7.5% was noted in group 2 and was ststistically significant .

2.9) Relationship between nutrition and psychological problems in postmenopausal women

A cross sectional study was carried out at Sri Aurobindo Medical College and P. G. Institute, Indore, India and in different urban areas of Indore city on 200 postmenopausal women aged from 40 to 70 years by Rithu Sharma et al., (2015) it was found that the mean age and body mass index of postmenopausal women were 52.97 and 4.6 Kg /m2.Most of them suffered from anaemia and had a serum calcium level below normal .They also found an association between age ,haemoglobin ,anaemia and stress . Approximately three-fourth (141, 70.5%) postmenopausal had high level of anxiety. They concluded that the state of menopause is stressful and produces changes in vital parameters which may affect their physical and mental health.

Sharma Rhitu (2016) did a study to determine the lipid profile and nutritional status of post menopausal women in relation to their stress level and found that there is no significant difference in nutritional status, health status and life style pattern of postmenopausal women and also there is no significant association of some factors of nutritional status, health status and life style pattern with stress of post-menopausal women.

2.10) To identify the validity of DASS 21 scale, WHOQOL –BREF scale and Menopause rating scale

A study did by Minh Thi Hong Le et al.,2017 on reliability, convergent validity and factor structure of the DASS-21 on Vietnamese adolescents.The results from their study provide evidence that the DASS-21 is suitable for use as a screening tool for symptoms of common mental health problems, especially Depression and Anxiety among adolescents in Vietnam. The study also extends knowledge on the reliability and convergent validity of the DASS-21 among Vietnamese people.

A study did by Alfonsson et al .,(2017) on factor structure and validity of the Depression, Anxiety and Stress Scale-21 ,he concluded that the DASS-21 may be used to measure unique symptoms of depression, anxiety and, with some caveat, stress as well as overall psychological distress. This study confirms that the DASS-21 is theoretically sound instrument that is feasible for both research and clinical practice. The DASS-21 can be an accessible tool for screening and evaluation in first-line mental health services.

A study did by Kalfoss, M.H et al., (2021) on validation of the WHOQOL-Bref: psychometric properties and normative data for the Norwegian general population and they concluded that the WHOQOL-Bref is suitable to use across gender, education ,age and an acceptable convergent and discriminate validity and internal consistency of the physical, psychological and environmental domains, but a marginal reliability was found for the social domain.

A study did by Amir et al., (2003) on Reliability, Validity and Reproducibility of the WHOQOL-BREF in Six Countries it was found that the WHOQOL-Bref psychometric properties demonstrated good internal consistency and reproducibility. The WHOQOL-Bref physical domain scores were more strongly related to the SF-12 physical scores and psychological domain scores were more strongly correlated to all mental health measures , it was concluded that the WHOQOL-BREF is a reliable and valid measure in a primary care population in the six countries.

The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial, by Skevington,et al ., (2004) the results indicate that overall, the WHOQOL-BREF is a sound, cross-culturally valid assessment of QOL, as reflected by its four domains: physical, psychological, social and environment.

In the Indian scenario however, emphasis is given to women during their childbearing years and there is total neglect after this period . Therefore, there is an urgent need to study the health of women who have completed their reproductive period and have started ageing. Women in their menopausal stage experience a wide range of problems which includes nutritional problems like bad eating habits, their food habits indicate insufficient knowledge of the nutritional needs .Diet during this period is more important because it help them to cope with the health problems commonly seen in post menopausal women such as the osteoporosis, hot flushes ,urinary problems ,back ache , cardiovascular diseases and vaginal dryness etc, with proper diet (phytoestrogens ,calcium ,iron etc) and with the support of the family they would be able to have a better quality of life .It was also found that most of the women had a lack of knowledge and poor health seeking behaviour which can be corrected with a good counselling given to the women.

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METHODOLOGY

3. METHODOLOGY

Research is the investigation of an idea, subject or topic for a purpose. It enables the researcher to extend knowledge or explore theory. It offers the opportunity to investigate an area of interest from a particular perspective. (Cohen L et al., 2017)

The procedures and methods followed during the study entitled "**TO ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)**" is explained under the following headings :

3.1) Assessment of quality of life post-menopausal women.

3.1.1) Assess the nutritional status of the post-menopausal women.

3.1.2) To assess the mental health of post-menopausal women and their help seeking behaviour .

3.1.3) To assess the severity of menopausal symptoms.

3.1.4) To assess the factors associated with the quality of life of post-menopausal women (psychological and other health issues).

3.2.) Selection of subjects

3.3) Selection of area

3.4) collection of data

3.5) Analysis and interpretation of data

3.6) Development of an Education Tool to Create a General Awareness among the Public

3.1) Assessment of quality of life of the post-menopausal women

The world health organisation (1993) defines quality of life as "Individuals perception of their position in life in the context of the culture and value system in which they live and

in relation to their goals ,expectations ,standards and concerns '' .
To assess the quality of the post menopausal women using WHOQOL- BREF(WHO Quality of Life Scale 1996).

WHOQOL-BREF

WHO (1995) defines Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. The WHOQOL is a quality of life assessment developed by the WHOQOL Group with fifteen international field centres, simultaneously, in an attempt to develop a quality of life assessment that would be applicable cross-culturally.
WHOQOL-100 allows a detailed assessment of individual facets relating to quality of life, it may be too lengthy. In these instances, assessments will be more willingly incorporated into studies if they are brief, convenient and accurate (Berwick et al., 1991). The WHOQOL-BREF Field Trial Version has therefore been developed to look at domain level profiles which assess quality of life.

Scoring the WHOQOL-BREF

The WHOQOL-BREF (Field Trial Version) produces a quality of life profile. It is possible to derive four domain scores. There are also two items that are examined separately: question 1 asks about an individual´s overall perception of quality of life and question 2 asks about an individual´s overall perception of their health. The four domain scores denote an individual´s perception of quality of life in each particular domain. Domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain score. Mean scores are then multiplied by 4 in order to make domain scores comparable with the scores used in the WHOQOL-100.The raw score is then converted to transformed score. The first transformation method converts scores to range between 4-20, comparable with the WHOQOL-100. The second transformation method converts domain scores to a 0-100 scale. Those who obtained scores from 0 to 33.3% were considered poor QOL, from 33.3 to 66.7% were considered average QOL, and more than 66.7% were considered to have good QOL(Sharma S et al., 2015).

3.1.1) To assess the nutritional status of the post-menopausal women

The nutritional status of the post-menopausal women was assessed with the assessment tools and considering its effect on the health status.

Nutritional assessment included –
(i)Anthropometric measurements-Height, Weight, Waist Circumference.
(ii) Dietary Assessment-In my study food frequency questionnaire and 24 hr recall was used for dietary assessment .

FOOD FREQUENCY QUESTIONNAIRE

This is a detailed information about frequency of food intake..The food frequency questionnaire is used to collect information regarding the nutritional status , more emphasis in given to foods rich in calcium ,healthy fats and inclusion of phytoestrogens in their diet. Phytoestrogens are plant-derived compounds with estrogenic activity found in natural dietary sources. Common phytoestrogen sources include soybeans, soy products, alfalfa fodder, flaxseed etc(Button, B.J and Patel N, 2004). Excess body weight is associated with numerous health risks, such as insulin resistance, type 2 diabetes (DM2), dyslipidemia, hypertension, cholelithiasis, some types of neoplasms, hepatic steatosis, gastroesophageal reflux, obstructive sleep apnea, gout and polycystic ovary syndrome (PCOS)(Mastorakos G et al., 2010) . Adequate calcium has been considered as a key component of any bone protective therapeutic regimen.Calcium has also been associated with beneficial effects in several non skeletal disorders, primarily hypertension, colorectal cancer, obesity, and nephrolithiasis, although the extent of those effects has not been fully elucidated. The calcium requirement rises at menopause. (North American Menopause Society ,2006).

24 hr RECALL

The 24-hour Dietary Recall method provides comprehensive, quantitative information on individual diets by querying respondents about the type and quantity of all food and beverages consumed during the previous 24-hour period (Gibson and Ferguson, 2008). A standard multiple pass 24hr includes having the respondent iteratively provide increasingly granular data about each food or drink and its preparation method and other attributes, as well as an estimation of the portion size consumed. The multiple pass approach has been validated in many low- and middle-income countries (Gibson et al., 2017).The questionnaire also included questions to assess the water consumption and food pattern.

3.1.2) To assess the mental health of post-menopausal women

Emotional and Psychological Symptoms such as irritability, depression, fatigue, headache and Sleep disturbance due to flushes and night sweats are seen in post menopausal women.To identify the psychological aspects (Anxiety ,depression and stress) of post menopausal women , rating is done using DASS21 scale .

DASS21 questionnaire

The Depression Anxiety Stress Scale (DASS) was developed by Lovibond et al.,(1995). It is a quantitative measure of distress along the 3 axes of depression, anxiety1 and stress2. Subjects are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week and scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items.

Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are as follows:(Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2nd Ed.) Sydney: Psychology Foundation.)

3.1.3) To assess the severity of menopausal symptoms

To assess the severity of menopausal symptoms menopause rating scale (MRS) was used.

Menopausal rating scale (MRS) questionnaire

MRS(Menopause Rating Scale) is developed by Hauser. G A et al., (1994).It is a self-administered instrument which has been widely used and validated. It is used in many clinical and epidemiological studies, and in research on aetiology of menopausal symptoms to assess the severity of menopausal symptoms. The MRS is composed of 11 items and was divided into three subscales :

(a) Somatic-hot flushes, heart discomfort /palpitation, sleeping problems and muscle and joint problems.

(b) Psychological- depressive mood, irritability, anxiety and physical and mental exhaustion

(c) Uro-genital - sexual problems, bladder problems and dryness of vagina.

They are assessed through Likert scale and each of 11 symptoms contained a scoring scale from ‘0’ (no complaints) to ‘4’ (very severe symptoms). The original German MRS scale was initially translated and culturally adapted into English is used for the study.

3.1.4) To assess the factors associated with the quality of life of post-menopausal women

To assess the factors associated with the quality of life of post-menopausal women. The relationship between quality of life and its potentially correlated factors was examined using Pearson’s correlation and multiple linear regression.

3.2) Selection of subject

A "sample" is a miniature representation of and selected from a larger group or aggregate. It is one of the most important factors which determines the accuracy of research .The process of selecting a sample is known as Sampling (Seema Singh ,2018).Seventy five post-menopausal women were selected , within the age group of 45-65 years for the survey. This included women's who had undergone surgical menopause and natural menopause.

3.3) Selection of Area

Ernakulam (aluva taluk) area was selected for collecting the subjects. This area was selected because it was easily convenient and the availability of subjects were more. Data was also collected from Carmel Hospital, Ashokapuram. This hospital was selected because it is nearby.

3.4) Collection of data

The data was collected with the help of questionnaire. Printed questionnaire was given to some of the people (25 subjects) and to the rest questionnaire was given in the form of google forms (50 subjects).

Data collected for the study include;

- Background information of the selected subjects such as age, marital status, sex, educational qualification, occupation, family income etc.
- To identify the prevalence of symptoms MRS (MENOPAUSE RATING SCALE) is used for the study and to assess the mental health DASS21 scale is used.
- Food frequency questionnaire and 24 hrRecall is used to collect the data regarding the nutritional status of the post-menopausal women.
- WHOQOL- BREF(WHO Quality of Life Scale) was used to assess the quality of life of the post-menopausal women.

Anthropometric measurements

Anthropometric measurements are a series of quantitative measurements of the muscle, bone, and adipose tissue used to assess the composition of the body. The core elements of anthropometry are height, weight, body mass index (BMI), body circumferences (waist, hip, and limbs), and skinfold thickness. These measurements are important because they represent diagnostic criteria for obesity, which significantly increases the risk for conditions such as cardiovascular disease, hypertension, diabetes mellitus, and many more.(Casadei K et al.,2020). The parameters used for anthropometric measurements are discussed below:-

Height

In layman's terms, height or stature is defined as the measurement of an individual from head to foot . Height serve an indicator of two key welfare components, namely nutritional quality and health. To measure height, a portable height/length measuring board is used. The height measurements were taken using a measuring tape.

Weight

Weight is a most important factor for identifying obesity. Weight is measured in kilograms (kg). Weight that is higher than what is considered as a healthy weight for a given height is described as overweight or obese .Weight that is lower than what is considered as healthy for a given height is described as underweight(Centre for disease control and prevention,2020).The weight measurements were taken using a weighing machine.

Body Mass Index

According to WHO (2007) ,BMI formerly called the Quetelet index, is a measure for indicating nutritional status in adults. It is defined as a person's weight in kilograms divided by the square of the person's height in metres (kg/m2). The BMI ranges are based on the effect excessive body fat has on disease and death and are reasonably well related to adiposity. BMI was developed as a risk indicator of disease; as BMI increases, so does the risk for some diseases. Some common conditions related to overweight and obesity include: premature death, cardiovascular diseases, high blood pressure, osteoarthritis, some cancers and diabetes.

TABLE 1

Based on BMI an individual can be classified as, WHO (2004)

BMI CLASSIFICATION Kg/m2	**NUTRITIONAL STATUS**
< 18.5	underweight.
18.5 -24.90	Normal weight
25.0 – 29.9	Pre - obesity
30.0-34.9	Obesity Class 1
35.0- 39.9	Obesity Class II
Above 40	Obesity Class III

Waist circumference

The WHO STEPS protocol for measuring waist circumference instructs that the measurement be made at the approximate midpoint between the lower margin of the last palpable rib and the top of the iliac crest (WHO, 2008).The measurements were taken using measuring tape .

TABLE 2

World Health Organization cut-off points and risk of metabolic complications, WHO (2004)

Indicator	**Cut-off points**	**Risk of metabolic complications**
Waist circumference	>94 cm (M); >80 cm (W)	Increased
Waist circumference	>102 cm (M); >88 cm (W)	Substantially increased

Biochemical Parameters

An ideal biochemical test should be sensitive ,specific ,easy to carry out ,inexpensive ,non invasive and should reveal information of the extent of tissue unsaturation rather than short term fluctuations in the diet.

In this study biochemical values such as BP ,cholesterol and blood sugar level are collected from 75 post menopausal women (45-65years) .These specific biochemical markers have been used as a surrogate to measure the dietary intake of selected nutrients or dietary components (Jee-Seon Shim et al., 2014).The biochemical values(cholesterol, BP, blood sugar level) were taken from the hospital chart of the hospitalised patients and from the data given by the subjects in the google form .

Dietary Assessment

Diet is a major lifestyle related risk factor of various chronic diseases. Consuming a nutrient dense diet was associated with a low risk of all-cause mortality (Jee-Seon Shim et al., 2014).

In this study the frequency of the food consumption was assessed by food frequency record coming under the basic food groups and 24 hr recall method was used.

3.5) Analysis and interpretation of data

The whole survey was studied through SPSS (statistical package for the social sciences) programme. Continues data was summarised using descriptive statistics, it includes mean, standard deviation, minimum and maximum. Categorical data was summarised using counts, corresponding percentages. Mean values will be reported as (mean ± sd).

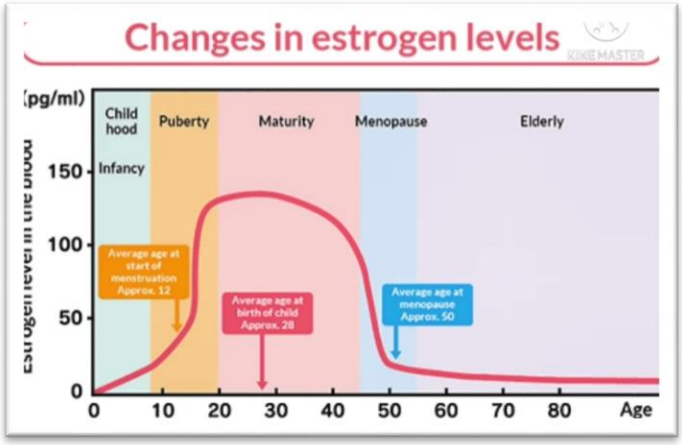
Collected data were tabulated and percentage is graphically represented. The statistics used for the study include,

- Chi-squared test.
- Pearson's correlation coefficient.
- One sample student's t test.

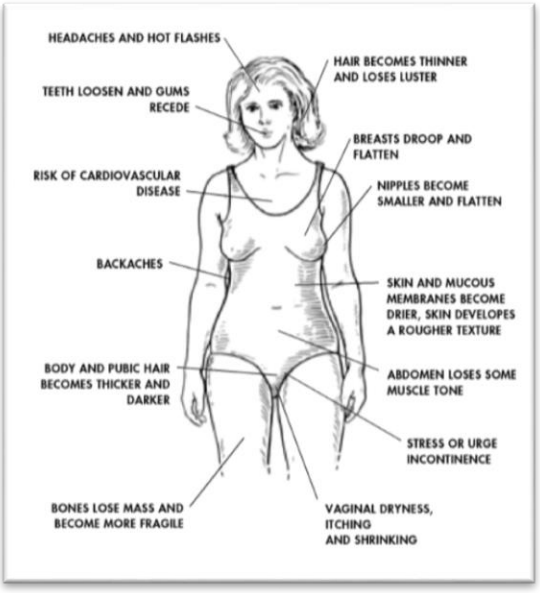
3.6) Development of an Education Tool to Create a General Awareness among the Public

Since Social media is a public platform and the reach of the message is high, the investigator developed an educational video and uploaded in YouTube and used an education tool. The contents include:

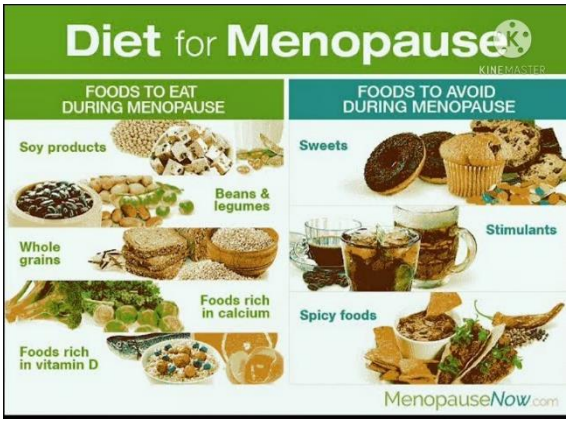
- Introduction
- Symptoms
- Treatment
- Importance of phytoestrogen.
- Phytoestrogen rich foods.
- Hormone replacement therapy.
- Health and nutritional management**.**


Changes in estrogen levels
(pg/ml)
Child hood
Puberty
Maturity
Menopause
Elderly
Infancy
150
100
50
0
Average age at start of menstruation Approx. 12
Average age at birth of child Approx. 28
Average age at menopause Approx. 50
0 10 20 30 40 50 60 70 80 Age


ആർത്തവ വിരാമം


HEADACHES AND HOT FLASHES
HAIR BECOMES THINNER AND LOSES LUSTER
TEETH LOOSEN AND GUMS RECEDE
BREASTS DROOP AND FLATTEN
RISK OF CARDIOVASCULAR DISEASE
NIPPLES BECOME SMALLER AND FLATTEN
BACKACHES
SKIN AND MUCOUS MEMBRANES BECOME DRIER, SKIN DEVELOPES A ROUGHER TEXTURE
BODY AND PUBIC HAIR BECOMES THICKER AND DARKER
ABDOMEN LOSES SOME MUSCLE TONE
STRESS OR URGE INCONTINENCE
BONES LOSE MASS AND BECOME MORE FRAGILE
VAGINAL DRYNESS, ITCHING AND SHRINKING


DIET and MENOPAUSE
What to Eat and What to Avoid During Menopause
WHAT TO EAT
FRUITS & VEGETABLES
FISH & FISH OIL
FIBER-RICH FOODS
PLENTY OF WATER
POULTRY PRODUCTS
LEAN RED MEAT
LEGUMES
MILK & DAIRY
WHAT TO AVOID
FATTY FOODS/MEATS
CAFFEINE
FAST FOOD MEALS
ALCOHOL
TOO MUCH SWEETS
PROCESSED FOODS
SPICY FOODS
SUGARY DRINKS


Diet for Menopause
FOODS TO EAT DURING MENOPAUSE
FOODS TO AVOID DURING MENOPAUSE
Soy products
Beans & legumes
Whole grains
Foods rich in calcium
Foods rich in vitamin D
Sweets
Stimulants
Spicy foods
MenopauseNow.com

RESULT AND DISCUSSION

4. RESULT AND DISCUSSION

The data collected regarding the study entitled "**TO ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)** "was tabulated and discussed under the following headings:

4.1 SOCIO DEMOGRAPHIC DETAILS

4.2ANTHROPOMETRIC ASSESSMENT

4.2.1 Classification Based on Height

4.2.2 Classification based on Weight

4.2.3 Classification based on waist circumference

4.2.4 Classification based on BMI

4.3 BIOCHEMICAL ASSESSMENT

4.3.1 Fasting blood sugar values computed among the subjects

4.3.2 Diastolic Pressure values computed among the subjects

4.3.3 Systolic blood Pressure values computed among the subjects

4.3.4 Blood Cholesterol level values computed among the subjects

4.4 ASSESSMENT OF HEALTH STATUS OF THE SUBJECTS

4.4.1 Classification based on routine exercise of the subjects.

4.4.2 Classification based on subjects undergone oophorectomy/hysterectomy

4.4.3 Intake of Nutritional Supplements during the post-menopausal period.

4.5 WHO-QOL BREF SCALE- QUALITY OF ASSESSMENT SCALE

4.5.1 .Data collected using WHO – QOL BREF scale

4.6 RESULTS OBTAINED USING MENOPAUSE RATING SCALE

4.6.1 Somatic symptoms experienced by the post-menopausal women -Hot flushes.

4.6.2 Somatic symptoms experienced by the post-menopausal women - Heart discomfort.

4.6.3 Somatic symptoms experienced by the post-menopausal women - Sleeping problems.

4.6.4 Psychological problems experienced by the post-menopausal women - Depressive mood.

4.6.5 Psychological problems experienced by the post-menopausal women- Irritability.

4.6.6 Psychological problems experienced by the post-menopausal women- Anxiety.

4.6.7 Physical and mental exhaustion experienced by the subjects(psychological).

4.6.8 Sexual problems experienced by the subjects (urogenital).

4.6.9 Bladder problems experienced by the subjects (urogenital).

4.6.10 Dryness of vagina experienced by the subjects (urogenital).

4.6.11 Joint and muscular discomfort experienced by the subjects.

4.7 RESULTS OBTAINED USING DASS SCALE (Depression, Anxiety, Stress Scale).

4.7.1 Frequency and percentage of subjects experiencing Depression.

4.7.2 Frequency and percentage of subjects experiencing Anxiety.

4.7.3Frequency and percentage of subjects experiencing Stress.

4.8 NUTRITIONAL STATUS

4.8.1 Data obtained using 24 hr recall of the subjects.

4.8.2 Results of data obtained using food frequency questionnaire.

4.8.2.1 Data obtained using food frequency questionnaire– Frequency of intake of phytoestrogens.

4.8.2.2 Data obtained using food frequency questionnaire– Frequency of intake of calcium rich foods.

4.9 SUMMARY STATISTICS

4.9.1 Mean Anthropometric levels of selected subjects

4.9.2 Mean Biochemical level of the subjects

4.1 Socio demographic details.

Table no: 1 Socio demographic details of the subjects.

PARAMETERS	FREQUENCY	PERCENTAGE(%)
Age(years)		
44-49	9	12%
50-54	41	54.6%
55-65	25	33.3%
Marital Status		
Married	55	73.3%
Unmarried	6	8%
Widow	14	18.7%
Place of residence		
Rural	54	72%
urban	21	21%
Monthly income		
> 78,063	14	18.7%
11, 708 - 19,515	9	12%
19,516 - 29 , 199	11	14.7%
29,200 - 39,032	12	16%
3,908 - 11,707	8	10.7%
39,033 - 78,062	21	21%
Occupation Status		
ACCOUNTANT	1	1.3%
BUSINESS	1	1.35
HOMEMAKER	66	88%
HOME BAKER	1	1.3%
PRIVATE SECTOR	1	1.3%
RETIRED TEACHER	1	1.3%
SELECTION GRADE TYPIST	3	4%
TEACHER		

From the above table 1, it was found that 9 subjects were between age group 44-49 years,41 subjects were between age 50-54 years and rest of them were having age between 55-65 years.The participant profile in terms of marital status it was found that 73.3 % were married,18.7 % were widow and 8% wereunmarried. Majority of residence (72%) were from rural area and minority of people were from urban area (21%). From the data collected based on the family income it was found that 18.7 % had monthly income greater than 78,063 and 28 % had monthly income between 39,033

– 78,062. Most of them were home maker, other jobs include accountant,home baker, private sector, retired teacher,selection grade typist etc.

4.2 Anthropometric assessment.

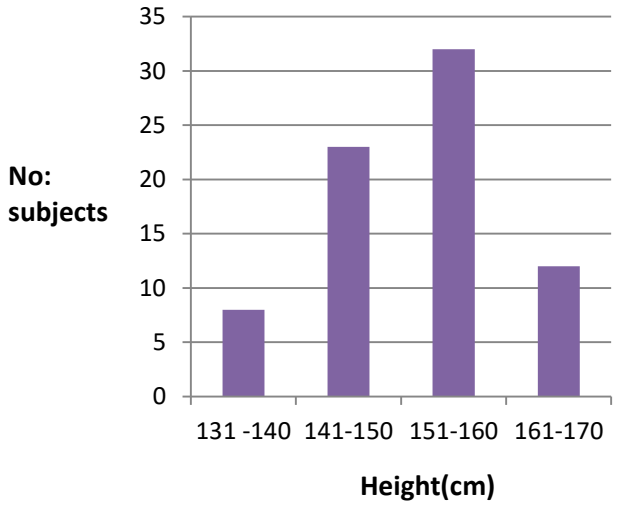
Anthropometric measurements are a series of quantitative measurements of the muscle, bone, and adipose tissue used to assess the composition of the body. The core elements of anthropometry are height, weight, body mass index (BMI), body circumferences (waist, hip, and limbs), and skinfold thickness (Casadei K et al.,2020). Here height, weight, BMI and waist circumference of the subjects were taken for the study.

4.2.1 Classification Based on height.

Table no 2: Classification of subjects based on height.

Height (cm)	No. of Subjects	Percentage
131 -140	8	10.6
141-150	23	30.6
151-160	32	42.66
161-170	12	16

Figure no :1 Classification of subjects based on height.



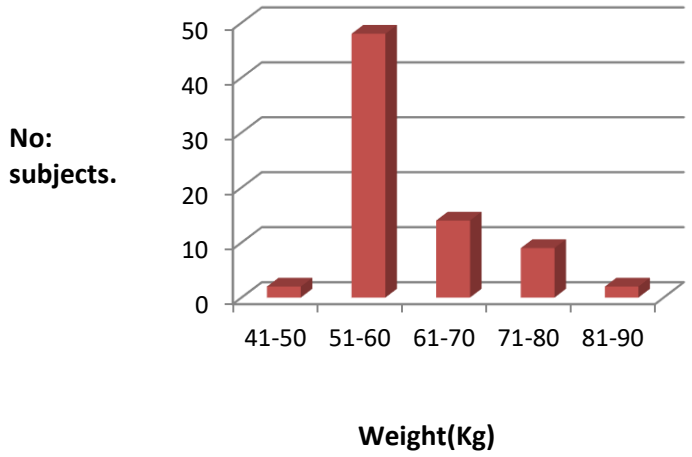
From the above table no: 2 and figure no 1: it is clear that 42.6 % of the subjects have a height in between 151-160 cm and 16% of them had a height between 161- 170 cm. Height serve an indicator of two key welfare components, namely nutritional quality and health. The height measurements were taken using a measuring tape.

4.2.2 Classification based on Weight.

Table no 3: Classification of subjects based on weight.

Weight (Kg)	No. of Subjects	Percentage
41-50	2	2.66
51-60	48	64
61-70	14	18.6
71-80	9	12
81-90	2	2.66

Figure no 2: Classification of subjects based on weight.



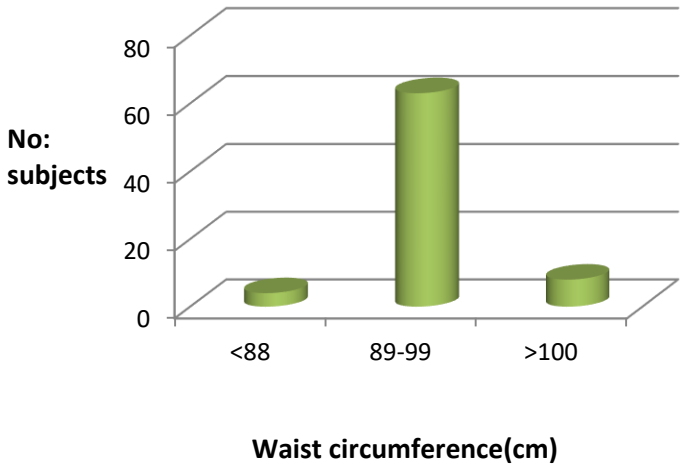
Weight is a most important factor for identifying obesity here the measurements were taken using a weighing machine. From the above table no 3 and Figure no 2, it was found that 64% of the subjects had weight between 51-60kg, and 2.6 % of them had a weight between 41-50 kg respectively.

4.2.3. Classification based on waist circumference

Table no 4: Classification of the subjects based on Waist circumference

Waist circumference(cm)	No. of Subjects	Percentage
<88	4	5.3
89-99	63	84
>100	8	10.66

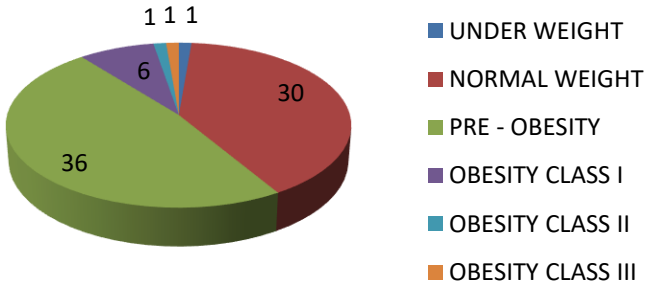
Figure no 3: Classification of the subjects based on Waist circumference



Waist circumference is an important factor for the determination of metabolic syndrome. Here from the above table no 4, and figure no 3, it was found that most of the subjects had a waist circumference between 89-99 cm and the least number of them had circumference >88cm.

4.2.4. Classification based on BMI

Figure no 4: Classification of subjects based on BMI



According to WHO (2007),BMI formerly called the Quetelet index, is a measure for indicating nutritional status in adults.

From the above figure no 4, it was found that 48 % of the subjects were pre obese and the percentage of class I,class II and class III obesity was found to be 8%, 1% and 1% respectively.

4.3 Biochemical assessment .

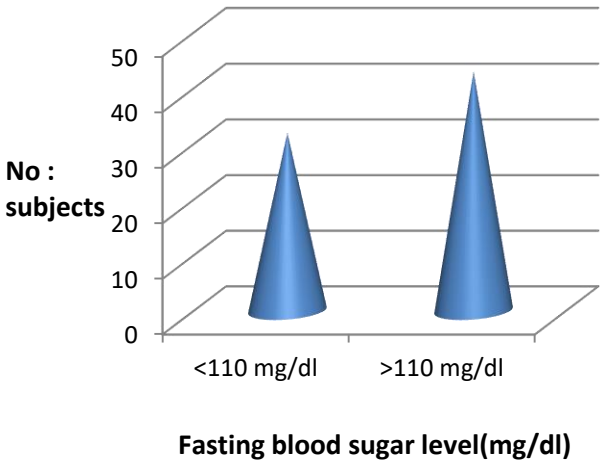
In this study biochemical parameters such as BP ,cholesterol and blood sugar level are collected from 75 post menopausal women (45-65years) .These specific biochemical markers have been used as a surrogate to measure the dietary intake of selected nutrients or dietary components (Jee-Seon Shim et al., 2014).

4.3.1 Fasting blood sugar values computed among the subjects.

Table no 5: Fasting blood sugar of the selected subjects.

Fasting blood glucose	No: of subjects
<110 mg/dl	32
>110 mg/dl	43

Figure no 5: Fasting blood sugar of the selected subjects.



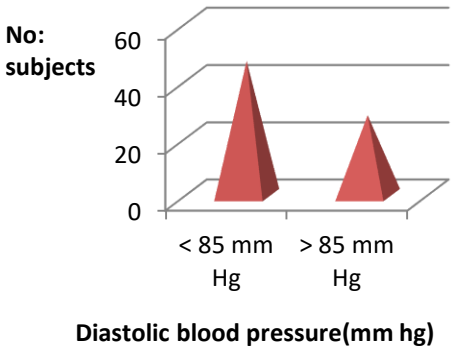
The fasting blood sugar level of the subjects were collected and tabulated. From the above table no :5 and figure no :5 it was found that a large number of the subjects (43) had blood sugar level > 110 mg /dl and 32 subjects had blood sugar level < 119 mg /dl.

4.3.2 Diastolic Pressure values computed among the subjects.

Table no 6: Diastolic Pressure of the selected subjects.

Diastolic blood pressure	No : of subjects
< 85 mm Hg	47
> 85 mm Hg	28

Figure no :6 Diastolic Pressure of the selected subjects.



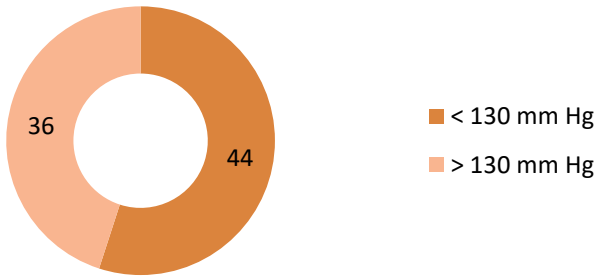
From the above table no: 6 and figure no: 6 it was found that 47 subjects had a diastolic blood pressure <85 mmHg and 28 subjects had Diastolic blood pressure >47 mmHg.

4.3.3 Systolic Blood Pressure values computed among the subjects

Table no:7 Systolic Blood Pressure of the subjects.

Systolic blood pressure	No : of subjects
< 130 mm Hg	44
> 130 mm Hg	36

Figure no:7 Systolic Blood Pressure of the subjects.



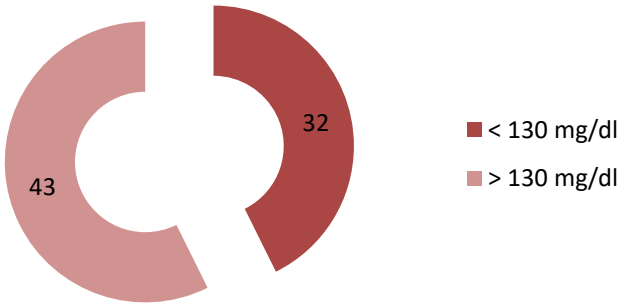
The systolic blood pressure was collected from the subjects and it was found that (Table no:7 and Figure no :7) 44 subjects had systolic blood pressure < 130 mmHg and 36 subjects had blood pressure > 130 mm Hg.

4.3.4 Blood Cholesterol level values computed among the subjects.

Table no .8 Blood Cholesterol level of the selected subjects.

Blood Cholesterol level	No : of subjects
< 130 mg/dl	32
> 130 mg/dl	43

Figure no:8 Blood Cholesterol level of the selected subjects.



Blood cholesterol levels of 75 subjects were taken and from the above table no: 8 and figure no: 8 it was found that 43 subjects had a blood cholesterol level >130 mg/dl and 32 subjects had blood cholesterol level <130 mg/dl. Tardivo et al.,(2010) Investigated on the associations between healthy eating patterns and indicators of metabolic risk in postmenopausal women and they found that Overweight and obesity were observed in 75.7% of the participants. Excessive % BF (body fat) and reduced % LM (lean mass) was observed in the post menopausal women ,WC (waist circumference) was elevated in 72.3%.

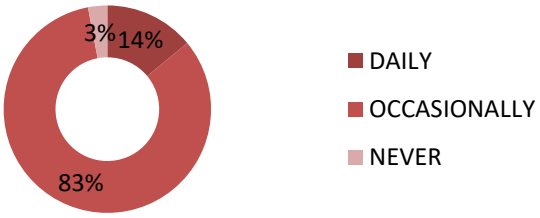
4.4 Assessment of health status of subject.

4.4.1 Classification based on routine exercise of the subjects.

Table no :9 Frequency of routine exercise.

PARAMETERS	PERCENTAGE
DAILY	14%
OCCASIONALLY	83%
NEVER	3%

Figure no 9. Frequency of routine exercise



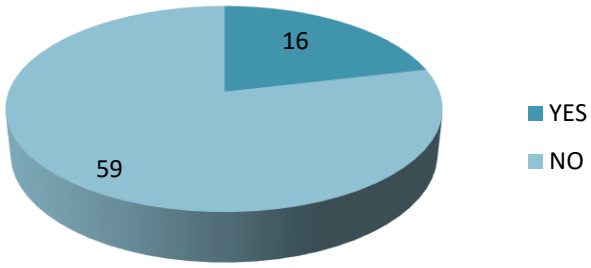
Based on the routine exercise (daily, occasionally, never) of the subjects they are classified and tabulated, from the above table no 9 and figure no 9, it was found that 83 % of the subjects did exercise occasionally ,only 14 % did exercise on a daily basis and 3 % never spare their time in doing exercise.

4.4.2 Classification based on subjects undergone Oophorectomy /hysterectomy

Table no :10 Number of subjects undergone oophorectomy/hysterectomy

PARAMETER	YES	NO
oophorectomy/hysterectomy	21%	79%

Figure no 10. Subjects undergone oophorectomy/hysterectomy



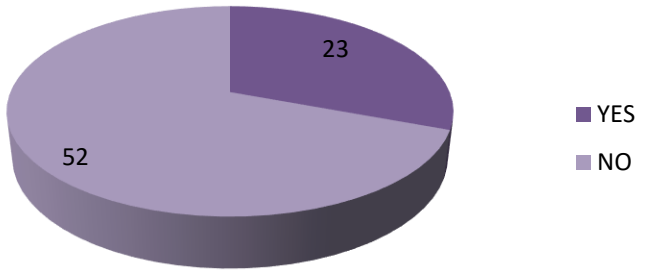
From the above figure no 10 and table no 10, it was found that 21 % of the total subjects had undergone oophorectomy/hysterectomy. The menopausal age is lower in induced menopause compared to those who attain natural menopause (Rao SG et al., 2017). Hysterectomy is a surgery to remove a women's uterus and Oophorectomy is a surgical procedure to remove one or both women's ovaries. The surgery is performed to prevent or treat certain conditions such as ovarian cancer.

4.4.3 Intake of Nutritional Supplements during the post-menopausal period.

Table no:11 Intake of Nutritional supplements by the subjects.

PARAMETER	YES	NO
Intake of supplements	31%	69%

Figure no 11. Intake of Nutritional Supplements by the subjects.



From the above figure :11 and table no 11, it is clear that the intake of supplements by the subjects is very less (31%).Calcium deficiency during the post-menopausal period has resulted in osteoporosis, joint and muscular pains which become more severe on reaching old age. Adequate calcium has been considered as a key component of any bone protective therapeutic regimen. Calcium has also been associated with beneficial effects in several non-skeletal disorders, primarily hypertension, colorectal cancer, obesity, and nephrolithiasis, although the extent of those effects has not been fully elucidated. The calcium requirement rises at menopause. (North American Menopause Society,2006).

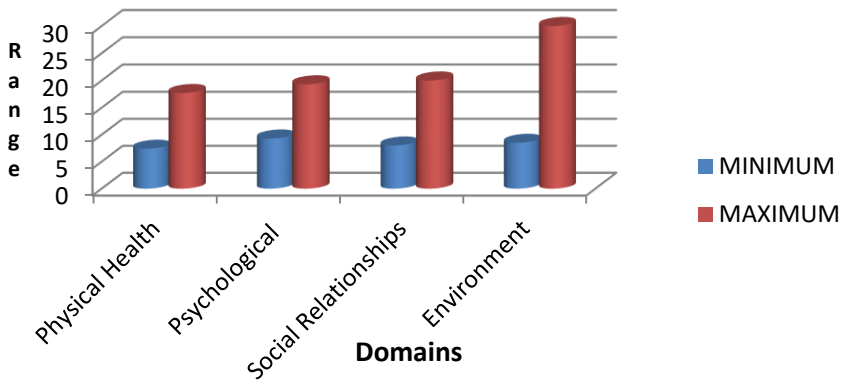
4.5 WHO-QOL BREF Scale – Quality of life assessment scale.

4.5.1. Data collected using WHO – QOL BREF scale

Table no 12: Results obtained using WHO- QOL BREF Scale.

WHO QOL	N	Minimum	Maximum	Percentage%
Physical Health	75	7.43	17.71	58%
Psychological	75	9.33	19.33	61.5%
Social Relationships	75	8.00	20.00	72.55
Environment	75	8.50	30.00	71.5%
Valid N (list wise)	75			

Figure no:12 Results obtained using WHO- QOL BREF Scale.



WHO QOL –BREF (WHO quality of life scale) was used to assess the quality of life of the postmenopausal women, the scale contains 26 questions with 4 domains to assess the physical health, psychological health, social relationships, environmental health.

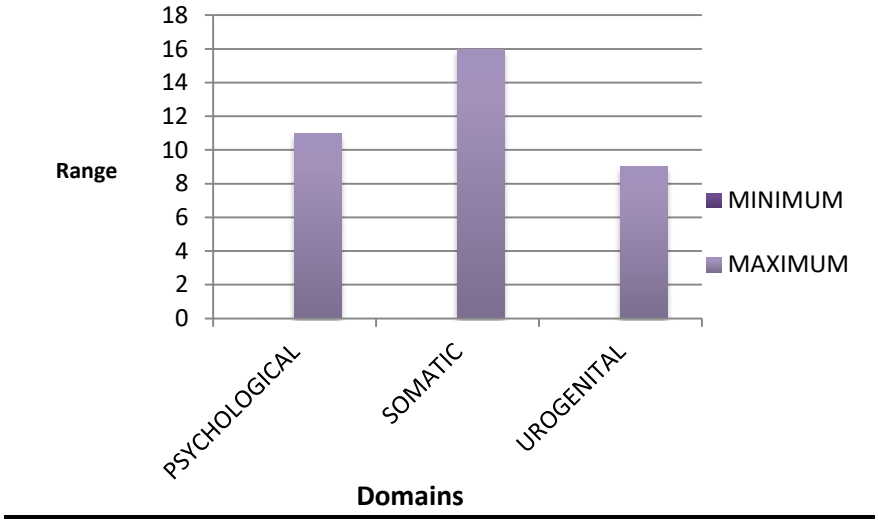
From the above table no 12 and figure no 12, it was found that the percentage obtained for physical health and psychological health was found to be 58% and 61.5 %, which indicates that the subjects are having a moderate quality of life in terms of physical and psychological health. The subjects are having a good social relationship (72.5%) and environment (71.5%) which indicate that they are having a good quality of life in terms of environment and social relationship.

4.6 Results obtained using Menopause Rating scale.

Table no 13. Data collected using menopause rating scale.

Domains	N	Minimum	Maximum
Psychological	75	.00	11.00
Somatic	75	.00	16.00
Urogenital	75	.00	9.00
MRS total	75	.00	32.00

Figure no: 13 Data collected using menopause rating scale.



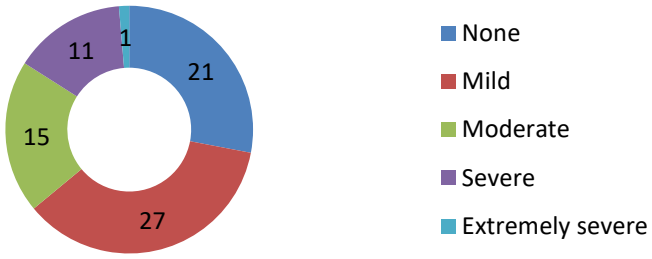
The severity of menopausal symptoms of the subjects were assessed using the menopause rating scale, were the scoring was done by themselves. MRS (Menopause Rating Scale) is developed by Hauser. G A et al., (1994). It is a self- administered instrument which has been widely used and validated. It is used in many clinical and epidemiological studies, and in research on aetiology of menopausal symptoms to assess the severity of menopausal symptoms. From the above table no 13 and figure no 13, the maximum score obtained from psychological symptoms was found to be 11.00. The maximum score obtained for somatic symptoms was 16.00. From the data collected regarding the urogenital symptoms the maximum score obtained was 32.00.

4.6.1 Somatic symptoms experienced by the post-menopausal women -Hot flashes

Table no :14 Frequency of hot flushes experienced by the subjects

Hot flushes	No: of subjects
None	21
Mild	27
Moderate	15
Severe	11
Extremely severe	1

Figure no 14. Frequency of hot flashes experienced by the subjects



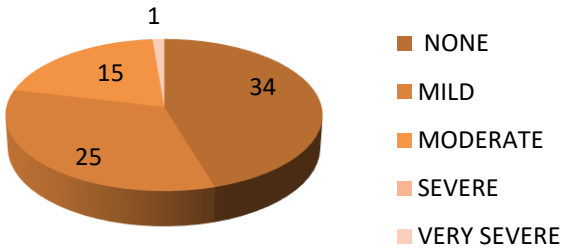
From the above table 14 and Figure no :14, it was found that severe hot flashes were reported by 15 % of the subjects and 28% does not have difficulty of hot flashes. Study done on menopausal women and their changing nutritional status by Samir Tursunov et al. (2014). It was found that there is a change in the nutritional status of the women mainly due to hormonal changes, bad eating habits, heredity, lifestyle etc. The most common symptoms of menopause are hot flushes, sweats and mood swings.

4.6.2 Somatic symptoms experienced by the post-menopausal women- Heart discomfort.

Table no :15 Frequency of heart discomfort experienced by the subjects

Heart discomfort	No: of subjects
None	34
Mild	25
Moderate	15
Severe	0
Extremely severe	1

Figure no 15. Frequency of heart discomfort experienced by the subjects



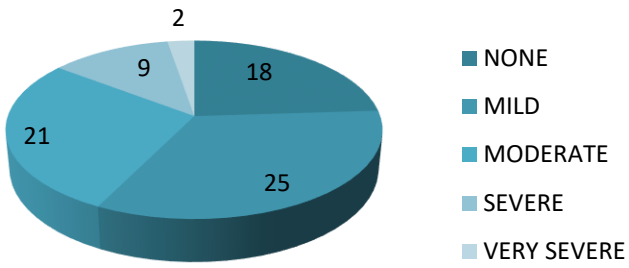
From the above table no 15 and figure no 15, it was found that 33% of the population experienced mild heart discomfort. Al Dughaither et al, (2015) examined the prevalence of menopausal symptoms and its impact on quality of life in Saudi Arabia and it was found that Somatic and psychological symptoms were high and women with mild symptoms, reflecting better quality of life and coping ability with climacteric symptoms.

4.6.3. Somatic symptoms experienced by the post-menopausal women -Sleep problems

Table no 16: Frequency of sleep problems experienced by the subjects

Sleep problems	No: of subjects
None	18
Mild	25
Moderate	21
Severe	9
Extremely severe	2

Figure no 16.Frequency of sleep problems experienced by the subjects



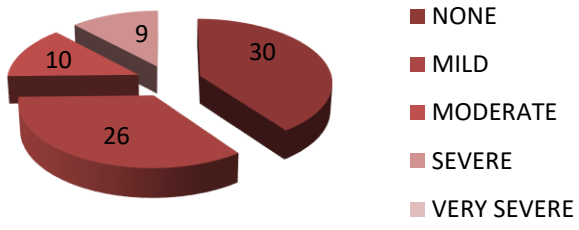
From the above table no :16 and figure no: 16 it was found that mild sleep problems was reported by 33 % of the subjects and 24% does not have sleep problems

4.6.4 Psychological problems experienced by the post-menopausal women - Depressive mood.

Table no 17: Frequency of depressive mood experienced by the subjects.

Depressive mood	No: of subjects
None	30
Mild	26
Moderate	10
Severe	9
Extremely severe	0

Figure no 17: Frequency of depressive mood experienced by the subjects



From the above table no:17, figure no 17, it was found that 35 % of the population experienced mild depressive mood. According to Grigoriou et al., (2013) 33% women

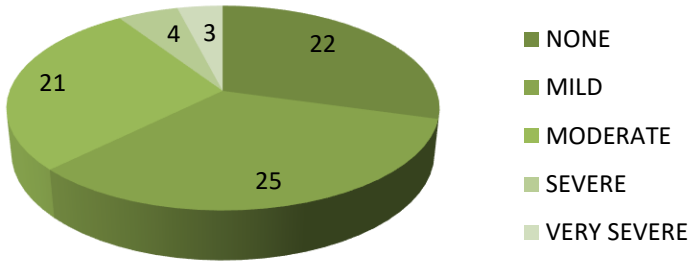
experienced moderate to severe menopause related symptoms in menopausal transition time or early post-menopausal phase in a study based in Greece. Four out of ten women in this group (40%) had moderate to severe vasomotor symptoms, while 30 % of women were influenced by more than one symptom in different domains like psychological, psychosomatic, sexual and vasomotor.

4.6.5. Psychological problems experienced by the post-menopausal women- Irritability.

Table no :18 Frequency of irritability experienced by the subjects

Irritability	No: of subjects
None	22
Mild	25
Moderate	21
Severe	4
Extremely severe	3

Figure no 18. Frequency of irritability experienced by the subjects



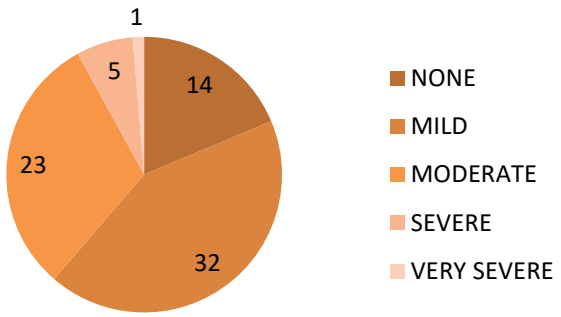
From the above table no :18 and figure no 18, it was found that 33% of the population experience irritability and moderate symptoms were shown by 28 % of the population.

4.6.6. Psychological problems experienced by the post-menopausal women-Anxiety.

Table no :19 Frequency of anxiety experienced by the subjects

Anxiety	No: of subjects
None	14
Mild	32
Moderate	23
Severe	5
Extremely severe	1

Figure no 19. Frequency of anxiety experienced by the subjects



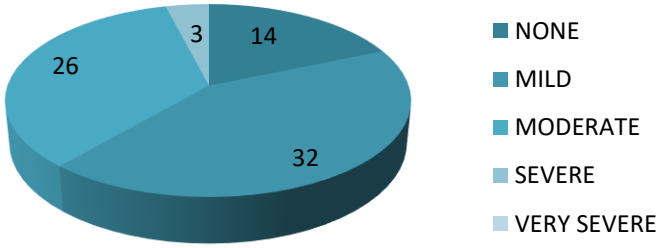
From the above table no :19 and figure no :19, it was found that 3% of the population experience moderate anxiety and mild anxiety symptoms were shown by 43 % of the population

4.6.7. Physical and mental exhaustion experienced by the subjects (Psychological).

Table no:20 Physical and mental exhaustion experienced by the subjects.

Physical and mental exhaustion	No: of subjects
None	14
Mild	32
Moderate	26
Severe	3
Extremely severe	0

Figure no 20. Physical and mental exhaustion experienced by the subjects (psychological).



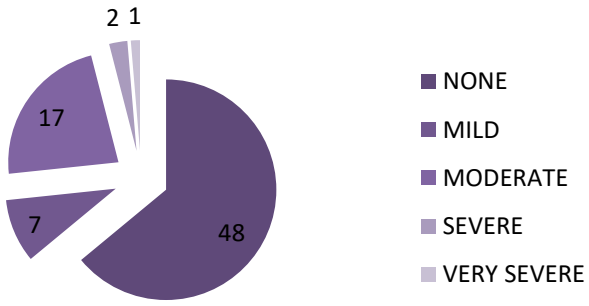
From the above table no: 20 and figure no: 20, it was found that 32% of the population experience physical mental exhaustion like impaired memory, decrease in concentration etc. in mild level and 35 % of the population showed moderate difficulties.

4.6.8. Sexual problems experienced by the subjects (urogenital).

Table no :21 Sexual problems experienced by the subjects

Sexual problems	No: of subjects
None	48
Mild	7
Moderate	17
Severe	2
Extremely severe	1

Figure no: 21 Sexual problems experienced by the subjects.



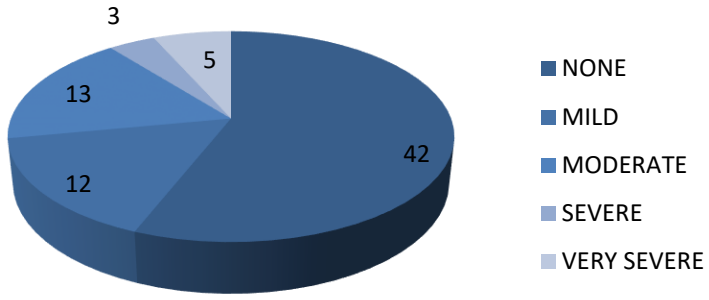
From the above table no :21 and figure no: 21, it was found that 23% of the population experience sexual problems such as change in sexual desire etc. in moderate level and 64 % of the population showed no sexual problems.

4.6.9 Bladder problems experienced by the subjects (urogenital).

Table no :22 Bladder problems experienced by the subjects

Bladder problems	No: of subjects
None	42
Mild	12
Moderate	13
Severe	3
Extremely severe	5

Figure no :22 Bladder problems experienced by the subjects.



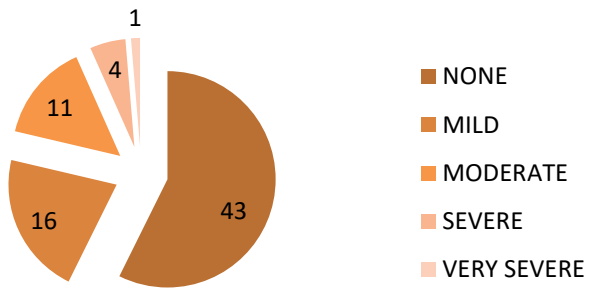
From the above table no :22 and figure no 22, it was found that 16% of the population experience bladder problems such as difficulty in urinating, increased need to urinate etc. in mild level and 17% of the population showed bladder problems in moderate level.

4.6.10 Dryness of vagina experienced by the subjects (urogenital).

Table no :23 Percentage of subjects having dryness of vagina.

Dryness of vagina	No: of subjects
None	43
Mild	16
Moderate	11
Severe	4
Extremely severe	1

Figure no: 23 Percentage of subjects having dryness of vagina.



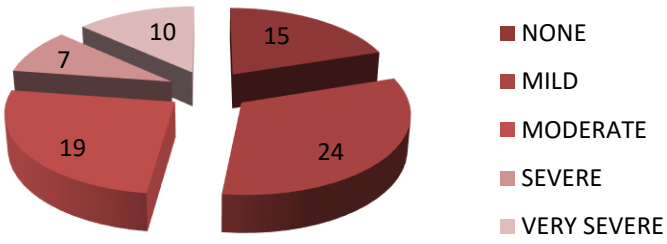
From the above table no: 23 and figure no :23, it was found that dryness of vagina, burning sensation, difficulty with sexual intercourse etc. was experienced by 21 % of the subjects in mild level and 15 % of the subjects in moderate level. Women in menopausal transition showed higher rates of vasomotor symptoms and vaginal dryness with significant associations with minor psychiatric disorder (Oppermann et al., 2012).

4.6.11. Joint and muscular discomfort experienced by the subjects.

Table no :24 Subjects having joint and muscular discomfort.

Joint and muscular problems	No: of subjects
None	15
Mild	24
Moderate	19
Severe	7
Extremely severe	10

Figure no 24. Percentage of subjects having joint and muscular discomfort.



From the above table no :24 and figure no: 24 it was found that, Joint and muscular discomfort such as joint pains, rheumatoid complaints etc were experienced by 32 % of the population in mild level and 10 % of them had very severe difficulties.

The menopause rating scale contains 3 subscales ie, somatic, psychological and urogenital, the highest and lowest score obtained for somatic symptoms (hot flashes, heart discomfort, sleeping problems and muscle and joint pain) was 11 and 0 respectively with a mean score of 4.5 ± 2.946.

After assessing the urogenital problems (sexual, bladder, dryness of vagina) in the post-menopausal women, the highest and lowest values obtained were, 9 and 0 with a mean score of 4.8 ±2.7849. The highest and lowest scores obtained from the subjects, related to the psychological symptoms (depressive mood, irritability, anxiety, physical and mental exhaustion) were 11 and 0, with a mean value of 4.533 ± 2.946.

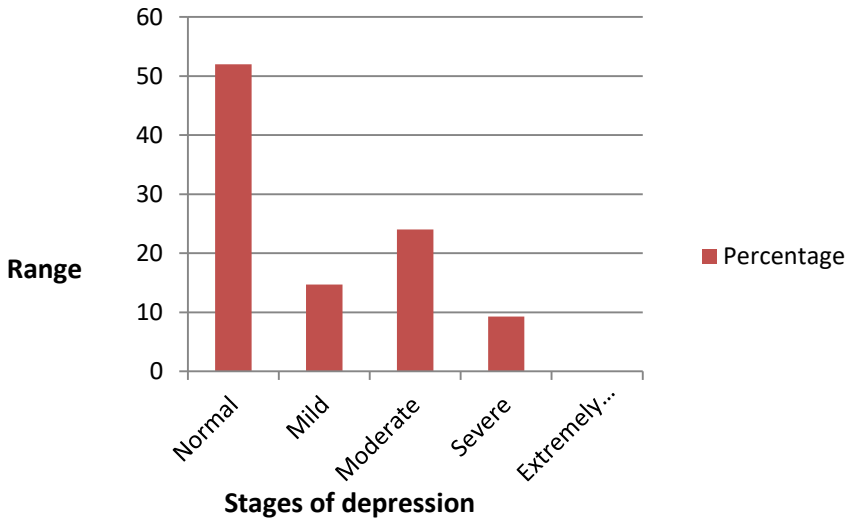
4.7 Results obtained using DASS Scale (Depression, Anxiety, Stress scale).

4.7.1 Frequency and percentage of subjects experiencing depression.

Table no 25. Data collected using DASS scale (depression).

DEPRESSION	Frequency	Percent
Normal	39	52.0
Mild	11	14.7
Moderate	18	24.0
Severe	7	9.3
Extremely severe	0	0
Total	75	100.0

Figure no :25 Stages of depression experienced by the subjects.



The Depression Anxiety Stress Scale (DASS) was developed by Lovibond et al., (1995).

It is a quantitative measure of distress along the 3 axes of depression, anxiety1 and stress2. Subjects are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week and scores for Depression, Anxiety and Stress are calculated by summing the scores for the relevant items.

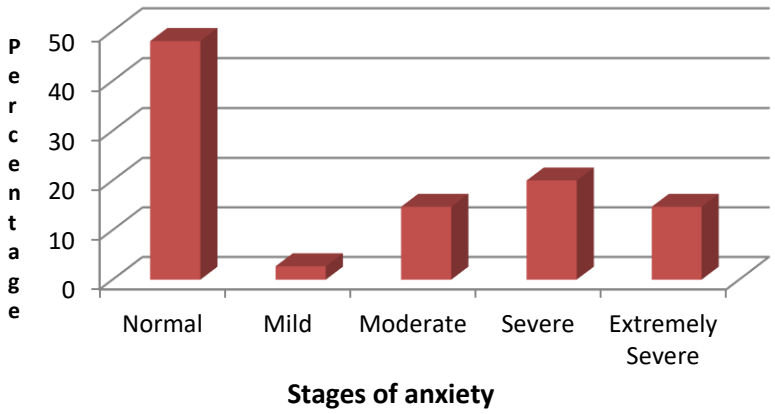
From the above table no ;25, figure no :25 it was found that 24 % of them were in moderate stage of depression ,14.7 % had mild depression and 9.3 % had severe depression.

4.7.2 Frequency and percentage of subjects experiencing Anxiety.

Table no 26. Data collected using DASS scale(anxiety).

Anxiety	Frequency	Percent
Normal	36	48.0
Mild	2	2.7
Moderate	11	14.7
Severe	15	20.0
Extremely Severe	11	14.7

Figure no :26 Stages of Anxiety



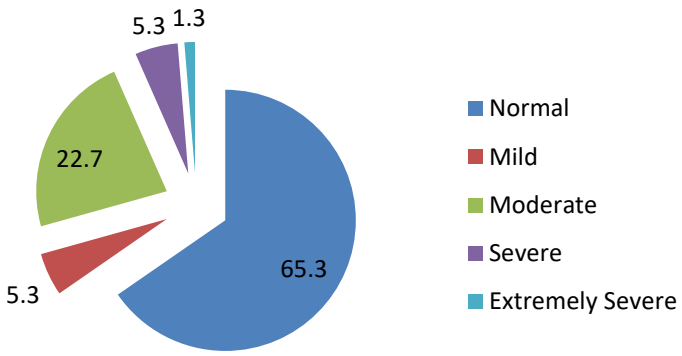
From the above table 26 and figure no:26, it was found that 20 % of the population experienced severe anxiety and 2.7 % of the population experienced mild anxiety.

4.7.3 Frequency and percentage of subjects experiencing Stress

Table no 27. Data collected using DASS scale (stress).

STRESS	Frequency	Percent
Normal	**49**	**65.3**
Mild	**4**	**5.3**
Moderate	**17**	**22.7**
Severe	**4**	**5.3**
Extremely Severe	**1**	**1.3**
Total	**75**	**100.0**

Figure no 27: Data collected using DASS scale



From the above figure 27, table no:27, It was found that 22 .7 % of them had moderate level of stress and 5.3 % of them had mild, severe stress. A Bener et al., (2017) did an experiment on Depression, Anxiety and Stress symptoms in menopausal Arab women and he concluded that depression, anxiety and stress should be considered as important risk factors for osteoporosis.

4.8 Nutritional status

4.8.1 Data obtained using 24 hr recall of the subjects.

Table no :28 Data obtained using 24 hr recall of the subjects.

Nutrient	Mean	Standard value (ICMR)
Energy	1427.78	1660
Protein	32.51	36.3
Fat	16.30	20
Carbohydrate	160.12	207.6
Calcium	396.25	800
Iron	6.47	15
Fiber	12.04	30

The 24-hour Dietary Recall method provides comprehensive, quantitative information on individual diets by querying respondents about the type and quantity of all food and beverages consumed during the previous 24-hour period (Gibson and Ferguson, 2008).The 24 hr recall method is used to collect data regarding the nutritional status of the selected subjects. Energy, carbohydrate, protein, fat, carbohydrate, calcium, iron and fiber intake of the selected subjects were assessed. From the above table no .28 we found that the intake of nutrients by the subjects does not meet the standard requirement.

4.8.2 Results of data obtained using food frequency questionnaire.

The food frequency questionnaire was used to collect dietary habit of the subjects and here more emphasize is given to the foods containing calcium and phytoestrogen. Phytoestrogens are a diverse group of plant-derived compounds that structurally or functionally mimic mammalian estrogens and show potential benefits for human health. In women, life is severely affected by a variety of estrogen-related conditions such as osteoporosis, cognitive and cardiovascular disease, increased risk of breast cancer and other symptoms that decrease the overall quality of life. Phytoestrogens are effective in maintaining bone mineral density, prevent bone loss, and help in the prevention and/or treatment of such health related problems. They can be classified as flavonoids, isoflavonoids, coumestans, stilbenes, lignans and terpenoids (Gupta C et al., 2016)

Certain foods containing phytoestrogen was randomly included in the food frequency questionnaire such as the wheat, soy beans, flax seed, sesame seeds, oats, lentils, apple, grapes, carrot, yam etc. and the data obtained are as follows:

4.8.2.1 Data obtained using food frequency questionnaire– Frequency of intake of phytoestrogens.

Table no 29: Frequency of intake of cereals.

WHEAT(WHOLE WHEAT)		
	FREQUENCY	**PERCENT**
DAILY	19	12
WEEKLY	49	25.3
MONTHLY	9	5.3
NEVER	3	4
OATS		
	FREQUENCY	**PERCENT**
DAILY	10	13.3
WEEKLY	33	44
MONTHLY	18	24
NEVER	14	18.7

Table no 30: Frequency of intake of pulses and seeds.

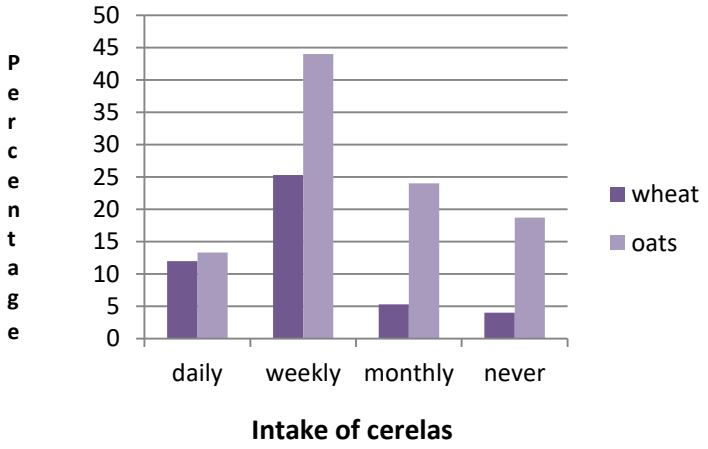
SESAME SEEDS		
	FREQUENCY	**PERCENT**
DAILY	2	2.7
WEEKLY	10	13.3
MONTHLY	38	50.7
NEVER	25	33.3
LENTILS (DHAL)		
	FREQUENCY	**PERCENT**
DAILY	7	9.3
WEEKLY	43	57.3
MONTHLY	20	26.7
NEVER	5	6.7
SOYA BEANS		
	FREQUENCY	**PERCENT**
DAILY	1	1.3
WEEKLY	22	29.3
MONTHLY	31	41.3
NEVER	21	28
FLAX SEED		
	FREQUENCY	**PERCENT**
DAILY	5	6.7
WEEKLY	6	8
MONTHLY	22	29.3
NEVER	42	56

Table no 31: Frequency of intake of fruits and vegetables.

YAM		
	FREQUENCY	**PERCENT**
DAILY	0	0
WEEKLY	21	28
MONTHLY	45	60
NEVER	9	12
BERRIES		
DAILY	0	0
WEEKLY	1	1.3
MONTHLY	19	25.3
NEVER	55	73.3
POMEGRANATE		
DAILY	6	8
WEEKLY	19	25.3
MONTHLY	47	62.7
NEVER	3	4
GRAPES		
DAILY	1	1.3
WEEKLY	17	22.7

MONTHLY	45	60
NEVER	12	16

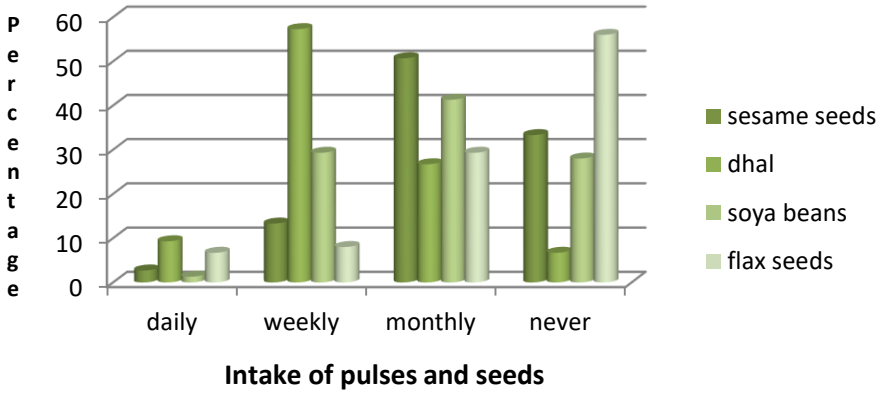
Figure no 28: Frequency of intake of cereals.



From the above table 29, and figure no 28, it was found that the daily consumption of wheat bran is less ie, 25 % and 53.3 % of the subjects consume it weekly. Wheat bran is a good source of phytoestrogens, particularly lignans.

Oats is a good source of phytoestrogen, from the above table no 30, it was found that 13.3 % out of the total subjects of the consume oats in a daily basis ,18% never consume it and 33 % of them consume it monthly.

Figure no 29; Frequency of intake of pulses and seeds .

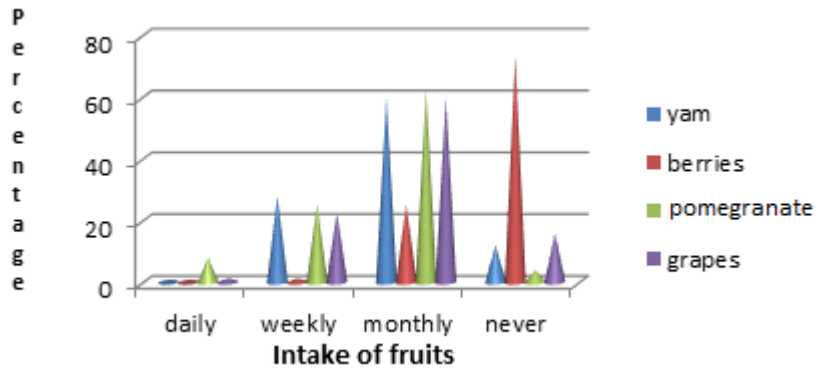


From the above table 30 and figure no ,29 it was found that, 9.3% subjects consume dhal in a daily basis. Lentils are a good source of phytoestrogen, it contains 37 µg/100g. Soy beans are processed into many plant based products, such as tofu and tempeh. It is rich in phytoestrogen isoflavones. The daily consumption of soya bean was found to be 1.3 %.

Flax seeds are small, golden or brown colored seeds which is rich in lignans, which functions as phytoestrogens. From the data obtained from food frequency questionnaire it was found that the daily consumption of flaxseed is very less ie, 6.7 %.

Sesame seeds are smaller, fiber packed seeds and is rich in phytoestrogens, from the data collected using food frequency questionnaire it was found that the daily consumption of sesame seed is very less i.e., 2.7 %. (Gupta C et al.,2016).

Figure no 30: Frequency of intake of fruits and vegetables.



From the above table no 31, and figure no 30, it was found that the daily consumption of berries is very less i.e., 1.3 %. Berries are rich in vitamins, minerals, fiber, and other beneficial plant compounds and phytoestrogens. Secoisolariciresinol (SECO) and matairesinol are the phytoestrogen present in the pomegranate. From the data obtained using food frequency questionnaire it was found that 19 % of the subjects consume it weekly (Gupta C et al.,2016).

Grape is a good source of phytoestrogen Resveratrol. The structural similarity of resveratrol to the synthetic estrogen diethylstilboestrol (DES) suggests that it may have estrogenic activity, cardio-protection and prevention of estrogen dependent cancers. The estrogenic activity of resveratrol may also help prevent bone loss in post-menopausal women (Gupta C et al.,2016). From the data collected regarding the intake of grapes using the food frequency questionnaire, it was found that the daily intake of grapes by the subjects is very less (1.3 %) and monthly intake is found to be 54.7 %. Yam is also a source of phytoestrogen. From the above table it was found that 28% subjects consume it in a weekly basis.

Ghazanfarpour M et al., (2016) investigated Effects of flaxseed and Hypericum perforatum on hot flash, vaginal atrophy and estrogen-dependent cancers in menopausal women. The results show that flaxseed has beneficial effect on hot flash frequency and intensity, which was not statistically significant and according to two trials, flaxseed showed estrogenic effects, however, cancer promoting or protecting effects were not found.

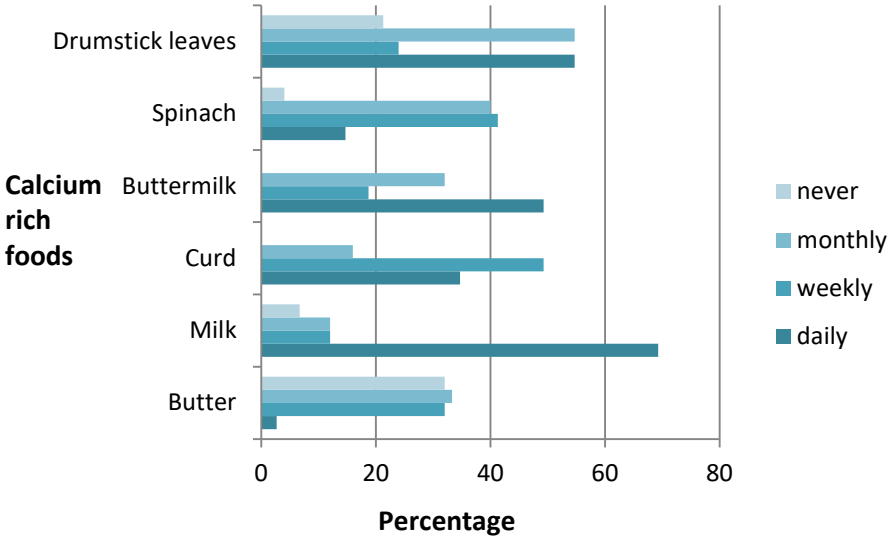
4.8.2.2 Data obtained using food frequency questionnaire – Frequency of intake of calcium rich foods

Table no 32. Frequency of intake of calcium rich foods

	Frequency	Percentage
Butter		
Daily	**2**	**2.7**
Weekly	**24**	**32**
Monthly	**25**	**33.3**
Never	**24**	**32**
Milk		
Daily	**52**	**69.3**
Weekly	**9**	**12**
Monthly	**9**	**12**
Never	**5**	**6.7**
Curd		
Daily	**26**	**34.7**
Weekly	**37**	**49.3**
Monthly	**12**	**16**
Never	**0**	**0**
Buttermilk		
Daily	**37**	**49.3**
Weekly	**14**	**18.7**
Monthly	**24**	**32**
Never	**0**	**0**
Spinach		
Daily	**11**	**14.7**
Weekly	**31**	**41.3**
Monthly	**30**	**40**
Never	**3**	**4**
Drumstick leaves		
Daily	**41**	**54.7**
Weekly	**18**	**24**
Monthly	**41**	**54.7**
Never	**16**	**21.3**

.

Figure no 31: Frequency of intake of calcium rich foods by the subjects.



Calcium has been associated with beneficial effects in several non-skeletal disorders, primarily hypertension, colorectal cancer etc. The calcium requirement rises at menopause (North American Menopause society ,2006). Dietary sources of calcium are the preferred option, and calcium supplementation should only be targeted to those do not get sufficient calcium from their diet and who are at high risk of osteoporosis (J.A Kanis et al., 2012).

Some of the good sources of calcium has been included randomly in the food frequency questionnaire such as milk and milk products and green leafy vegetables to identify the intake of calcium by the subjects. From the above table no 32 and figure no 31, it was found that 69.3 % of the subject's drink milk every day, the intake of butter and curd is 2.7% and 34.7 %. The intake of green leafy vegetables such as spinach and drumstick was found to be less.

4.9 Summary statistics

4.9.1.Mean Anthropometric levels of selected subjects.

Table no 33: Mean anthropometric levels of selected subjects.

Anthropometric measurements	N	Mean	Std. Deviation
HEIGHT(cm)	75	155.53	7.864
WEIGHT (Kg)	75	61.793	9.9322
BMI	75	25.541	3.7984
WAIST CIRCUMFERENCE(Cm)	75	84.28	10.020

From the above table no 33, it is clear that the mean height weight was found to be 155.5 ±7.8cm and 61.7±9.9 Kg. The mean obtained for BMI and waist circumference were 25.544±3.7Kg/m2 and 84.28 ±10.020 cm.

4.9.2 Mean Biochemical level of the subjects.

Table no: 34 Mean Biochemical level of the subjects.

Biochemical parameters	N	Mean	Std. Deviation
SBP	75	129.60	20.424
DBP	75	81.36	6.701
BLOOD SUGAR	75	115.08	38.350
CHOLESTROL	75	201.56	29.834

From the above table no 34 ,it was found that the mean diastolic and systolic blood pressure of the subjects were 129.60 ±20.424 and 81.36±6.701 respectively.The mean blood sugar level was found to be 115.08±38.350 and the mean cholesterol level of the 75 subjects taken was found to be 201.56±29.834.

4.9.3 Mean nutrient intake of the selected subjects .

Table no 35 :Mean nutrient intake of the selected subjects .

Nutrient	Mean	STANDARD	P value
Energy(Kcal)	1427.78	1660	0.001
Protein(gm)	32.51	36.3	0.001
Fat(gm)	16.30	20	0.003
Carbohydrate(gm)	160.12	207.6	0.001
Calcium(mg)	396.25	800	0.001
Iron(mg)	6.47	15	0.002
Fiber(gm)	12.04	30	0.002

From the above table no, 35 it was found that the mean intake of energy (1427.78 Kcal) , protein (32.51 gm) , fat (16.30 gm), carbohydrate (160.12 gm),calcium (396.25 mg), iron (6.47 mg) and fiber (12.04 gm) was found to be lower than the standard value (ICMR).

4.9.4 Mean values obtained from MRS (menopause rating scale) scale.

Table no :36 Mean values obtained from MRS scale

Domains	N	Mean	Std. Deviation
Psychological	75	4.5333	2.94698
Somatic	75	4.8800	2.78490
Urogenital	75	2.1333	2.50045
MRS total	75	11.5467	6.88573

From the above table no 36, it was found that the mean value obtained for psychological symptoms was 4.5 ± 2. 946.The mean score obtained for somatic symptoms was 4.880 ± 2.78.

From the data collected regarding the urogenital symptoms the mean score obtained was 11.56 ± 2.500. From the mean values obtained it is clear that most of the post-menopausal women are having psychological and somatic symptoms.

4.9.5 Mean values obtained from WHO-QOL BREF Scale

Table no :37 Mean values obtained from WHO-QOL BREF Scale

WHO QOL	Mean	Std. Deviation
Physical Health	11.6095	2.16747
Psychological	12.3644	2.26977
Social Relationships	14.5778	2.45398
Environment	14.3733	3.12476

From the above table no 37, it was found that, the mean transformed scorephysical health and psychological health domain were 11.60± 2.167 and 12.36±2.269.

The mean score obtained for social relationships domain was found to be 14.5778±2.45398 and the mean score obtained for environmental health domain was 14.37±3. 124.From the mean values obtained we can understand that the quality of life of the post-menopausal women is poor considering physical and psychological health.

5. Testing of hypothesis

5.1 Pearson correlation test results

5.1.1 Correlation of WHO QOL BREF scale with DASS 21 scale

Table no 38: Correlation with DASS Scale

		Physical Health	Psychological	Social Relationships	Environment
DEPRESSION	Pearson Correlation	-.510**	-.591**	-.518**	-.516**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	75	75	75	75
ANXIETY	Pearson Correlation	-.517**	-.510**	-.477**	-.443**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	75	75	75	75
STRESS	Pearson Correlation	-.465**	-.529**	-.507**	-.450**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	75	75	75	75

In the study the null hypothesis was formulated for the verification was “there is no correlation between the domains of WHO QOL BREF Scale and DASS scale “and alternate hypothesis was formulated “there is a correlation between the domains of WHO QOL BREF Scale and DASS scale “.

Here after testing the correlation it was found that, all of the correlation are statistically significant.

From the above table no :38, it was found that there is a negative correlation between physical (r =-.510, P= .000), psychological (r = -.591, P= .000), social (r = -.518, P = .000,), environmental health (r= -.516, P= .000) and depression.

Negative correlation was found between anxiety and physical (r = -.517, P= .000), psychological (r = -.510, P = .000), social relationship (r = -.477, P = .000) and environmental health (r = -. 443, P = .000).

A Negative correlation was found between stress and physical (r = -.465, P= .000), psychological (r = -.529, P = .000), social relationship (r = -.507, P = .000) and environmental health (r = -. 450, P = .000). So the null hypothesis was rejected and accepted the alternate hypothesise, there is a correlation between the domains of WHO QOL BREF Scale and DASS scale.

5.1.2. Correlation of WHO QOL BREF scale with MRS (menopause rating scale)

Table no 39: Correlation with MRS Scale

Correlation between domains of QoL and MRS					
		Physical Health	**Psychological**	**Social Relationships**	**Environment**
Psychological	Pearson Correlation	-.483**	-.425**	-.347**	-.255*
	Sig. (2-tailed)	.000	.000	.002	.028
Somatic	Pearson Correlation	-.416**	-.317**	-.271*	-.264*
	Sig. (2-tailed)	.000	.006	.019	.022
Urogenital	Pearson Correlation	-.575**	-.555**	-.521**	-.429**
	Sig. (2-tailed)	.000	.000	.000	.000

In the study the null hypothesis was formulated for the verification was “there is no correlation between the domains of WHO QOL BREF Scale and MRS scale “and alternate hypothesis was formulated “there is a correlation between the domains of WHO QOL BREF Scale and MRS scale “.

From the above table no 39, it was found that there is a negative correlation with the domains of WHO QOL i.e., physical health and the domains of MRS (menopause rating

scale) i.e., psychological (r = -.483, p= .000), somatic (r = -.416, p = .000) and urogenital symptoms (r= -.575, p= .000).

A negative correlation was found between psychological domain and psychological (r = -.425, p = .000), somatic (r = -.317, p = .000) and urogenital (r = -.555, p = .000) domains of MRS scale.

The correlation between social relationships and psychological (r = -.347, p = .002), somatic (r = -.271, p = .019) and urogenital (r = -.521, p = .000) domains of MRS scale was found to be negative.

A negative correlation was found between environmental domain and psychological (r = -.255, p = .028), somatic (r = -.264, p = .022) and urogenital (r = -.429, p = .000) domains of MRS scale. So the null hypothesis was rejected and accepted the alternate hypothesis, there is a correlation between the domains of WHO QOL BREF Scale and MRS scale.

5.2 Chi – square test results

5.2.1 Relationship between depression and exercise.

Table no:40 Relationship between depression and exercise

Chi-Square Tests			
	Value	**Df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	21.926[a]	9	.009
Likelihood Ratio	23.902	9	.004
N of Valid Cases	75		
a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .65.			

In the study the null hypothesis was formulated for the verification was “there is no relationship between depression and exercise “and alternate hypothesis was formulated “there is a relationship between depression and exercise”. From the above table no 40, we found that there is a relationship between exercise and depression (p = .009) since the asymptotic significance is 0.009 (it is < 0.05). Hence the alternate hypothesis is accepted.

5.2.2 Relationship between anxiety and exercise

Table no 41. Relationship between anxiety and exercise

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.712[a]	12	.319
Likelihood Ratio	14.930	12	.245

In the study the null hypothesis was formulated for the verification was "there is no relationship between anxiety and exercise "and alternate hypothesis was formulated "there is a relationship between anxiety and exercise". From the above table no 41, it was found that there is no relationship between exercise and anxiety (p = .319) since the asymptotic significance is 0.319 (it is >0.05). Hence we reject the alternate hypothesis and accept the null hypothesis.

5.2.3 Relationship between stress and exercise

Table no 42. Relationship between stress and exercise

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.356[a]	12	.005
Likelihood Ratio	19.640	12	.074

From the above table no :42, it was found that there is relationship between exercise and stress (p = .005) since the asymptotic significance is 0.005 (it is < 0.05). Hence we accept the alternate hypothesis and reject the null hypothesis.

5.3 One sample t test

5.3.1 Comparison of nutrient intake with Standard value (ICMR) using one sample t test.

Table no 43: Comparison of nutrient intake with Standard value (ICMR) using one sample t test.

Nutrient	Mean	Standard value (ICMR)	P value
Energy	1427.78	1660	0.001
Protein	32.51	36.3	0.001
Fat	16.30	20	0.003
Carbohydrate	160.12	207.6	0.001
Calcium	396.25	800	0.001
Iron	6.47	15	0.002
Fiber	12.04	30	0.002

The 24 hr recall method is used to collect information regarding the nutritional status of the subjects**.** In the study, the null hypothesis was formulated for the verification was "the intake of nutrients is adequate "and alternate hypothesis was formulated "the intake of nutrients is not adequate ". Since the p value obtained is < 0 .05, we accept alternate hypothesis i.e., there is no adequate intake of nutrients by the subjects (table no 43).

6. "Post menopause": An informative video uploaded in Social media.

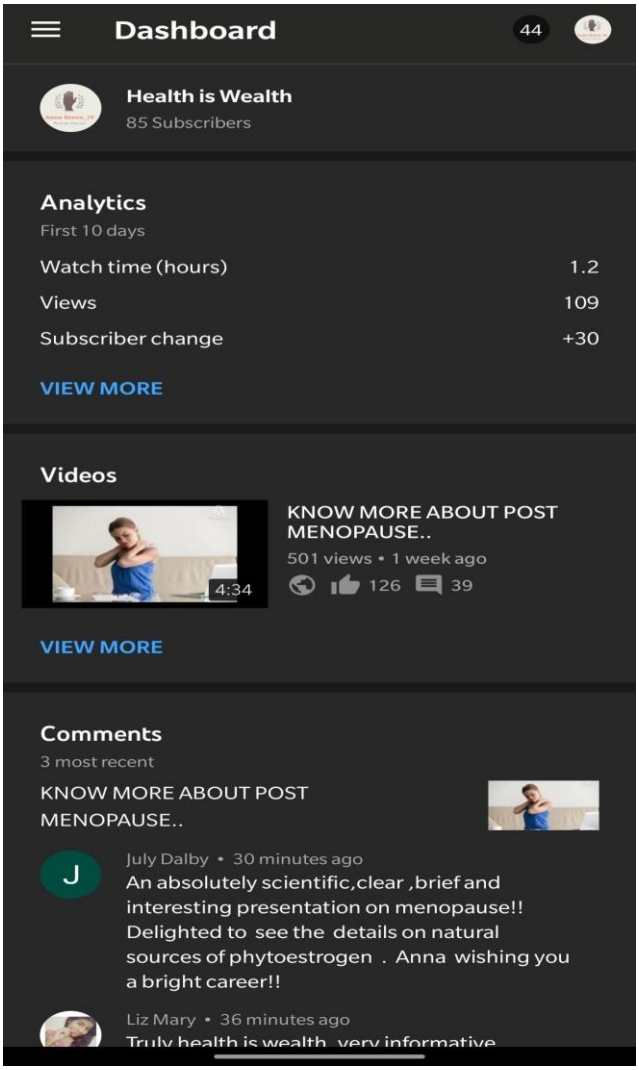
A video was made with a title "Know more about Post menopause" and uploaded in You Tube on 24 April 2021.The contents of the video includes:

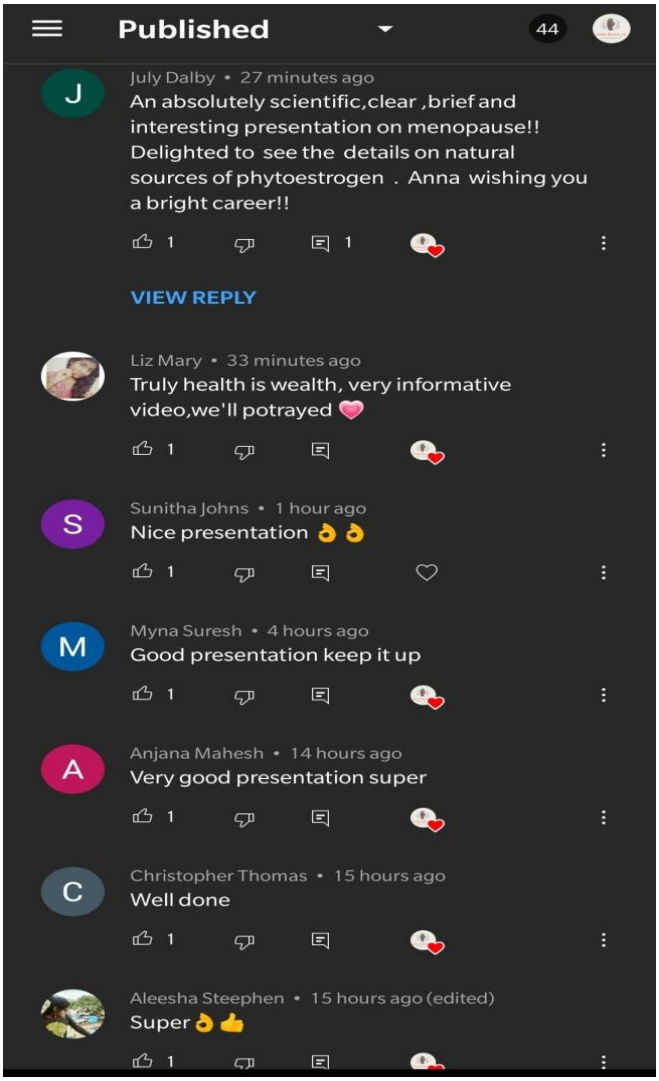
- Introduction
- Symptoms
- Treatment
- Importance of phytoestrogen.
- Phytoestrogen rich foods.
- Hormone replacement therapy.

- Health and nutritional management**.**

6.1 Evaluation of the impact of Awareness video.

The video was viewed by 501 people with 126 likes. There were 38 comments that denote the video was informative and helpful for them. Presently there are 85 subscribers for the YouTube channel.




Published
44
July Dalby • 27 minutes ago
An absolutely scientific,clear ,brief and interesting presentation on menopause!! Delighted to see the details on natural sources of phytoestrogen . Anna wishing you a bright career!!
1
1
VIEW REPLY
Liz Mary • 33 minutes ago
Truly health is wealth, very informative video,we'll potrayed
1
Sunitha Johns • 1 hour ago
Nice presentation
1
Myna Suresh • 4 hours ago
Good presentation keep it up
1
Anjana Mahesh • 14 hours ago
Very good presentation super
1
Christopher Thomas • 15 hours ago
Well done
1
Aleesha Steephen • 15 hours ago (edited)
Super
1

SUMMARY AND CONCLUSION

5. SUMMARY AND CONCLUSION

Menopause is associated with a constellation of physical changes. Some of these changes are directly attributable to the loss of oestrogen, including hot flashes, bone demineralization and vaginal dryness. Though a matter of controversy, an increased incidence of cardiovascular disease and dementia seem to be associated with both menopause and aging. Post menopause refers to the phase after twelve consecutive months of amenorrhea. The primary effects of menopause are associated with oestrogen deficiency.

The study entitled "TO **ASSESS THE NUTRITIONAL STATUS AND FACTORS ASSOCIATED WITH QUALITY OF LIFE OF POST MENOPAUSAL WOMEN (45– 65 YEARS)''**was done with following objectives: To assess the factors associated with quality of life of post-menopausal women using WHOQOL-BREF (WHO quality of life scale), to assess the nutritional status of the post-menopausal women., to assess the mental health of post-menopausal women using DASS 21 scale, to find the severity of menopausal symptoms using MRS (menopause rating scale).

The subjects were chosen from Ernakulam (aluva taluk) area. Totally 75 subjects (45- 65 years) of post-menopausal stage were taken for the study.IBM SPSS statistics version 24.0 was used for all the analysis. Data regarding the present study was consolidated, analysed statically and conclusion drawn from the results were summarised below:

1. Out of 75 post-menopausal women majority of residence (72%) were from rural area and minority of people were from urban area.
2. The mean age of the subjects was found to be 51.23 ± 6.285 years.
3. Classifying the subjects on the basis of occupation, it was found that most of them were home maker. The other jobs include accountant, home baker, private sector, retired teacher, selection grade typist etc.
4. The anthropometric measurements height, weight, waist circumference and BMI were taken and the data collected was analysed and tabulated. From the data we can analyse that out of the total samples taken for the study, most of the subjects were pre –obese and are more prone to other metabolic risks.
5. By analysing the biochemical parameters (BP, fasting blood sugar, cholesterol levels) of the subjects it was found that 43 subjects had fasting blood sugar > 110 mg/dl, 28 subjects had diastolic BP >85 mm Hg and 36 subjects had diastolic BP < 85 mm Hg.
6. The systolic BP was found to be >130 mm Hg for 29 subjects and < 130 mm Hg for 46 subjects. The blood cholesterol level was found to be >130 mg/dl for 37 subjects and < 130 mg/dl for 32 subjects.
7. From the data collected regarding the biochemical parameters it was found that majority of the subjects were diabetic and had a greater cholesterol level in the blood.
8. By analysing the health status of the subjects we found that, the exercising pattern of the subjects was classified as daily, occasionally, never and the data collected showed that 83 % of the subjects did exercise occasionally, only 14 % did exercise on a daily basis and 3

% never spare their time for doing exercise 21 % of the total subjects had undergone oophorectomy/hysterectomy.

9. WHO QOL BREF (WHO quality of life) scale was used to find the factors affecting the quality of post-menopausal women, the correlation between WHO QOL BREF scale with MRS (menopause rating scale) and DASS (depression, anxiety and stress scale) scale was found
10. The results obtained after finding the correlation of WHO QOL BREF (WHO quality of life) with MRS AND DASS shows that there is a negative correlation between the scores. The highest and lowest scores belonged to the social relationship domain (13.40 ± 2.16) and physical health domain (13.40 ± 2.16), respectively.
11. It was observed that analysis of the MRS questionnaires yielded a mean ± SD total of 11.54 ± 6.88.
12. The psychological and urogenital domains accounted for the highest and lowest scores, respectively (4.53 ± 2.94 and 2.13 ± 2.500, respectively).
13. A large percentage of the subjects complained about severe joint pain and hot flashes during the post-menopausal period.
14. After calculating the mental state of 75 subjects using the DASS scale (depression, anxiety, stress scale). It was found that 24 % of them were in moderate stage of depression, 14.7 % of the subjects were in extremely severe stage of anxiety and 22 .7 % of them had moderate level of stress.
15. Assessing the nutritional status of 75 subjects using the 24 hr recall it was found that the mean intake of energy (1427.78 Kcal), protein (32.51 gm), fat (16.30gm), carbohydrate (160.12gm), calcium (396.25mg), iron (6.47mg) and fiber (12.04gm) was found to be lower than the standard value.
16. The p value obtained for 24 hr recall was found to be less than 0.05 for all the nutrients, which indicates that the nutrient intake is not adequate.
17. Food frequency questionnaire was used to assess the intake of calcium and phytoestrogen rich food by the subjects It was found that the intake of phytoestrogen containing foods by the subjects is much less.
18. The calcium intake of the subjects was assessed and it was found that 69.3 % of the subject's drink milk every day, the intake of butter and curd was found to be 2.7% and 34.7 % respectively. The intake of green leafy vegetables such as spinach and drumstick was also found to be less, so it was found that the intake of calcium by the subjects is less.
19. From the study we found that menopause related symptoms have a negative impact on quality of life of women.
20. Proper knowledge regarding the symptoms and through adequate nutrient intake we would be able to control most of the difficulties experienced during the post-menopausal stage.
21. This study can help in creating more awareness in educating women about the impact and in early identification of the common menopausal symptoms so that it can help them to follow good practices to prepare them for a better old age.

LIMITATIONS

- The sample size taken was only 75 as it was difficult to identify subjects of age group 45-65, due to the limitations of covid pandemic.
- Since most of the data are self-reported, one has to believe what others say without evidences.

RECOMMENDATIONS

- A comparative study regarding induced menopause and post menopause can be done.
- Can study regarding the locally available phytoestrogen rich foods and its effect**s.**

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APPENDIX

Quality of life assessment instrument (WHOQOL – BREF, WHO 1991)

Instructions: The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. **Please choose the answer that appears most appropriate.** If you are unsure about which response to give to a question, the first response you think of is often the best one.
Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks.**

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5
		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information that you need in your day-to-day life?					
14	To what extent do you have the opportunity for leisure activities?					
		Very poor	Poor	Neither poor nor good	Good	Very good
15	How well are you able to get around?	1	2	3	4	5
		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work?	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
21	How satisfied are you with your sex life?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Do you have any comments about the assessment? _____

DASS21 QUESTIONNAIRE

DASS *Name:* *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (eg, legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3

Common assessment measures: DASS Page 2

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

MENOPAUSAL RATING SCALE (MRS) QUESTIONNAIRE

Symptoms:	none	mild	moderate	severe	extremely severe
Score =	0	1	2	3	4
1. Hot flashes, sweating (episodes of sweating)	☐	☐	☐	☐	☐
2. Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)	☐	☐	☐	☐	☐
3. Sleep problems (difficulty in falling asleep, difficulty in sleeping through the night, waking up early)	☐	☐	☐	☐	☐
4. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)	☐	☐	☐	☐	☐
5. Irritability (feeling nervous, inner tension, feeling aggressive)	☐	☐	☐	☐	☐
6. Anxiety (inner restlessness, feeling panicky)	☐	☐	☐	☐	☐
7. Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)	☐	☐	☐	☐	☐
8. Sexual problems (change in sexual desire, in sexual activity and satisfaction)	☐	☐	☐	☐	☐
9. Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)	☐	☐	☐	☐	☐
10. Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	☐	☐	☐	☐	☐
11. Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	☐	☐	☐	☐	☐

ആർത്തവവിരാമത്തിനു
ശേഷമുള്ളസ്ത്രീകളുടെശാരീരികക്ഷമതയും, മാനസികാരോഗ്യ-
പോഷകവിലയിരുത്തൽ.

1. പേര്: *
2. പ്രായം: *
3. വൈവാഹികനില: *
    - വിവാഹിത
    - അവിവാഹിത
    - വിധവ
4. തൊഴിൽ: *
5. നിങ്ങൾഎവിടെയാണ്താമസിക്കുന്നത്?
    - ഗ്രാമം
    - നഗരം

6.കുടുംബനാഥന്റെതൊഴിൽ *

7.കുടുംബനാഥന്റെവിദ്യാഭ്യാസയോഗ്യത? *

- ബിരുദം
- ഡിപ്ലോമ
- ഹൈസ്കൂൾ.
- മിഡിൽസ്കൂൾ
- പ്രൈമറിസ്കൂൾ
- നിരക്ഷരർ
- മറ്റുള്ളവ

8.പ്രതിമാസഗാർഹികവരുമാനം? *

- 78,063
- 39,033 - 78,062
- 29,200 - 39,032
- 19,516 - 29, 199
- 11, 708 - 19,515
- 3,908 - 11,707
- <3,907

HEALTH STATUS

1.കഴിഞ്ഞ 12 മാസത്തിനിടെവ്യക്തിഗത മെഡിക്കൽ ആവശ്യങ്ങൾക്കായി നിങ്ങൾ എത്ര തവണ ആശുപത്രി സന്ദർശിച്ചു.? *

- 1-2 തവണ

- 3-4 തവണ
- 5-10 തവണ
- പോയിട്ടേയില്ല

2.. ഹെൽത്ത്ഫെസിലിറ്റീസ്

(ഹോസ്പിറ്റൽസൗകര്യങ്ങൾലഭ്യമാക്കുന്നതിനുള്ളവെല്ലുവിളിയായിതോന്നിയത്ഇവയിൽഏതാണ് *

- ദീർഘദൂരം
- ഉയർന്നചെലവ്
- മോശംസൗകര്യങ്ങൾ(poor facilities)
- മറ്റുള്ളവ

3.അടുത്തുള്ളആരോഗ്യസംരക്ഷണകേന്ദ്രത്തിൽ (hospital) നിന്നുള്ളദൂരം? *

- 1 കിലോമീറ്ററിൽകൂടുതൽ
- 1 കിലോമീറ്ററിൽകുറവ്
- 1 കിലോമീറ്റർ

4.താഴെപ്പറയുന്നവയിൽഏതാണ്നിങ്ങൾഅവസാനമായിരോഗംവന്നപ്പോൾതിരഞ്ഞെടുത്തത്? *

- ആശുപത്രിസൗകര്യങ്ങൾ
- പരമ്പരാഗതരീതികൾ (traditional practices)
- സ്വയംചികിൽസിച്ചു (with local herbs)
- മറ്റുള്ളവ

ഹെൽത്ത്സ്റ്റാറ്റസ്

1.നിങ്ങൾക്ക്സ്ഥിരമായ ആരോഗ്യപ്രശ്നങ്ങൾ ഉണ്ടോ? (ഉണ്ടെങ്കിൽദയവായിരേഗപ്പെടുത്തുക) *

2.നിങ്ങൾഎന്തെങ്കിലുംമരുന്ന്കഴിക്കുന്നുണ്ടോ? (ഉണ്ടെങ്കിൽദയവായിരേഗപ്പെടുത്തുക) *

3.നിങ്ങൾപ്രമേഹരോഗിയാണോ?

- അതെ
- അല്ല

4.നിങ്ങൾമറ്റേതെങ്കിലും പരിശോധനകൾക്കവിധേയമായിട്ടുണ്ടോ? (ഉണ്ടെങ്കിൽദയവായിരേഗപ്പെടുത്തുക) *

5.നിങ്ങൾസപ്ലിമെന്റ്സ്കഴിക്കാറുണ്ടോ? (Eg. Iron, calcium tablets) *

- ഉണ്ട്
- ഇല്ല

6.എത്ര തവണ നിങ്ങൾ ശരാശരി സപ്ലിമെന്റ എടുത്തിട്ടുണ്ട്? (iron, calcium etc.) *

- മാസംതോറും
- ആഴ്ചതോറും
- ദിവസവും
- കഴിക്കാറില്ല

7.നിങ്ങളുടെയൂട്രസ് / ഓവരിറിമൂവ്ചെയ്തിട്ടുണ്ടോ? *

- ഉണ്ട്
- ഇല്ല

8. എക്സസൈസ്ചെയുന്നതിന്റെ ആവൃത്തി? *

- എല്ലാദിവസവും
- ആഴ്ചത്തോറും
- ഇടക്കിടക്ക്
- ചെയ്യാറില്ല

ആന്ത്രോപോമെട്രിക്അളവുകൾ

1. ഉയരം *

2.ഭാരം *

3.അരക്കെട്ടിന്റെചുറ്റളവ് *

ബയോകെമിക്കൽവിശകലനം

1.രക്തസമ്മർദ്ദം (BP) *

2. രക്തത്തിലെപഞ്ചസാരയുടെഅളവ് *

3.രക്തത്തിലെകൊളെസ്ട്രോൾനില *

ഭക്ഷണവിലയിരുത്തൽ

വെജിറ്റേറിൻ

നോൺവെജിറ്റേറിൻ

ഓവോവെജിറ്റേറിൻ

ലാക്ടോവെജിറ്റേറിൻ

1. ഒരു ദിവസംനിങ്ങൾ എത്ര അളവ്വെള്ളം കുടിക്കുന്നു? *

- 8 ഗ്ലാസിൽകുറവ്
- 8 ഗ്ലാസ്
- 8 ഗ്ലാസിൽകൂടുതൽ

2. ഏതുതരംഭക്ഷണംആണ്നിങ്ങൾഇഷ്ടപെടുന്നത്? *

- ഭാവനങ്ങളിൽഉണ്ടാക്കിയഭക്ഷണം
- വാങ്ങിയഭക്ഷണം
- പരിവർത്തനംചെയ്തഭക്ഷണം

3. ദിവസത്തിൽഎത്രആവർത്തിഭക്ഷണംകഴിക്കുന്നു? *

- 4 തവണയിൽകുറവ്
- 4 തവണ
- 4 തവണയിൽകുടുതൽ

4.. ജങ്ക്ഫുഡ് ഉപയോഗത്തിന്റെ ആവൃത്തി? *

- ദിവസേന
- ആഴ്ചതോറും
- മാസത്തിൽഒരിക്കൽ

5. നിങ്ങൾക്ക് എന്തെങ്കിലും ഭക്ഷണഅലർജി ഉണ്ടോ? *

- ഉണ്ട്
- ഇല്ല

6. ഉപ്പിന്റെ ഉപയോഗം. *

- ധാരാളമായി
- ഉപയോഗിക്കാറില്ല
- മിതമായി

7. വർത്തതും, പൊരിച്ചതുംആയഭക്ഷണത്തിന്റെ ഉപയോഗം?

- എല്ലാദിവസവും
- ആഴ്ചയിൽ 1 - 3 തവണ
- കഴിക്കാറില്ല

8.ചായ,കോഫി എന്നിവ ഉൾപ്പെടെ ഓരോ ദിവസവും നിങ്ങൾ ഉപയോഗിക്കുന്നപാലിന്റെ അളവ്?

- അരഗ്ലാസ്
- ഒരുഗ്ലാസ്
- ഒന്നിൽകൂടുതൽ

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
അരി				
ഗോതമ്പ്				
റവ				
ഓട്സ്				
പാസ്ത				
പാസ്ത				

കോൺഫ്ലേക്സ്				

ഭക്ഷ്യ ആവർത്തി ചോദ്യാവലി
(ശരാശരി ഭക്ഷണ ഉപയോഗം വ്യക്തമാക്കുക)
ധാന്യങ്ങൾ /ധാന്യ ഉൽപ്പന്നങ്ങൾ
*

ബ്രെഡ് ആൻഡ് സാവറി ബിസ്ക്കറ്റ് *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ഗോതമ്പ് ബ്രെഡ്				
ബിസ്കറ്റ് (പ്ലെയിൻ				
കേക്ക്				
ബൺ				
മധുരപലഹാരങ്ങൾ				
ചോക്ലേറ്റ്				
ബിസ്കറ്റ് (പ്ലെയിൻ)				

പയർവർഗ്ഗങ്ങൾ *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
കടല				
വൻപയർ				
ചെറുപയർ				
പരിപ്പ്				
ഗ്രീൻപീസ്				
ബ്രോഡ്ബീൻസ്				
സോയബീൻസ്				

കടല				

പച്ചക്കറികൾ /ഇലക്കറികൾ *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ചീര				
മുരിങ്ങയില				
ബീൻസ്				
കോളിഫ്ളവർ				
തക്കാളി				
പപ്പായ				
പാവക്ക				
മറ്റ് പച്ചക്കറികൾ.				
കാബേജ്				

വേരുകളുംകിഴങ്ങുവർഗ്ഗങ്ങളും *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ഉള്ളി				
കപ്പ				
ചേമ്പ്				
ചേന				
കാരറ്റ്				
ബീറ്റ്റൂട്ട്				
ഉരുളക്കിഴങ്ങ്				
മറ്റുള്ളവ				

പഴങ്ങൾ *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ആപ്പിൾ				
ഓറഞ്ച്				
മാങ്ങ				
പേരക്ക				
ബെറീസ്				
പൈനാപ്പിൾ				
മുന്തിരി				

കൊഴുപ്പ് / പാൽ /പാൽഉൽപന്നങ്ങൾ *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
വെണ്ണ				
ചീസ്				
പാൽ				
തൈര്				
മറ്റുള്ളവ				

ഉണങ്ങിയപഴങ്ങളും /വിത്തുകളും *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ബദാം				
കശുവണ്ടി				
പിസ്ത				
നിലക്കടല				
ആപ്രിക്കോട്ട്				
അത്തി				
എള്ള്				
ഫ്ളാക്സ്സീഡ് (ചണവിത്ത്)				
ഉണക്കമുന്തിരി.				
മറ്റുള്ളവ				

മാംസഭക്ഷണങ്ങൾ *

	എല്ലാദിവസവും	ആഴ്ചതോറും	മാസംതോറും	കഴിക്കാറില്ല
ചിക്കൻ				

ഫിഷ്				
മുട്ട				
മട്ടൻ				
ബീഫ്				
പോർക്ക്				
മറ്റുള്ളവ				

DASS SCALE

Please read each statement and choose a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week.
Do not spend too much time on any statement.
The rating scale is as follows:
0-Did not apply to me at all
1-Applied to me to some degree, or some of the time
2- Applied to me to a considerable degree or a good part of time
3-Applied to me very much or most of the time(താഴെ കൊടുത്തിരിക്കുന്ന ഓപ്ഷൻസിൽ ഒരെണ്ണം തിരഞ്ഞെടുക്കുക)

1. I couldn't seem to experience any positive feeling at all. (എനിക്ക് ഒരു പോസിറ്റീവ്വികാരവും അനുഭവപ്പെടുന്നതായിതോന്നുന്നില്ല)? *
   0 1 2 3 4
2. .I felt difficult todown(എനിക്ക്ശാന്തമാക്കാൻ പ്രയാസമുള്ളതായിതോന്നി)? *
   0 1 2 3 4
3. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)(.എനിക്ക്ശ്വാസിക്കാനുള്ള ബുദ്ധിമുട്ട് അനുഭവപ്പെട്ടു) *
   0 1 2 3 4
4. I found it difficult to work up the initiative to do things(കാര്യങ്ങൾ ചെയ്യാനുള്ള മുൻകൈയെടുക്കാൻ എനിക്ക്ബുദ്ധിമുട്ട്തതാന്നി.) *
   0 2 3 4
5. I tended to over-react to situations (ഞാൻ സാഹചര്യങ്ങളോട്അമിതമായിപ്രതികരിക്കുന്നതുപോലെ തോന്നി) *
   0 1 2 3 4
6. . I experienced trembling (e.g. in the hands) (എനിക്ക്കൈകളിൽ വിറയൽ അനുഭവപ്പെട്ടു) *
   0 1 2 3 4
7. I felt that I was using a lot of nervous energy (എനിക്ക് ഒരുരാട്മാനസികസമ്മർദ്ദും അനുഭവപ്പെടുന്നതായ് തോന്നി)
   0 1 2 3 4
8. * I was worried about situations in which I might panic and make a fool of myself (ഞാൻ പരിഭ്രാന്തനാകുകയും സ്വയം വിഡ്ഢിയാകുകയും ചെയുന്ന സാഹചര്യങ്ങളെക്കുറിച്ച്ഞാൻ ആശങ്കാകുലനായിരുന്നു) *
   0 1 2 3 4
9. I felt that I had nothing to look forward to (എനിക്ക്പ്രതീഷിക്കാൻ വകയില്ലാത്തതുപോലെതോന്നി) *
   0 1 2 3 4
10. I found myself getting agitated (ഞാൻ ഇടക്കപരിഭ്രാന്തിപ്പെടാറുണ്ട്)

0 1 2 3 4

11. I found it difficult to relax (എനിക്ക്ശ്വസിക്കാൻ ബുദ്ധിമുട്ട്തോന്നി) *

0 1 2 3 4

12.I felt down-hearted and blue (എനിക്ക്നിരാശതോന്നാറുണ്ട്) *

0 1 2 3 4

13.I was intolerant of anything that kept me from getting on with what I was doing (ഞാൻചെയെത്ക്കൊണ്ടിരുന്നകാര്യങ്ങൾതടസ്സപ്പെടുത്തുന്ന എന്തിനെപ്പറ്റിയുംഎനിക്ക്അസഹിഷ്ണുതതോന്നാറുണ്ടായിരുന്നു) *

0 1 2 3 4

14.I felt I was close to panic (ഞാൻ പരിഭ്രാന്തിയുടെ വക്കിലാണെന്ന് എനിക്ക്തോന്നി) *

0 1 2 3 4

15. I was unable to become enthusiastic about anything *

0 1 2 3 4

16. I felt I wasn't worth much as a person (ഒരുവ്യക്തിയെന്നനിലയിൽ ഞാൻ വിലമതിക്കുന്നില്ലെന്ന് എനിക്ക്തോന്നി) *

0 1 2 3 4

17.I felt that I was rather touchy (ഞാപ്പനാരു തൊട്ടാവാടിയായതു പോലെതോന്നി) *

0 1 2 3 4

18. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat) *

0 1 2 3 4

19.. I felt scared without any good reason(എനിക്ക് അകാരണമായഭയും തോന്നി) *

0 1 2 3 4

20. I felt that life was meaningless (ജീവിതം അർത്ഥശൂന്യമാണെന്ന് എനിക്ക്തോന്നി) *

0 1 2 3 4

Menopause Rating Scale (MRS)

Which of the following symptoms apply to you at this time?
Please, mark the appropriate box for each symptom.
For symptoms that do not apply, please mark (Score = 0 1 2 3 4)
Symptoms:
none = 0
Mild = 1
moderate = 2
severe = 3
very severe = 4

1. Hot flushes, sweating (episodes of sweating) *

2. Heart discomfort (unusual awareness of heartbeat, heart skipping, heart racing, tightness) [ഹൃദയ അസ്വസ്ഥത] *

3.. Sleep problems (difficulty in falling asleep, difficulty in sleeping through, waking up early) [ഉറക്ക പ്രശ്നങ്ങൾ] *

4. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings) [വിഷാദമാനസികാവസ്ഥ] *

5. Irritability (feeling nervous, inner tension, feeling aggressive) *

6. Anxiety (inner restlessness, feeling panicky) [ഉത്കണ്ഠ] *

7. Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness) [ശാരീരികവും മാനസികവുമായ ക്ഷീണം] *

8.. Sexual problems (change in sexual desire, in sexual activity and satisfaction) *

9. Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence) [ലൈംഗിക പ്രശ്നങ്ങൾ] *

10. Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse) [. യോനിയിലെ വരൾച്ച] *

11. Joint and muscular discomfort (pain in the joints, rheumatoid complaints) [ജോയിന്റ്, പേശിഅസ്വസ്ഥത] *

WHOQOL-BREF

ഓരോചോദ്യവുംവായിക്കുക,
നിങ്ങളുടെവികാരങ്ങളുടെഅടിസ്ഥാനത്തിൽഓരോചോദ്യത്തിനും സ്കെയിലിൽനമ്പർതിരഞ്ഞെടുക്കുക.

1. How would you rate your quality of life? (നിങ്ങളുടെ ജീവിതനിലവാരം എങ്ങനെ വിലയിരുത്തും?) *

- വളരെമോശം(VERY POOR)
- മോശം(POOR)
- മോശമല്ലനല്ലതുമല്ല(NEITHER POOR NOR GOOD)
- കൊള്ളാം(GOOD)
- വളരെനല്ലത്(VERY GOOD)

2.How satisfied are you with your health? (. നിങ്ങളുടെ ആരോഗ്യത്തിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെമോശം(VERY POOR)
- മോശം(POOR)
- മോശമല്ലനല്ലതുമല്ല(NEITHER POOR NOR GOOD)
- കൊള്ളാം(GOOD)
- വളരെനല്ലത്(VERY GOOD)

3.To what extend do you feel that physical pain prevents you from what you need to do? (നിങ്ങൾ ചെയ്യേണ്ട കാര്യങ്ങളിൽ നിന്ന്ശാരീരികവേദന നിങ്ങളെ തടയുന്നുവെന്ന്നിങ്ങൾക്ക് എത്രത്തോളം തോന്നുന്നു?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി(a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം(an extreme amount)

4.How much do you need any medical treatment to function in your daily life? (നിങ്ങളുടെ ദൈനംദിന ജീവിതത്തിൽ

പ്രവർത്തിക്കാൻ നിങ്ങൾക്ക് എത്രത്തോളം വൈദ്യചികിത്സ ആവശ്യമാണ്?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little0
- മിതമായി(a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം(an extreme amount)

5. How much do you enjoy life? (നിങ്ങൾ ജീവിതം എത്രമാത്രം ആസ്വദിക്കുന്നു?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി(a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (an extreme amount)

6. To what extent do you feel your life to be meaningful? (നിങ്ങളുടെ ജീവിതം എത്രത്തോളം അർത്ഥവത്താണെന്ന്നിങ്ങൾക്ക്തോന്നുന്നു?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി(a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (an extreme amount)

7. How well are you able to concentrate? (നിങ്ങൾക്ക് എത്രത്തോളം ശ്രദ്ധകേന്ദ്രീകരിക്കാൻ കഴിയും?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

8.How safe do you feel in your daily life? (. നിങ്ങളുടെ ദൈനംദിനജീവിതത്തിൽ നിങ്ങൾക്ക് എത്രത്തോളം സുരക്ഷിതത്വം തോന്നുന്നു?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

9.How healthy is your physical environment? (നിങ്ങളുടെ ശാരീരിക അന്തരീക്ഷം എത്രത്തോളം ആരോഗ്യകരമാണ്?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

10.Do you have enough energy for your daily life? (ദൈനംദിന ജീവിതത്തിന് ആവശ്യമായ ഊർജം നിങ്ങൾക്ക് ഉണ്ടോ?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

11. Are you able to accept your bodily appearance? (നിങ്ങളുടെ ശാരീരികരൂപം അംഗീകരിക്കാൻ നിങ്ങൾക്ക്കഴിയുന്നുണ്ടോ?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

12.Do you have enough money for your daily needs? (നിങ്ങളുടെ ദൈനംദിനആവശ്യങ്ങൾക്ക്മതിയായ പണമുണ്ടോ?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)

- അങ്ങേയറ്റം (extremely)

13. How available to you is the information that you need in your day to day life? (നിങ്ങളുടെ ദൈനംദിനജീവിതത്തിൽ ആവശ്യമായ വിവരങ്ങൾ നിങ്ങൾക്ക് എത്രത്തോളം ലഭ്യമാണ്?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

14. To what extent do you have the opportunity for leisure activities? (ഒഴിവുസമയ പ്രവർത്തനങ്ങൾക്ക്നിങ്ങൾക്ക് എത്രത്തോളം അവസരമുണ്ട്?) *

- ഒരിക്കലുമില്ല(not at all)
- കുറച്ച്(a little)
- മിതമായി (a moderate amount)
- വളരെയധികം(very much)
- അങ്ങേയറ്റം (extremely)

15.How well are you able to get around? *

- വളരെമോശം(very poor)
- മോശം (poor)
- മോശമല്ലനല്ലതുമല്ല
- നല്ലത് (well)
- വളരെനല്ലത് (very well)Option 1

16. How satisfied are you with your sleep? (നിങ്ങളുടെ ഉറക്കത്തിൽ നിങ്ങൾ എത്ര മാത്രം സംതൃപ്തരാണ്) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

17. How satisfied are you with your ability to perform daily living activities? (. ദൈനം ദിനജീവിത പ്രവർത്തനങ്ങൾ നടത്താനുള്ള നിങ്ങളുടെ കഴിവിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

18. How satisfied are you with your capacity for work? (ജോലി ചെയ്യാനുള്ളനി ങ്ങളുടെ കഴിവിൽനിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

19. How satisfied are you with yourself? (നിങ്ങൾ എത്രത്തോളം സ്വയം സംതൃപ്തനാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

20. How satisfied are you with your personal relationship? (. നിങ്ങളുടെ വ്യക്തിപരമായ ബന്ധങ്ങളിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)

- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

21.How satisfied are you with your sex life? (നിങ്ങളുടെ ലൈംഗിക ജീവിതത്തിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

22. How satisfied are you with the support you get from your friends? (. നിങ്ങളുടെ സുഹൃത്തുക്കളിൽ നിന്നുഭിക്കുന്ന പിന്തുണയിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

23. How satisfied are you with the conditions of living place? (നിങ്ങളുടെ താമസസ്ഥാലത്തിന്റെ അവസ്ഥയിൽ നിങ്ങൾ എത്രത്തോളം സംതൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

24. How satisfied are you with your access to health services?(നിങ്ങൾക്ക്ലഭിക്കുന്ന ആരോഗ്യസേവനങ്ങളിൽ എത്രത്തോളം സംതൃപ്തനാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

25. How satisfied are you with your transport? (നിങ്ങളുടെ ഗതാഗതത്തിൽ നിങ്ങൾ എത്രത്തോളംസം തൃപ്തരാണ്?) *

- വളരെഅസംപ്തൃതി(very dissatisfied)
- അസംതൃപ്തൻ(Dissatisfied)
- തൃപ്തനുമല്ലഅതൃപ്തനുമല്ല(neither satisfied nor dissatisfied)
- സംതൃപ്തനായി(satisfied)
- വളരെതൃപ്തികരം(very satisfied)

26. How often do you have negative feelings such as despair, anxiety, depression? *

- ഒരിക്കലും(never)
- വിരളമാണ്(seldom)
- പലപ്പോഴും(quite often)
- എല്ലായ്പ്പോഴും(always)

LINK OF THE YOU TUBE PRESENTATION VIDEO :

https://youtu.be/K6f2mhxQ64Q