MENOPAUSE RELATED SYMPTOMS AND THEIR CORRELATES: A COMMUNITY BASED CROSS SECTIONAL STUDY IN KOLLAM DISTRICT, KERALA

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LIST OF ABBREVIATIONS

AYUSH	Ayurveda, Yoga and naturopathy, Unani, Siddha and Homeopathy
CVD	Cardio Vascular Diseases
DM	Diabetes Mellitus
FMP	Final Menstrual Period
GCS	Green Climacteric Scale
HDL	High-Density Lipoprotein
MRS	Menopause related symptoms
NFHS	National Family Health Survey
NSSO	National Sample Survey Office
SD	Standard deviation
STEPS	Stepwise approach to Surveillance
STRAW	Stages of Reproductive Aging Workshop
VMS	Vasomotor symptoms
WC	Waist circumference
WHO	World Health Organization

ABSTRACT

Introduction: Menopause is a biological event characterized by complexity of factors. On an average one third of the women's life consists of the post menopause years, and health care programmes for women do not address concerns beyond reproductive ages. This study aims to describe the magnitude of menopause related symptoms, pattern of health care seeking and associated factors.

Method: This is a community based cross sectional study in Kollam district using a multi stage stratified random sampling strategy. Structured interview schedule with Green Climacteric scale was used for data collection and analysis was done using IBM SPSS version.21.

Results: A total of 420 participants were included in the study. The proportion of women who had at least one menopause related symptom was 95.95(95%CI 93.73-97.54) and 58.3% women had severe symptoms. Severities of symptoms in psychological, physical, vasomotor and sexual domains were 56.7%, 70.5%, 49.3% and 10.2% respectively. Premature menopause ($p<0.016$), induced nature of menopause ($p<0.031$), low economic status ($p<0.023$), no family support ($p<0.007$), history of diagnosis of gynecological morbidity ($p<0.002$), dislipidemia ($p<0.006$) and other medical condition ($p< 0.003$) were associated with severity of menopausal related symptoms. About half of them sought health care at least once. Gynecological morbidity ($p<0.006$), presence of self-reported DM ($p<0.027$), presence of other medical conditions ($p<0.025$) were associated with seeking health care.

Conclusions: A high proportion of women are affected by menopause related symptoms. Care seeking for all symptoms is not uniform, indicative of a lack of knowledge about the treatable nature of many of these symptoms. Sensitisation of both women and the health care system may serve to address this issue of menopause related symptoms and the possibility of treatment for these.

CHAPTER 1
INTRODUCTION

1.1 Background

Demographic transition is a recent phenomenon in developing countries characterized by decline in fertility, mortality and increase in life expectancy. The impact of demographic transition on women's status is important in terms of health, economy and gender. The life cycle factors like reduced family size, changes in marital status, increased dependency ratio, changes in disease pattern, and aging can affect women varyingly (Kirsty McNay, 2003). The gender specific health needs of women are different and it is neglected in developing countries regardless of gender equality and empowering women status goals which were set by Cairo Declaration of Population and Development.(ICPD, 1994) and United Nations Sustainable Developmental Goals(United Nations, 2015).

Menopause is considered to be a marker of biological ageing in women(WHO technical Group, 1996). Menopause is one of the most significant stages in female reproductive life cycle where there is a transition from reproductive to non reproductive stage. This brings in a number of physiological changes that affect the life of a woman permanently. It sets the stage for ageing and accelerates the process of non-communicable disorders. Historically the association of menopause and its symptoms was noted by John Leake in 1777(Leake, 1777) .

Natural menopause is indicated by the permanent cessation of menstruation due to lack of ovarian follicular activity. However, this can be clearly identified only after one continuous year of amenorrhea. It is difficult to find a biological marker for

menopause as it occurring and it can be only identified subsequently.(Utian, 1999a). The complexity of various factors such as hormonal, psychological, social, cultural and aging factors produces a difference in symptoms and long-term health outcomes (Utian, 1997).

The symptoms of menopause that appear before, during and after the onset of menopause vary. India has a large population with 71 million people over 60 years of age and the menopausal women number about 43 million. The estimated projected population of India in 2026 will be 1.4 billion, and among those, people over 60 years will number 173 million(Registrar General of India, 2006). The number of women in the postmenopausal ages 50–59 years is projected to increase from 36 million in 2000 to 63 million in 2020.(Khandelwal, 2013).

Slightly over one tenth of the women (11.2%) in the age group 30-39 attained menopause in India among 30-49 years age group (NFHS-3, 2007) .Given that this number is not insignificant and runs to millions of women, it is important to have a national policy with individualized approach in addressing the menopause related symptoms which is sensitive to the clear event in the women's life cycle. Such a policy would help to reduce the social and economic burden of the symptoms for elderly women and ensure a quality of life or ensure a healthy life expectancy. The quality of the menopause experience of women is determined by their reproductive histories, the environmental conditions under which they have lived, the conditions under they work, ,the role in the family, the adequacy of their diet, the diseases to which they are vulnerable either by reason of genetics or lifestyles, the socioeconomic circumstances , and their access to adequate health care (Kaufert, 1996).

1.1 Rationale for the study

The hormonal and behavioural changes that occur during the menopausal period lead to a high demand for special health care. Menopause introduces a major change in the morbidity pattern in middle life of woman. The proportion of women who experience pre mature menopause either due to biological or otherwise induced reasons have long duration of exposure to menopause leading to severe symptoms, when compared to women who have undergone menopause naturally. The Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) programme strategy which is based on 'Continuum of care' concept, propagated high impact interventions in the life cycle care for women does not address the late reproductive age group of women(MOH&FW, 2013). The health of the women in the later reproductive age and menopause are ignored by all existing health care programmes.

Menopause does not cause any life threatening conditions, but it affects the quality of life of the women in the middle ages. In Kerala the life expectancy of females at birth is 76.3 years (Health information Cell, Kerala, 2013) and average age at menopause was estimated to be 47.95 years(Subrahmanyam and Padmaja, 2016) or 48.2(Borker et al., 2013) years. Given the expectation of life at birth of woman in Kerala, approximately 28 years of will be spend in the post menopause period, with short term and long term menopause related morbidity. Menopause is physiological event, but its psychological, physical consequences will prevail throughout these 28 odd years for the woman.

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The health care needs of the women vary among different stages of life; in her third phase of reproductive life, it depends on the physiological characteristics and socio cultural contextual factors. Usually women in this peri-menopause are negligent about their health and end up with chronic diseases which call for urgency in public health focus on emerging health issues of middle aged women(Govil, 2010).

This brings the importance of understanding of health in menopausal women, and developing appropriate health promotion activities. A supportive, understanding attitude from any health care system may lead to improved wellness of women in middle ages(TAKEDA, 2010). Therefore looking beyond the physiology to understanding of sociodemographic context of individual women by studying menopause and its correlates gains significance. This can contribute to reducing the gap between an identified need and care provided and promoting health of the women.

1.3. Research Questions

I. What is the extent of self reported menopause related symptoms among 35-60 years old women in Kollam district?

II. What are the factors associated (reproductive, sociodemographic, life style) with menopause related symptoms and health seeking behaviour among 35-60 years old women?

1.4. Objectives of the study

1.4.2. Major objective

To determine the prevalence of self reported menopause related symptoms among women aged 35-60 years in menopausal transition phase and post menopause phase.

1.4.3 Minor objectives

To explore the association between socio-demographic, reproductive, lifestyle factors and menopause symptoms and to identify the pattern of health seeking behaviour and to find out factors associated with health seeking behaviour.

1.5. Chapterization Plan for the study

The introduction chapter gives a brief summary of the current study topic, relevance, rationale, research question and objectives of the study in present context. Chapter two is about the summary of literature related to the topic. Chapter three describes the methods and materials used for the study, data analysis, variables, definitions, ethical consideration. Chapter four is the detailed description of results. Chapter five includes the discussion related to key findings of the study, strengths and limitation of the study and emerging conclusion, policy implication and recommendation.

CHAPTER 2
REVIEW OF LITERATURE

2.1 Introduction

The review of literature chapter is a summary of accessed literature regarding menopause related symptoms and the various factors associated with it in tune with the research questions. The purpose of the literature review was to find out what is known already with respect to menopause, its associated factors globally and identify the possible correlates of menopause related symptoms locally, especially in a Kerala context.

2.2 Literature review strategy

The literature search utilised Pub Med and Google Scholar data bases, with a period limit of January 1996 until December, 2016.The key words strategy used were;

- "Perimenopause, gynecological morbidity and adult women".
- "Menopause, morbidity and adult women".
- "Perimenopause, morbidity and India".
- "Menopause, morbidity and adult women in India"
- "Menopause, health care seeking behaviour"

Using the title to peg the relevance, the literature was listed and the associated abstract was read. Relevant abstracts were chosen and searched for full text availability through different sources. Full text articles that made a significant contribution on the key topics were included. Some articles published before

1996 but were relevant to the issue were included in the body of literature reviewed. Literature search process flow chart attached in Annexure I.

The identified materials were grouped on the basis of Studies Worldwide, Studies in India, and Studies in Kerala. The literature was categorized on the basis of;

i. Magnitude of the menopause related issues in global, Indian and Kerala scenario.
ii. Short term effects and symptoms of menopause.
iii. Long term effects of menopause.
iv. Menopause and Quality of Life.
v. Determinants of menopause related morbidity and its correlates.
vi. Health seeking behaviour and related factors
vii. The concept of healthy menopause and recommendations regarding it.

2.3. Menopause Related Symptoms and Determinants - Global Scenario

There are racial or ethnic differences in symptom reporting and menopausal status. A study was conducted 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; whereas 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 group.

Perimenopausal women reported more psychosomatic symptoms than pre- or postmenopausal women. Perimenopausal women, hormone users, and women who had a surgical menopause reported significantly more vasomotor symptoms. The factors associated with symptom reporting were education; self assessed health (negative association) and economic constraints (positive association)**.** The symptoms depended not only on the physiologic changes during women's midlife but also on ethnicity(Avis et al., 2001).

The prevalence of menopause related symptoms in nine Asian ethnic groups was assessed in Pan-Asia menopause study; the symptoms were significantly different between ethnic groups and in each ethnic group the proportion of women reporting each symptom varied. Hot flush prevalence ranges from 5 percent of Indonesian women to 100 percent in Vietnamese women. The commonest menopausal symptom prevailing in Asian region were body and joint aches and pains(Haines et al., 2005) .

A third of (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. Early age at menopause had a positive relation with the prevalence of menopause related morbidity(Grigoriou et al., 2013).

A study in Sweden among a large sample of middle aged women identified the determinants of menopause related symptoms such as sociodemographic characteristics, life style, and other health problems. It also laid emphasis on

importance of considering these factors in understanding menopause related symptoms as they have a direct and modifiable effect on existence of menopause related symptoms(Li et al., 2003).

A nested cross sectional study conducted 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 same study found that memory loss was associated with menopausal transition and perimenopause, 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 sociodemographics and psychological factors leading to more non specific somatic and psychological symptoms. The study recommended educational intervention and special focus on critical window of menopausal transition(Oppermann et al., 2012).

Another study among 356 participants in Malaysia in the age group 40-65 years using a modified menopause rating scale found that 35%-45% postmenopausal women reported major symptoms like joint and muscular discomfort, physical and mental exhaustion, anxiety, depressive mood, irritability. The symptoms in perimenopause and post menopause had statistically significant differences when compared to premenopausal women. Post menopausal women experienced more urogenital issues (Rahman et al., 2010).

Another study conducted in Kawasaki, Japan in 1998 using a self administered questionnaire about menopausal symptoms among women who were 50 years or more found that four menopause related symptoms, viz, hot flushes, sweats, depression and insomnia were more prevalent among post-menopausal women. These four symptoms were also associated with socio psychological and life style factors and BMI(Ishizuka et al., 2008).

2.4 Menopause related symptoms and determinants-Indian Scenario

The proportion of women in menopause status across age groups varied across the states of India. Premature menopause in the age group 35-39 was high in states like Andhra Pradesh (22.1per cent), Gujarat (10.7 per cent) and Karnataka (10.6 per cent). To some extent, variation in premature menopause can be explained by socio-economic, demographic, nutritional and reproduction-related variables. Women who have started childbearing early and women who had no children also reach menopause early. As India is still characterised by a large number of illiterate women with low age at marriage and early child bearing and with poor nutritional levels, the problem of premature menopause may continue to be a burden in the future too (Syamala and Sivakami, 2005).

Cultural factors influencing women's physical and psychological health varied across societies. Attitudes towards menopause may be related to different cultural practices and it also depends on the social construction of menopause. Menopausal transition is the stage at which the accumulated risk factors can lead to chronic diseases and disability. Unless women take preventive care, the burden of disease may be very high in the later ages(Meeta, 2008). Individual variations in menopausal symptoms were linked to rural urban settings and the associated

cultural beliefs. Any analysis of menopausal symptoms reporting in India should take cognisance of this(Kumar Mishra, 2011).

A Pan Indian Study conducted across 21 cities among 2184 women in menopausal transition and post menopausal found that the mean menopausal age of the Indian women was 45.59 years (including women whose menopause was induced) and the average age at natural menopause of the Indian woman was 46.2 years. Age at menopause in different regions of India was as follows: East 45.1 years, West 45.5years, North 45 years, South 44.7 years, and Central region 43.1 years. Higher education, high socioeconomic status with better nutritional status, multiple reproductive choices, low stress experience, access to better heath resources and medical care, longer marriage duration were positively associated with late age at menopause(Ahuja, 2016).

In India, the most common reported menopause related symptoms were urogenital symptoms, fatigue, weakness, body aches, and pains, hot flushes, mood swings, and sexual dysfunction. A study conducted in West Bengal among women aged 40 and 55 years, who had attained natural menopause, suggested that menopausal health of women is influenced by menstrual, reproductive history, sociodemographic variables, lifestyle, genetic and access to adequate health care. The study determined that variation the that exists in the menopausal experience and its sociodemographic and reproductive factors can be related to difference in ethnicity (Dasgupta et al., 2015).

A cross sectional study in Jammu among women of 40 years of age and above belonging to middle socioeconomic status aimed to evaluate menopausal symptoms in post menopausal women and its association with age and mean

duration since menopause in three age strata. Fatigue and lack of energy, head ache, hot flushes, cold sweats, and weight gain were the most common symptoms reported. The most frequent menopausal symptoms among those aged 40-44 with lesser duration since menopause were fatigue, lack of energy, headache, hot flushes, cold sweats, excitability, anxiety, numbness, tingling. In addition to these symptoms weight gain, irritability and nervousness were reported commonly by women in the ages 45 to 50 years. Rheumatic pains, fatigue, lack of energy, headache, pain in back, forgetfulness, neck and skull pain, sleep disturbance and depression were frequent symptoms among those aged 50 years and more (Sharma et al.2007).

A study in Bihar in 2013, conducted to compare the frequency and severity of menopausal symptoms during peri menopausal and post menopausal period estimated the mean age of menopause to be 45.29 years. There was a significant difference between symptoms experienced in terms of frequency and severity among perimenopausal women and post menopausal women. The most common symptoms were fatigue, depression, anxiety, hot flushes and sexual disturbances in perimenopausal period and urogenital symptoms, muscle and joint pain, fatigue for postmenopausal women(Ahsan et al., 2015).

A cross sectional study in Agra found that the mean age at menopause was 48.2 years, and that the women in the menopause experienced more than one symptom. Muscle and joint pains were reported by 70% of women and mood swings were present for 65% of the women with symptoms. Close to half of the women (45%) had hot flushes and excessive sweating, 44% had changes in sexual desire, 41%

cases had dryness of vagina, 35% had urinary symptoms, and 11% had anxiety and irritability(Garg et al., 2015).

A study in Karnataka mean to assess the menopause related health problems among pre and post menopausal women and the relationship of menopause status with family composition, menstrual history, presenting health problem, past history, family history, personal history and dietary history found the mean age at menopause to be 45.32 years. Muscle and joint pain, vasomotor symptoms, urological symptoms, vulvovaginal symptoms, hot flushes, were experienced by post menopausal women(Avin Alva and Chethan, 2016).

A study in the urban slum of Mysore undertaken in 2015 found that 88 percent of women attained natural menopause and that for 12 percent of the women, menopause was induced, mainly surgical. Almost all the women in the study (95%) had one or more symptoms of menopause. The most common symptoms reported were joint and muscular discomfort, physical and mental exhaustion, depression, irritability, and vasomotor symptoms. There was a significant positive correlation between postmenopausal symptoms and age(Kulkarni et al., 2016).

Another study in Himachal Pradesh found that the majority of the women had a positive attitude towards menopause and that the number of symptoms increased with age. The most common co-morbidity reported by the study participants were hypertension and arthritis(Mahajan et al., 2012).

2.5 Menopause and Long term health Issues.

There are ethnic, cultural, social differences between features of menopause between Asian and Western regions and within Asian region (among individual countries).Asian countries are experiencing transition in different fields like

economic changes, urbanization, and increased life expectancy. These situations contribute to predisposing consequences of menopause, like chronic diseases and this should sent out alarm signals to the public health system(Baber, 2014).

Menopause was associated with increased risk for metabolic syndrome which is characterized by insulin resistance, altered glucose tolerance, or diabetes, dislipidemia-(low HDL, high LDL, and high triglycerides), hypertension, and central obesity. The sites of cancer incidence among midlife women were breast, cervix, ovary, and endometrial(Unni, 2010).

A clinical cross sectional study was conducted in hospital Gynaecologic endocrinology Unit in Brazil with 97 post menopausal women in the age group 45 to 65 years, to evaluate the prevalence of subclinical cardio vascular disease risk and its association with hormonal levels and demographic, anthropometric and metabolic variables. The study reported moderately high prevalence of subclinical atherosclerosis (using Framingham General Cardiovascular Risk Score) and, high BMI, age and endogenous estrogens, as well as cardiovascular risk factors such as blood pressure and LDL cholesterol all of which may lead to subclinical CVD in postmenopausal women(Maturana et al., 2015).

One study conducted in Prague with a randomly selected population of 909 women aged 45-54 years (women in reproductive age and post menopause) to compare the effects of insulin resistance as a part of metabolic syndrome which increases during menopause showed that transition to menopause is an associated risk factor for manifestation of the Metabolic syndrome in middle aged women. Visceral (abdominal) obesity which can be assessed by the waist circumference is one of the easily measured components of metabolic syndrome. The study is

indicative of the importance of the preventive aspects of metabolic syndrome manifestation in the menopause transition by reducing the risk in the reproductive age group, which may be accelerated by menopause(Lejsková et al., 2011).

In case of association between the extent of diabetes and low hormonal levels (FSH) during postmenopausal period, a study done with a subsample from a cross-sectional survey on prevalence of metabolic diseases and risk factors in East China, with biochemical clinical and anthropometric measurement showed a significant association between post menopausal low FSH and prediabetes and post diabetic stages. It was partially explained by adiposity and insulin resistance(Wang et al., 2016). A study conducted to assess the possible association between poverty and the prevalence of obesity and oophorectomy in a population of post menopausal women compared reproductive history such as age at menarche, age at menopause, fertile years, and number of pregnancies, breast feeding and use of hormonal replacement therapy in 1225 post menopausal Caucasian women in Spain. The age at menarche was earlier in low socioeconomic status women, obesity, the number of pregnancies and number of abortions, frequency of breast feeding and prevalence of bilateral oophorectomy were also higher among women with low socio economic status(Navarro et al., 2010).

Another study in Brazil which aimed to examine the association of metabolic syndrome and sexual function in a cohort of women who were attending the menopausal clinic; found no association between sexual dysfunction and components of metabolic syndrome in women aged 40-60 years(Politano et al., 2015).

A study conducted in Delhi, to compare bone mineral density and its variation in pre and post menopausal women indicated a high positive correlation between bone mineral density at spine and femur neck with BMI in both pre and postmenopausal groups. Age and menopause were significantly associated with bone mineral density in spine. On an average, premenopausal women were more likely to have dietary Calcium intake than in postmenopausal women and this difference was statistically significant. This study emphasised on the need to improve awareness about bone health and recommended early interventions in the midlife to reduce the morbidity of osteoporosis(Mittal et al., 2011). Women between the ages 40-60 years were suffering from Osteopenia (35%-40%) and osteoporosis (8%-30 %). These were more common among urban women than rural women(Gandhi and Shukla, 2005).

A cross sectional survey in Netherlands studied the impact of menopausal symptoms on work ability of women in the ages44-60 years by mailing Green climacteric scale and Work ability Index to female employers of one home care organization and one hospital. Psychological and somatic domains of the Greene climacteric scale and low level of education were found to negatively influence work ability(Geukes et al., 2012).

2.6 Metabolic Syndrome and Menopause

Metabolic syndrome is considered as one of the epidemics with two emerging components of type 2 diabetes mellitus and cardiovascular disease in 21st century(Tavares et al., 2015). The women in menopause stages show very high profile of metabolic syndrome components worldwide. During menopause the pattern of hormone secretion changes and gradually causes fat accumulation in

visceral tissues of abdomen and as a result, central obesity. A fourfold increase in incidence of cardio vascular diseases risks in postmenopausal period as evidenced by Framingham(Carr, 2003) .The prevalence of metabolic syndrome was higher in post menopausal women even after adjusting for age(Heidari et al., 2010).

Longitudinal studies in 'Study of Women's Health Across the Nation' showed an increase in prevalence of metabolic syndrome irrespective of chorological aging in menopausal stages and evidence of ovarian aging contribute changes in body composition and waist circumference(Sowers et al., 2007 ; Janssen, 2008).

Menopause can be a predictor of metabolic syndrome in women(Ben Ali et al., 2014). A study conducted in Western India shows high prevalence of metabolic syndrome in post menopausal women(Vaidya et al., 2010). The prevalence estimated in post menopausal women was 48 percent, 1.7 times more than pre menopausal women in another study(Singh and Sinha, 2016).

According to International Diabetes Federation(IDF, 2006), for a person to be defined as having the metabolic syndrome they must have central obesity, defined as waist circumference more than or equal to 80 cm in South Asian woman, plus any two of the following four factors:

a) Raised triglycerides (value≥ 150 mg/dL (1.7 mmol/ L) or specific treatment for this lipid abnormality.

b) Reduced HDL cholesterol (< 40 mg/dL (1.03mmol/L) in male's and < 50 mg/dL (1.29mmol/L) in females or specific treatment for this lipid abnormality.

c) Raised blood pressure, systolic BP ≥ 130 or diastolic BP ≥ 85 mm Hg or treatment of previously diagnosed hypertension.

d) Raised fasting plasma glucose (FPG) ≥ 100 mg/dL (5.6 mmol/L), or previously diagnosed type 2 diabetes.

2.7 Menopause and Quality of Life

Researchers studied the satisfaction with quality of life of menopausal women in urban areas Beijing, China using Menopause specific quality of life questionnaire among 353 women aged 40-60 years, during menopausal transition and post menopausal periods. Menopausal symptoms can be influenced by a combination of physical changes, social-cultural influences and individual perception. The study indicated that the menopause women's quality of life was affected by vasomotor and sexual symptoms and the most frequent symptoms were poor memory; and this symptom experience was more severe among post menopausal women in urban areas(Chen et al., 2007).

Afro Colombian was more vulnerable to menopausal somatic and psychological symptoms, and low quality of life. Black race, low socioeconomic status, lower educational status, obesity of Afro-Hispanic women in Latin America were the risk factors for symptoms of somatic (mostly influenced by heart discomfort and muscle and joint problems) and psychological problems(Monterrosa et al., 2008). It was evidenced in a study conducted among Afro and non Afro Hispanic Colombian menopausal women which aims to compare the frequency and severity of menopausal symptoms using Menopause Rating Scale in 578 women matched for age, parity and hormone therapy.

Anxiety and depression are common symptoms related to menopause which affects the quality of life. A study conducted in Japan to assess the correlation between somatic and psychological symptoms of menopause and effect of insomnia on anxiety and depression found that psychological symptoms were more prevalent, and that anxiety caused difficulty in initiating sleep and depression resulted in non- restorative sleep. Insomnia was highly prevalent among peri- and post-menopausal female patients in this clinical setting(Terauchi et al., 2012).

2.8 Health seeking behaviour and menopause

A cross sectional study which aims to find out the pattern of health care seeking behaviour for reproductive health related problems in Beirut, Lebanon showed that around one third of the participants with accessibility to public subsidized care , didn't sought care for 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. More than half of the women sought care in private sector and determinants of public sector preference were financial crisis, and higher parity(El-Kak et al., 2009).

A study conducted in Aligarh, India to find out the major health problems of post menopausal women and assess the level of knowledge, attitude practice of post menopausal women in health care seeking and determine the barriers of health care seeking found that the rural urban difference in seeking health care. Rural population has no access to health services. Major barrier in seeking health care were distance, lack of awareness, lack of trust, lack of a companion, preference to home remedies and financial problems. The most women were unwilling to

discuss their problems because they perceived the problems as a part of ageing and it is common everywhere(Khan et al., 2016).

There were multiple factors were associated with care seeking of the women for reproductive health related issues. The barriers of health care seeking can be varied in different situation, can be cultural such as caste, religion; demographic such as age, education, family; economic such as household wealth, dependency; social such as empowerment, autonomy and demand side such as perception of severity of the problem(Rani and Bonu, 2003).

2.9 Concept of healthy menopause

2.9.1. A conceptual framework for healthy menopause

Multiple factors are responsible for the perception of the women regarding menopause and what they address with regard to symptoms. Menopause and menopausal transition are an important opportunity to encourage health screening among women. It provides a chance to encourage preventive health behaviour. A healthy lifestyle with nutritional supplementation, exercise, adequate sunshine and sleep time can be emphasized in all menopausal women presenting with symptoms. Second, the health care workers should be sensitized to identify menopausal women and utilize every contact to screen them for symptoms, examine and investigate for problems. Culturally appropriate individualized care and promoting healthy lifestyle in the physiologic transition may ensure a good quality of life for midlife women. The researchers from all the disciplines should work together for better understanding of women's health across cultures and boundaries(Malla and Tuteja, 2014 , Richard-Davis and Wellons, 2013). Some studies recommended that the health care systems role in taking care of high risk group specifically focused on obesity of women even there is free provision of

health care in the country (Navarro et al., 2010) and establishment of menopausal clinic with in current primary health care system(Avin Alva and Chethan, 2016).

Good health in the menopausal period can be conceptualised from different perspectives including the woman's own perspective, that of the society, or from the perspective of a clinic or from that of a public health(Jaspers et al., 2015).

CHAPTER 3
METHODOLOGY

3.1. Study Design

The objectives of the study were to determine the magnitude of menopause related symptoms, health care seeking behaviour, and associated factors in representative sample from the community. As the researcher is looking to describe the events of self reported menopause related symptoms in women in different menopausal status at a time, and associated factors in a community structure, descriptive study was selected as first choice of study design. This helped in capturing multiple variables at a time and will enable the estimation of the magnitude of the problem. Keeping in mind the objectives and time constraints for the research, a community based cross sectional study was selected as a study design.

3.2 Study setting

The study was conducted in Kollam district, Kerala. Kollam district constitutes about 6.4 percent of total area of Kerala State. Population in the District constitutes about 7.89 percent of State population (2635375in number) and population density is 1056 per square kilometre which is higher than the state average. Literacy rate in the District was 93.8 percent and female literacy was 92 percent, which is the 8^{th} position in State.(Economics and Statistics Department, 2013).The number of females per 1000 males in the District is 1113 and it is more than state average. The proportion of urban population in the district is about 46

percent which is more or less the same at that in the Kerala state which is 47.7 percent(Census, 2011b).

3.3 Study Population

Target Population was the women in state of Kerala as this study aimed to generalize the findings. Source population was the women in the age group of 35-60 years who were either in menopausal transition phase or postmenopausal period in the community in Kollam District. The study population included women 35-60 years old either in menopausal transition phase and post menopausal period who provided formal consent for participating in the study.

3.4 Sample size estimation

A study conducted in Idukki District to assess menopause related problems among women reported the prevalence e of the classical menopausal symptoms as 46.7 %(Subrahmanyam and Padmaja, 2016).The sample size for the present study was calculated using this known prevalence. Sample size was estimated to be 421, using the formula $3.84*p(1-p)/d^2$ where p= 46.7% (prevalence of classical menopause related symptom in kerala study 46.7 %) with 5% precision and design effect 1, and 10 % non-response rate. As Kollam District has 54.95 percent rural and 45.05 percent urban population the study population was segmented in keeping with this proportion as 240 and 190 respectively. Thus, the sample size estimated for the present study was 430(240 rural women +190 urban women).

3.5. Sample selection procedure

Multistage stratified random sampling was done to ensure allocation across rural and urban areas. The rural representative sample was selected from Community

development blocks and urban representative sample was selected from Corporation and Municipality of Kollam District. The rural and urban participation was illustrated in figure 3.1.

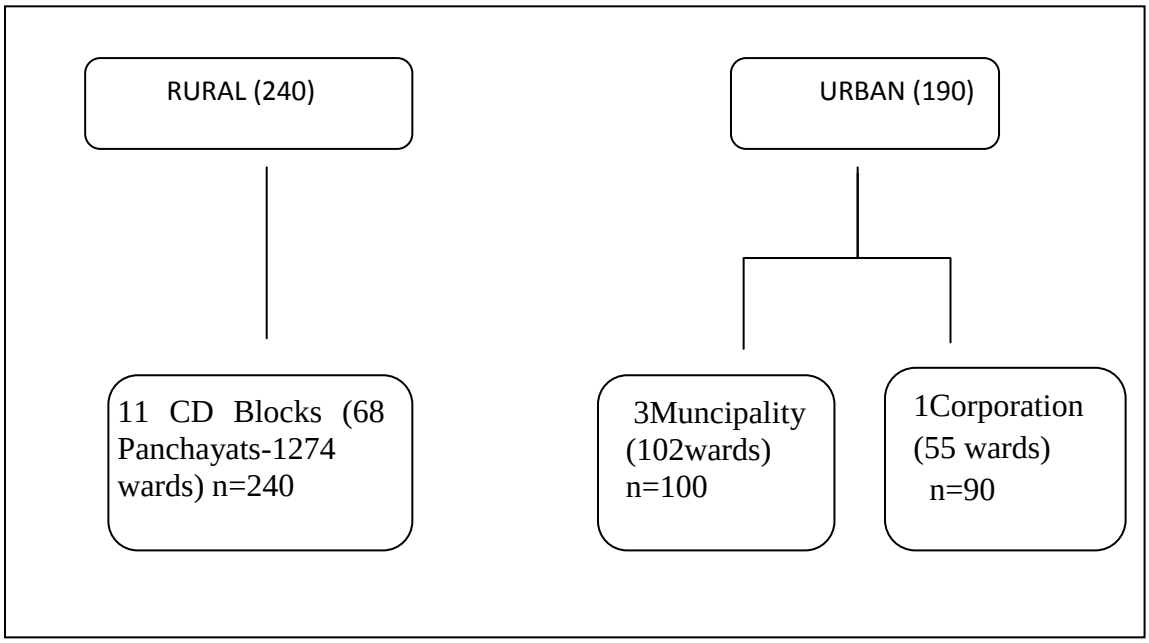


Figure 3.1.Rural and urban participation

Kollam District consists of one corporation, three municipalities and 11 Block Panchayats. Kollam Corporation is having 55 wards; three municipalities (Karunagappally, Punalur and Paravoor) having total of 102 municipal wards, representing the urban population.11 Block Panchayats having 69 Grama Panchayats with 1274 wards, represent the rural population. (Economics and Statistics Department, 2013; Kollam District official website).

Among 11 block Panchayats three Panchayats were selected randomly using Open Epi version 3.01 Software from the list of all block Panchayats(LSG, Kerala, 2017).

The name and number of Panchayat wards was obtained from local self government website(LSG, Kerala, 2017).The list of all wards in the

corporation(Kollam Muncipal Corporation, 2017) and municipality was obtained from the corresponding official websites(Paravur Municipality; Punalur Municipality; Karunagappally Municipality).

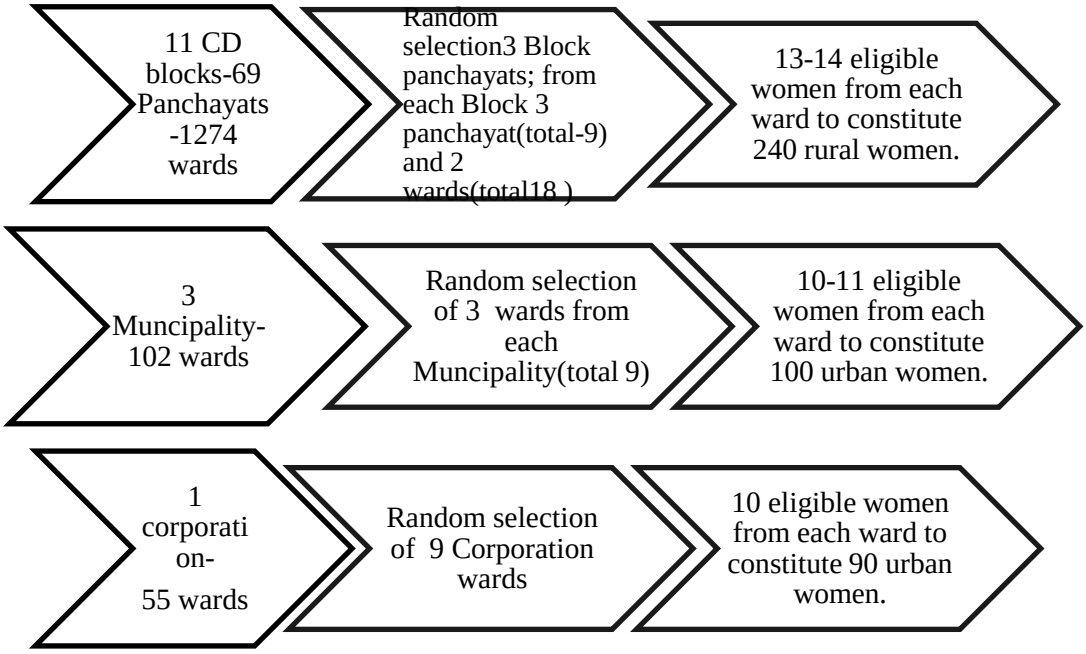


Figure 3.2.Outline for Sample population recruitment.

The Randomly selected Block Panchayats were Chittumala Block, Kottarakkara Block and Oachira Block.

1. **Chittumula Block** having 8 Grama Panchayats- random selections of 3 Panchayat and 2 wards from each Panchayat (total of 6 wards from each Panchayat and 13-14 study participants from each ward selected by systematic random sampling of household.

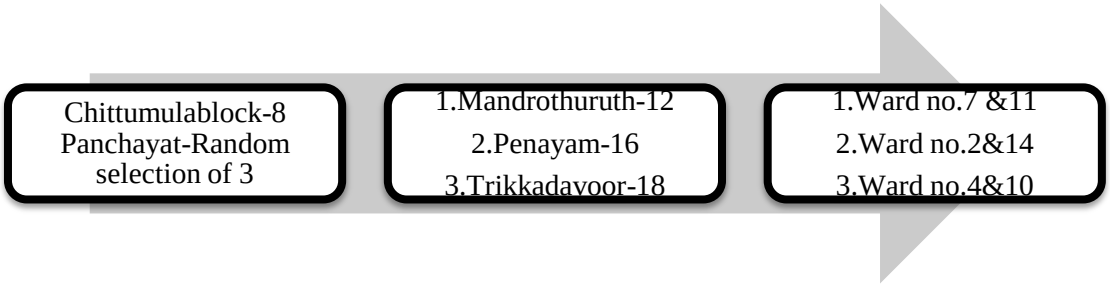


Figure3.3.Description of Chittumala Block-Gramapanchayat wards

2. Kottarakkara block having 6 Panchayats-random selection of 3 Panchayat and 2 wards from each Panchayat (total 6 wards from each block Panchayat and 13-14 study participants selected from each ward by systematic random sampling of household.

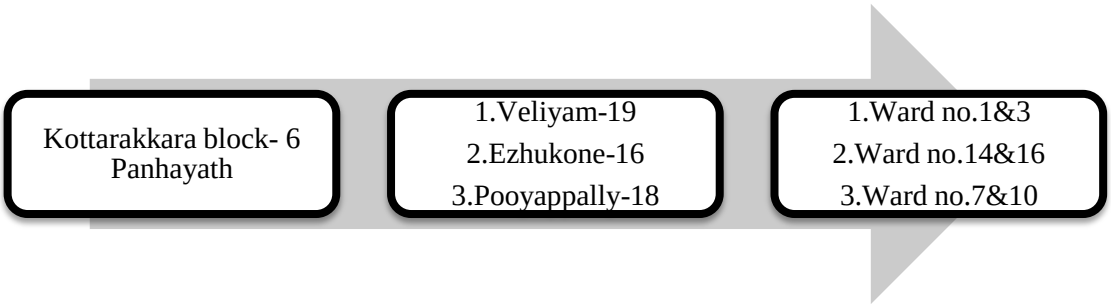


Figure3.4.Description of KottakkaraBlock-Gramapanchayat wards

3. Oachira block having 6 Panchayats- random selection of 3 Panchayat and 2 wards from each Panchayat (total 6 wards from each block Panchayat and 13-14 study participants selected from ward by systematic random sampling of household.

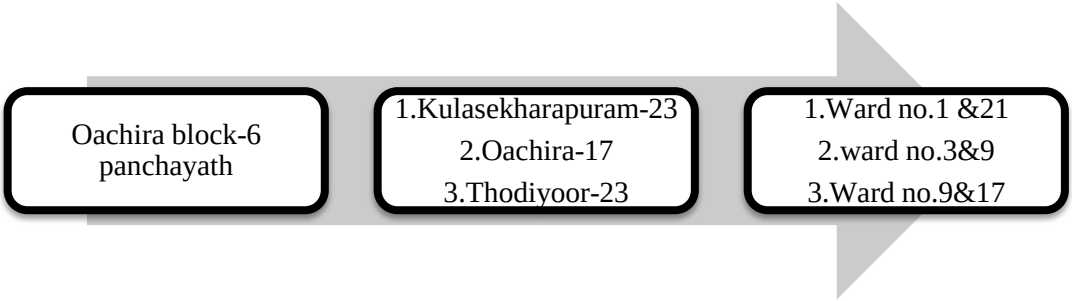


Figure 3.5.Description of Oachira Block –Gramapanchayat wards

Among three Municipalities (Karunagappally, Punalur and Paravoor) three wards were selected randomly from each municipality to constitute 9 municipal wards altogether, 10-11 eligible women were selected from each ward to obtain 100 women from the municipal ward. The wards selected in Karunagappally municipal wards were, Manpozhil, Kannetti and Pakal veedu(Karunagappally Municipality). The wards from Punalur Muncipality were Arampunna, Kakkode,

and Paravattom(Punalur Municipality) The wards from Paravoor Muncipality included in the study were Attinpuram, Kurandikkulam, and Karamandal(Paravur Municipality).

From Kollam Corporation,55 wards random selection of 9 wards, and selection of 10 women from each ward to get 90 urban eligible participants.9 wards are; Maruthadi, Neeravil, Uliyakovil, Kavanadu, Mathilil, Asramam, Bharanikav, Thangassery, Thirumullavaram.(Kollam Municipal Corporation, 2017)

Table 3.1.Urban Sample Selection wards list

Urban Population			
Municipality			**Corporation**
Karunagappally Wards	**Punalur wards**	**Paravoor wards**	**Kollam wards**
Manpozhil Kannetti Pakal veedu	Arampunna Kakkode Paravattom.	Attinpuram Kurandikkulam Karamandal	Maruthadi Neeravil Uliyakovil Kavanadu Mathilil Asramam Bharanikav Thangassery Thirumullavaram
10-11 participants from each wards .Total of 100 participants.			**10 participants from each ward. Total of 90 participants.**

3.6. Subject Selection Procedure

At the centre of the selected wards, the main junction was located and by using pen rotating method, the first household of randomly selected road was approached for data collection. Systematic random sampling method used for the selection of the household, every third household was selected.. If there was no

eligible participant in the first household next third household selected for the study. If the women in age group 35-60 were not available at home at the time of visit, the Principal Investigator tried to contact them by phone for the willingness and availability of time for the study after introducing the topic to them. If the woman was willing to participate in the study, the principal investigator visited the household with prior appointment. In case of non response or non availability (even after second attempt) substitution done to complete the required sample size.

If there were more than one eligible woman in the household at the time of the study, during the listing process, after considering the inclusion and exclusion criteria, one women selected by Kish next birthday method(Salmon and Nichols, 1983). The woman whose birthday is coming recent future taken as study participant from that household. .If the selected woman did not met the inclusion criteria according to the screening questionnaire, and then no further questions were asked. Another household was visited to recruit yet another participant for the study.

3.7. Inclusion and Exclusion criteria

3.7.1 Inclusion criteria

The women in the age group 35-60 years old who is in menopausal transition or post menopausal phase and /or attained menopause either naturally or induced were included in the study.

3.7.2 Exclusion criteria

Women who were pregnant or lactating or had recent abortion (with in 3 months) or critically ill or currently receiving hormone therapy or oral contraceptives were

excluded from the study. Women who were not willing to give consent also excluded from the study.

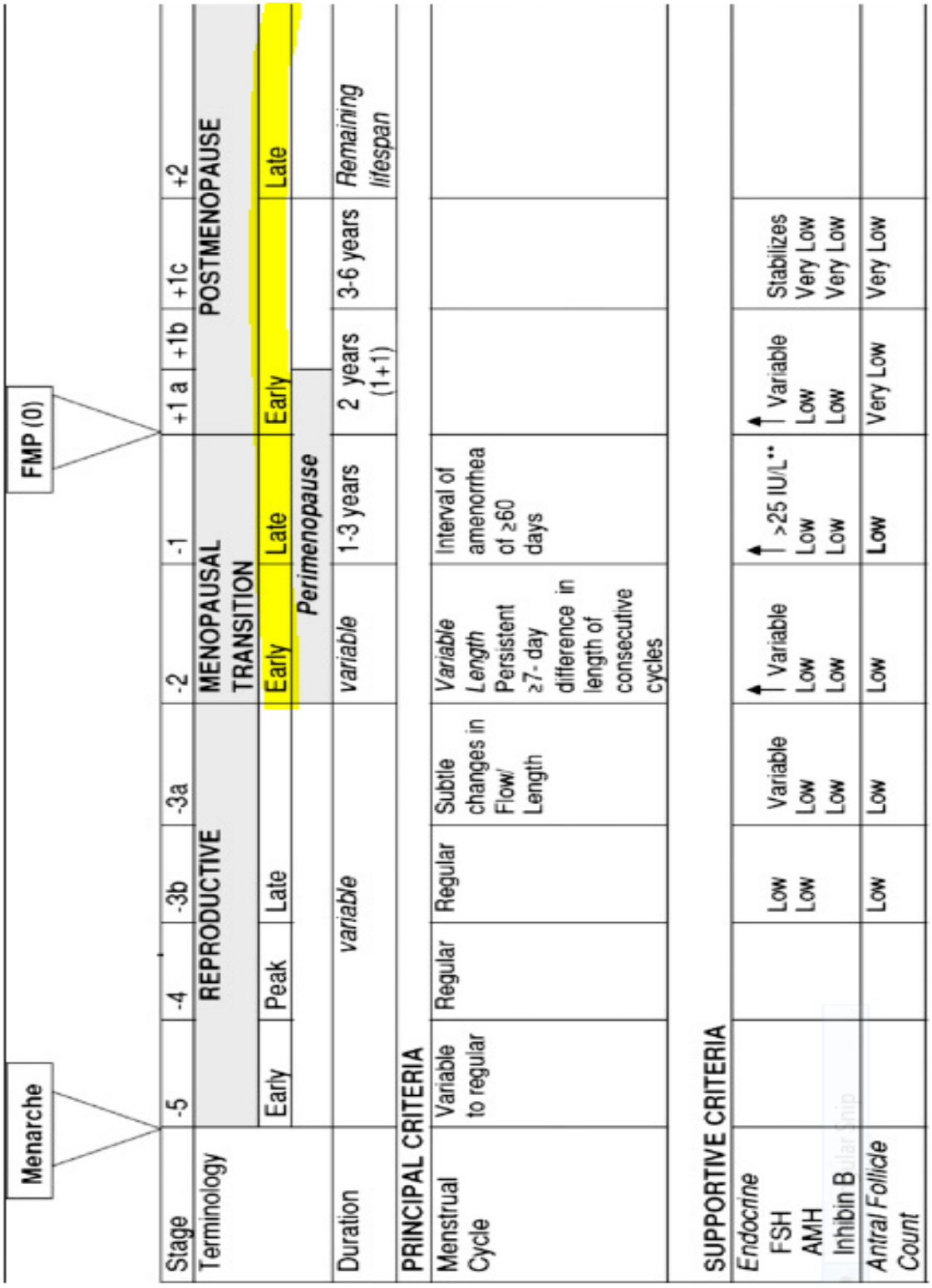
3.7.3 Justification for the age group 35 to 60 years old.

According to National Family Health Survey 3, there were around 11.2% in the age group 30-39 who attained menopause in India among 30-49 years of age (NFHS-3, 2007) .As it is a significant percentage of menopausal women, the present study participants will be women aged 35 years and more. Late post menopausal symptom reporting is different from early post menopausal period. After 60 years, ageing related factors may also influence the symptom reporting and it may affect the accuracy of the study. So the age inclusion was restricted to 60 years.

3.8. Ascertainment of Menopausal Status

Stages of Reproductive Aging Workshop (STRAW) revised criteria and nomenclature are used for ascertainment of menopause and inclusion of the women in the study. It provided a comprehensive basis for staging since there were more complexities on ascertainment of menopause explained in figure3.6. The STRAW criteria are considered as the gold standard for assessing menopausal stages.

Figure 3.6.Ascertaintment of menopausal Stages in the study (*STRAW+10 staging system for reproductive aging in women. Source; (Harlow et al., 2012).*



The principle criteria proposed by STRAW giving a clear classification unique stage in women. Early menopausal transition (stage -2) is marked by variability in menstrual cycle length, by persistence difference of 7 days or more in length of consecutive cycles. Late menopausal transition (stage -1) is ascertained by occurrence of amenorrhea of 60 days or longer. For current study early and late post menopause stage are calculated as menopausal transition when meeting either one of the above said criteria. Early post menopause stage (+1a, +1b, +1c) last approximately 5 to 7 years, from the onset of final menstrual period (FMP-retrospective amenorrhea for 12 months). Late post menopause (stage +2) is beyond 5 years of FMP in which further changes in reproductive hormonal function are limited and more of physical aging will be a concern(Harlow et al., 2012).

3.9. Definitions of the menopausal stages;

3.9.1Menopause Transition

The term menopausal transition should be reserved for the time before the final menstrual period when variability in the menstrual cycle is usually increased(Utian, 1999).

3.9.2. Operational definition for menopausal transition (period) for this study.

The last one to three year in which women missed menstrual period at least 2 consecutive cycles (more than 60 days) or any variability in duration and flow of any one menstrual cycle in the absence of any known pathology, pregnancy and lactation (or) women had irregular cycles in the past 3 months in the absence of any pathology, in the age group of 35-60 years.

3.9.3. Post menopausal period

The term post menopause is defined as dating from the final menstrual period, regardless of whether the menopause was induced or spontaneous (Utian, 1999).

3.9.4.Operational definition for this study-Post menopausal period (Chen et al., 2008 ; Harlow et al., 2012 ; Sherman, 2005).

3.9.4. a. Early post menopause period in Women

Women who do not have menstrual period (amenorrhoea) in last 6 to 12 consecutive month, not due to medication or pregnancy or any other medical condition (attained menopause) and within the period 5 year after the point of menopause.(women without menstruation for last five years).

3.9.4. b. Late Post menopausal period in Women

Women, who attained menopause and the period after 5 years, without menstrual cycle and within the age of 60 years old.

3.10. Data collection Procedure

Data collection done using a structured questionnaire and the adapted green climacteric scale to assess menopause related symptoms. The interview was conducted in local language, Malayalam and carried out by the principal investigator herself for all the participants, at each eligible participant's residence with minimal distractions and discomfort and assuring convenience and comfort.

A preliminary study was done among 12 women aged between 40-60 years old to see the feasibility, inclusion of study subjects, in the community using structured menopause related symptom questionnaire and interviews of 3 women to shape the research project. The narratives of the women and analysis of data taken care during development of research tool and design.

3.10.1. Research Tool

Interview schedule for women was categorized into eight sections. They were;

Section A	Checklist before proceeding
Section B	Screening Questionnaire, for selection of eligible woman
Section C	Socio-demographic and economic data
Section D	Reproductive Health History
Section E	Other health history and waist circumference measurement.
Section F	Knowledge, Attitude and Perception regarding menopause and related symptoms
Section G	Menopause related symptoms-Green climacteric scale questionnaire
Section H	Health seeking for menopause related symptoms

3.10.1. a. Green Climacteric Scale;

Green Climacteric scale was adopted to assess menopause related symptoms in this study. Green Climacteric Scale is a set of 21 questions gives a brief measure of menopausal symptoms. The original Green Climacteric Scale has 21 questions to elicit menopause related symptoms on the basis of severity of symptoms. It has mainly four domains such as psychological(1-11), somatic (12-18), vasomotor(19-20) and sexual(21).Psychological domains are divided into anxiety(1-6) and depression(7-11).The scale measures the presence of each symptoms by rating from not at all to extremely which ranges from 0-3 for each question in the scale. Not at all = 0, A little = 1, Quite a bit = 2, extremely = 3.The total score can range from 0 – 63.The higher score indicates that the higher the woman is bothered about menopause related symptoms. (Greene, 1998; Hakimi et al., 2010 ; Bindhu et al., 2013 ; Chattha et al., 2008).

Scoring

Total Green Climacteric Score 0=nil,1-9=mild,10-19=moderate, 20 & above=severe.

Psychological subscale score 0=nil, 1-3=mild, 4-9=moderate, 10 or more=severe.

Somatic subscale score 0=nil, 1= mild, 2-3= moderate, 4 or more = severe.

Vasomotor subscale score 0=nil, 1=mild, 2=moderate, 3 and more=severe.

Sexual subscale score 0= nil, 1=Mild, 2=Moderate, 3=Severe.

Table 3.2. Green Climacteric Scale Descriptions

Scale Symptom Domain	Number of Items	Item Number	Score range
Psychological-anxiety	6	1-6	0 - 18
Psychological-depression	5	7-11	0- 15
Somatic	7	12-18	0-21
Vasomotor	2	19.20	0-6
Sexual dysfunction	1	21	0-3

Validation of Green Climacteric Scale

Linguistic validation and cognitive debriefing were done for Malayalam translated version of the Green Climacteric scale in 10 post menopausal woman in community areas of Kollam. This resulted in revising the translations for questions 14 and 17. Clear specifications were given for the questions 8 and 11 of the scale. The translated version of the scale was given to two Gynaecologists each from private and public health care settings to get expert opinion about validity of scale in addressing the common menopausal symptoms in their clients based on their practice in the hospital.

3.10.1. b Waist Circumference measurement Protocol:

The WHO STEP wise Approach to Surveillance (STEPS) provides a simple standardized method waist circumference adopted. The protocol for measuring waist circumference was the measurement by approximate midpoint between the lower margin of the last palpable rib and the top of the iliac crest (World Health Organization, 2011).The cut off value for South Asian woman will be less than or equal to 80 cm.

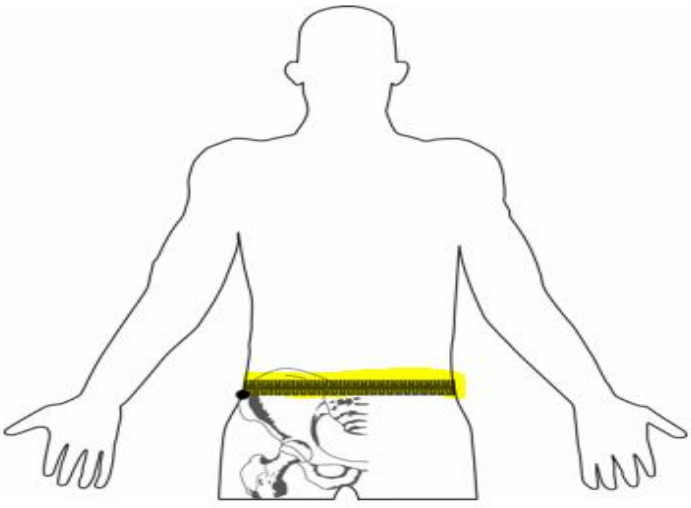


Figure 3.7.Procedure of waist circumference measurement

Measuring tape position for abdominal (waist) circumference. Source:(CDC, 2007)

Procedure of waist circumference measurement in the community: During waist circumference measurement the PI made sure the comfort and privacy of the participant. Waist circumference was measured with accuracy by requesting the study participant to avoid heavy dress during measurement around abdomen.

3.10.1. c. Variables in the study

The dependent variable menopause related symptoms was measured using Green climacteric scale with 21 questions in four domains. The health seeking behaviour with place of health care seeking was captured using structured questionnaire.

Independent variables in the study

1. Age of the participant (in years): The completed age of the participants was recorded.

2. Menopausal statuses

There were three categories of menopausal status such as menopausal transition, early post menopause and late post menopause. The women were recruited for the study after ascertainment of menopausal status using the screening questionnaire.

3. Type of menopause

The type of menopause is an important independent variable in the study. It was categorized into four groups as natural menopause, induced by surgery, induced by any other pathology and induced by radiation or chemotherapy.

4. Age at menopause

The age at menopause and average age at menopause were elicited from the participant to see any relationship with menopause related symptoms.

5. Socioeconomic characteristics

The place of residence, highest educational attainment of the participants, occupational status, marital status, caste and economic status of the participants were assessed to examine the relationship between menopause related symptoms and economic status. These variables were selected using the NSSO 66th round inputs(Department of Economics and Statistics, 2014).

Note; Economic status index: a family was said to belong to high SES if they own their house with paved tiles in the courtyard and concrete roof with tiled floor with designed landscape +average spending of the house 9000 INR and above + having more than three electrical appliances.

A family was said to belong to middle SES if they own house with concrete roof but floor is only cemented/red oxide+ average monthly spending of 5000-9000 and having at least two electrical appliances.

A family was said to belong to low SES if they rented or own house with roof tiled/sheet/leaf and floor which is not finely cemented (unpolished floor)+ average monthly spending of 1500-5000 + having one or not having any electronic appliances .

6. Presence of Socio-economic support

Family support, social support and economic independence were assessed in this category.

Defining Social support: A woman who was having membership in Kudumbasree/ Sreesakthi/ ayalkootam, etc. Was considered as having social support.

Defining family support in the study: a women who was having a supportive hand in the family and permanently residing with her (usually the husband and children more than 14 years old).

Defining economic independence: A women who was having direct economic income to her own hand either from occupation or pension fund or any other welfare fund was considered as economically independent.

7. Life style factors- physical activities and diet

The pattern of physical activity, dietary choice and control in consuming high fat high sugar diet were collected to examine the association with dependent variable.

8. Reproductive health histories

The experience of any menstrual irregularity, number of pregnancy, number of delivery, ever had any complication during delivery, history on contraceptive use,

ever diagnosed gynecological morbidity, ever underwent any therapeutic gynecological surgery and ever had any gynecological cancer were asked to examine the association with outcome variable.

9. Other health history

Self reported presence of high blood pressure, diabetes mellitus, high cholesterol and presence of any other medical condition as general were collected to examine the association with menopause related symptoms.

10. Health seeking pattern for gynecological morbidity and medical condition.

Health seeking pattern for gynecological morbidity, medical condition, place of health seeking, preference for health seeking were collected to examine the relationship with health seeking behaviour for menopause related symptoms.

3.10.2. Data collection in the field

The data collection was undertaken from 20th June to 31st August 2017, by the principal investigator. There were two screening questionnaire to recruit the eligible participants for the study. Knowledge, attitude, perception questionnaire failed to get objective measurement because it was loaded by menopause related symptom questionnaire. Therefore, this section was not included in final data analysis.

3.11. Ethical considerations

Written informed consent obtained from the subject prior to the start of the interview. In the case of women who were not be able to give written informed consent, verbal consent was obtained in the presence of an independent witness who would sign. Privacy and confidentiality of all the information collected was ensured.

The study was approved by Institutional Ethics Committee, Sree Chitra Tirunal Institute for Medical Science and Technology before commencement.

(Reference number: SCT/IEC/1042/MAY-2017).

3.12. Data entry and analysis

The data was entered in Epidata and analysed by IBM SPSS version 21 Software. The data has been presented using descriptive statistics for the prevalence of menopause related symptoms, health seeking behaviour and other variables. Bivariate analyses have been done to examine the relationship between predictor and outcome variable.

3.13. Data storage, transfer and management.

The data collected was stored in the computer with password encryption of the file. The hard copy of the filled interview schedule, consent form have been strictly confined to personal locker of the principal investigator .After three year, the copies will be destroyed. Only the final report will be shared with the concerned persons, authorities scientific or Government bodies.

3.14. Plan for dissemination

The final thesis report will be submitted to the SCTIMST for the award of the MPH degree. The conclusions emerging from the study will be presented to experts in the field for comments and to initiate more research. The findings will be shared with health department for implementing new actions and policy changes and will be presented in scientific conferences. The final thesis report will be published as working paper.

3.15. Expected outcomes

The study results can be used to provide recommendations to the existing health care programmes or to recommend policy level changes as needed.

CHAPTER 4
RESULTS

4.1. Introduction

In all, 714 households were visited to identify 430 eligible participants for this study. Of these 430 eligible participants, 4 refused to consent, and 6 could not be included in the analysis because of age mismatch, discontinuation during interview and incomplete data. The reasons for refusing consent were inconvenience expressed by the participant for exploring their identifiers, the study not bringing any direct benefit for them, and time constrains. One participant was emotionally unstable because of recent negative event in the family, so the interviewer did not ask for consent. This resulted in 420 eligible participants being included in the analysis. The expected non-response rate was 10 percent, but the final observed non-response rate was only 2.33 percent. This chapter presents the results of the analysis of the 420 eligible women.

The general description of the study participants in terms of their demographic, socioeconomic characteristics and menopause status are in the first section of this chapter. The study participants', reproductive health history, other health history, presence of central obesity are included in the second section. The menopause related symptoms of the women in the study sample was assessed using Green Climacteric Scale (GCS). These results are reported in the third section. The results of health seeking behaviour for the menopause related symptoms are described in the fifth section. Knowledge, attitude and perceptions regarding menopause and menopause related symptoms are described in the sixth section.

4.2. Participant profile

4.2.1 Profile of the participants by socio-economic characteristics

The participant profile in terms of socioeconomic characteristics is presented in table 4.1. Rural participant formed 56.4 percentages of the study subjects. About a third (33.8%) of the women in the study had primary or even lower levels of education. The remaining two thirds had high school and above levels of education. Any occupation with remuneration was considered for assessing occupational status of the participant. The women who do not fulfil the above criteria were considered as currently not working in three categories such as daily wages, self employment, and salaried employment. Slightly more than half of the women in the study were un-employed (51 %) and 26.4 percent earned daily wages and only 12.1 percent earned a monthly salary. Close to seventy percent of the women were currently married and others were widowed (25.7%).

A majority of the women in the study belonged to upper caste groups or other backward castes (87.4%). The minority caste groups of scheduled caste and tribes constituted just about 12 percent. Women in the study mostly belonged to middle class in term of economic status. The participants' nature of support obtained during the crucial menopausal period was also examined. While close to three fifths of the women had family support (58.6%), far fewer women had social support, just about two fifths (41.8%). More than half of them were economically independent (55.2%).

Table 4.1. Profile of the participants by socio-economic characteristics, Kollam district, Kerala. 2017

Variables	N=420 (100%)
Place of residence	
Rural	237 (56.4)
Urban	183 (43.6)
Educational status	
No schooling	10 (2.4)
Primary	132 (31.4)
High school	191 (45.5)
Higher secondary, professional education and above	87 (20.7)
Occupational status	
No employment	215 (51.0)
Daily wages	111 (26.4)
Self employment	44 (10.4)
Monthly salary	51 (12.2)
Marital Status	
Married	293 (69.8)
Unmarried	11 (2.6)
Widow	108 (25.7)
Divorced	6 (1.4)
Separated	2 (0.5)
Caste	
SC/ST	51 (12.1)
General	173 (41.2)
OBC	194 (46.2)
Refused to answer	2 (0.5)
Socioeconomic index	
Low SES	126 (30.0)
Middle SES	187 (44.5)
High SES	107 (25.5)
Family support	
Have family support	246 (58.6)
Do not have family support	174 (41.4)
Social support	
Have social support	176 (41.9)
Do not have social support	244 (58.1)
Economic Independence	
Economic Independence	232 (55.2)
Economic dependence	188 (44.8)

4.2.2. Profile of participants by health related characteristics

The health profile of the participants is given in table 4.2. Nearly half of the women had either mild to sedentary in terms of physical activity (51.7%). Quite a significant number of the women reported moderate level of physical activity (43.8%). Almost all were non-vegetarians (93.3%) and close to three fifths of them had no control over either sugar or fat or both in their diet.

Only 15 percent of the women experienced menstrual irregularities. Fertility was near universal; just less than five percent (4.3%) were nalliparous. Majority of the women had one or two children (66.7%). One out of four women in the study had undergone at least one c-section if not two. Close to 10 percent of the women (9.3%) had experienced some form of complication (other than that requiring c-section) during delivery. Nearly one out of 20 women in the study had experienced a gynaecological morbidity (18.9%). There were nearly 1.4 percent with some form of gynaecological cancers, including breast cancer, ovarian cancer and cervical cancer.

The prevalence of self reported high blood pressure, type 2 Diabetes Mellitus and high cholesterol in the sample population was 38.8 %, 26.7% and 35% respectively. There were 14.5% women with other medical condition in study. Presence of central obesity measured by waist circumference indicates that around 46% of the women in the study had a waist circumference of more than 80 cm.

Table 4.2. Profile of the participants by health related characteristics, Kollam district, Kerala. 2017.

Variables	N=420(100%)
Physical Activity	
Sedentary	34 (8.1)
Mild Physical activity	183(43.6)
Moderate	184(43.8)
Severe physical activity	19(4.5)
Dietary choice	
Vegetarian	28(6.7)
Non vegetarian	392(93.3)
Diet Control	
Have control in consuming fat and sugar	169(40.2)
Do not have control in fat and sugar	233(55.5)
Have control over fat or sugar in the diet	18(4.3)
Previous menstrual irregularity	
Have menstrual irregularity	63 (15)
Did not have menstrual irregularity	357(85)
Number of pregnancy	
No pregnancy yet	18 (4.3)
One	46 (11)
Two	234 (55.7)
Three	91 (21.7)
Four and more	31 (7.3)
Number of delivery	
One	42 (10)
Two	245(58.3)
Three	83 (19.8)
Four and more	32 (7.6)
Not applicable	18 (4.3)
Normal Vaginal delivery	
One	50 (11.9)
Two	186 (44.3)
Three	70 (16.7)
Four	26 (6.2)
Five and more	3 (0.7)
Not applicable	85 (20.2)
Caesarean section delivery	
One	48 (11.4)
Two	57(13.6)
Three	2 (0.5)
Not applicable	313 (74.5)
Complication during delivery	
Had any complication	39 (9.3)
Did not had any complication	365 (86.9)

Table 4.2. Profile of the participants by health related characteristics, Kollam district, Kerala. 2017. Cont'd…	
Variable	**N = 420(100%)**
Contraceptive history	
Ever used	230 (54.8)
Never used	175 (41.5)
Not applicable	15 (3.7)
Gynecological Morbidity	
Ever diagnosed as having a gynaecological morbidity	80 (18.9)
Did not have a diagnosis of gynaecological morbidity	340 (81.1)
Gynaecological Cancers	
Brest cancer	3 (0.7)
Ovarian cancer	2 (0.5)
Cervical cancer	1 (0.2)
Other chronic conditions and risk factors	
High Blood Pressure	163 (38.8)
Type 2 DM	112 (26.7)
High Cholesterol	147 (35.0)
Other medical conditions	61 (14.5)
Waist circumference>80 cm/Central obesity (N=407)	189 (46.4)

4.2.3. Pattern of health seeking for gynecological morbidities and other chronic health conditions

There were 80 participants who had a history of diagnosis of gynecological morbidity. Treatment seeking for these and other health conditions is described in table 4.3. Around 52 percent of them sought treatment in private secondary or tertiary hospital. One women who had a condition of gynecological morbidity sought care both in a public and a private health care facility. There were 268 participants among 420 who were reported to have at least one of the chronic medical conditions such as hypertension, diabetes mellitus, high cholesterol or other medical conditions including cancers. Among the 268 women 32.1 percent sought care in private clinic, and 22.4 percent sought care in public primary health centre.

Table.4.3.Pattern of health care seeking for gynaecological and other chronic health conditions, Kollam district, Kerala, 2017.

Health problem and care seeking	N (%)
Gynecological morbidity	**N=420 (100)**
Yes	80 (19)
No	340 (81)
Health care seeking for gynecological morbidity	**N=80 (100)**
Public secondary health centre	25 (31.3)
Public tertiary health centre	11 (13.8)
Private secondary or tertiary hospital	42 (52.5)
AYUSH	1 (1.3)
Both private and public	1 (1.3)
Any Chronic Medical Condition	**N=420 (100)**
Yes	268 (63.8)
No	152 (36.2)
Health care seeking for medical condition	**N=268 (100)**
Public primary health centre	60 (22.4)
Public secondary health centre	45 (16.8)
Public tertiary health centre	4 (1.5)
Private clinic	86 (32.1)
Private secondary or tertiary hospital	54 (20.1)
AYUSH	9 (3.4)
Both private and public	10 (3.7)

4.2.4. Profile of participants by age and nature of menopause

For purposes of this analysis, age was categorized into four categories based on the distribution of the participants by age into less than 45 years, 45-49 years, 50-54 years and 55 and above years of age. A majority of the participants were aged 55 and more. This information is tabulated in table 4.4.

The recruited study participants belonged to different menopause status. There were 52.1 percent of women in late post menopause stage, 23.3 percent of the women belonging to the early post menopausal category and 24.5 percent of the women were in menopausal transition phase. While assessing the type of menopause in post menopausal study participants, majority of the participant attained it naturally, around 16 percentage of women attained menopause as a result of surgical procedure for gynecological morbidities and 0.2 had reported to

had menopause either as a result of any pathology or induced by radiation or chemotherapy.

Tab le 4.4. Profile of participants by age and nature of menopause, Kollam district, Kerala, 2017.

Characteristics	N (%)
Age category	**N=420 (100)**
Less than 45 years	44 (10.5)
Age 45-49 years	86 (20.5)
Age 50-54 years	102 (24.3)
Age 55 and above	188 (44.8)
Menopause Status	**N=420 (100)**
Menopause Transition	103 (24.5)
Early post menopause	98 (23.3)
Late post menopause	219 (52.1)
Type of Menopause	**N=317 (100%)**
Natural Menopause	238 (75.07)
Induced by surgery	68 (21.45)
Induced by any pathology	10 (3.15)
Induced by radiation/chemotherapy	1 (0.32)

The average age at menopause for post menopausal women was estimated to be 46.1 years, with a standard deviation of 5.4 years. This was computed after excluding 103 women who were in menopausal transition period. This was because they had not yet attained menopause and including them could shift the aver rage age at menopause lower, erroneously. Average age at natural menopause was found to be 47.4 years with a standard deviation of 4.3 years, calculated by excluding the women who were in menopausal transition and those who reported to have had unnatural menopause like surgery induced/pathology/radiation. The distribution of the age at natural menopause for the women was more or less normal, with very little skew. The histogram of average age at menopause and average age at natural menopause attached in Annexure V.

4.3. Experience of menopause related symptoms

Menopause related symptoms were assessed using Green Climacteric Scale (GCS) which has four domains such as psychological symptoms, physical or somatic symptoms, vasomotor symptoms and sexual dysfunction (table 4.5).

There were 21 questions distributed among the four domains of the scale with an option of 4 potential responses, not at all, mild, moderate to severe. Among 420 participants 56.7 percent of the women had severe psychological symptoms, 70.5 percent has severe physical symptoms, and 49.3 percent has severe vasomotor symptoms. Among those who could report on their menopause symptoms (294 women), 28.6 percent had moderate sexual dysfunction. On the whole, 58.3 percent of the women were severely affected by menopause related symptoms. These responses are represented in figure 4.2.

Table.4.5.Prevalence of menopause related symptoms by domains of the green climacteric scale, Kollam, Kerala, 2017.

GCS Domain	Mild n (%)	Moderate n (%)	Severe n (%)	Total (100%)	Prevalence(%) with 95% CI
GCS total	52(12.4)	106(25.2)	245(58.3)	420	95.95 (93.73-97.54)
Psychological symptoms	31(7.4)	96(22.9)	238(56.7)	420	86.90 (83.42-89.88)
Physical symptoms	7(1.7)	49(11.7)	296(70.5)	420	89.28(86.05-91.98)
Vasomotor symptoms	5(1.2)	23(5.5)	207(49.3)	420	55.95(51.17-60.65)
Sexual dysfunction score	79 (26.9)	84(28.6)	30(10.2)	294*	65.64(60.08-70.91)

*Not applicable/refused to answer/missing value omitted from analysis

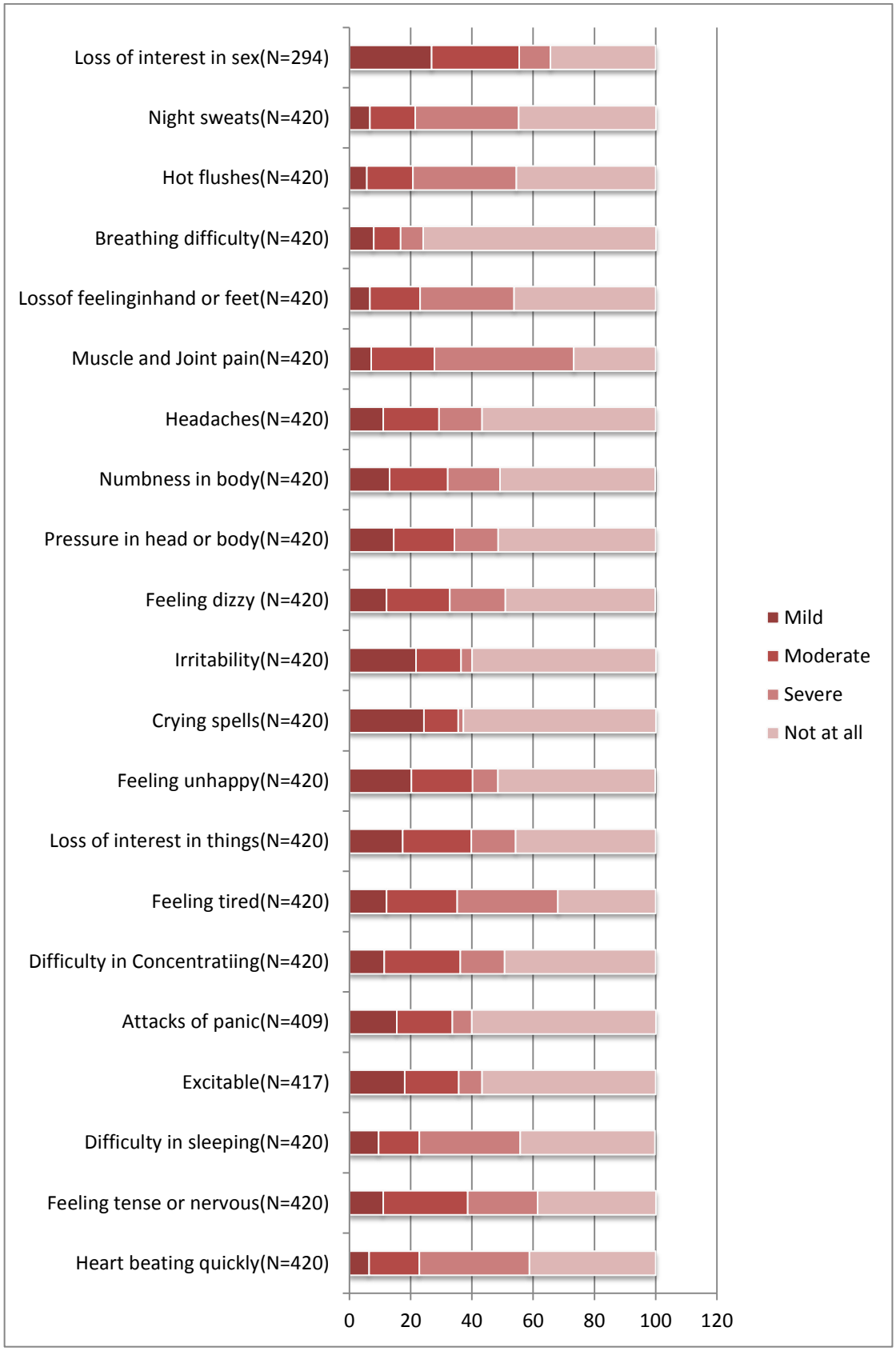


Figure. 4.1. Distribution of Menopause Related Symptoms by GCS scale

Severity of menopause related symptoms by the specific menopausal stage and domains of the GCS were assessed (table 4.6). Nearly two thirds of the women (65.3) in post menopausal stage were having severe psychological symptoms.

There was no variation in physical or vasomotor symptoms among three menopausal stages. There was a sharp increase in the percentage of women reporting severe sexual dysfunction symptoms from those in menopause transition to early and late menopause stages from 3.5 to 11.4% and 13.7% respectively.

Table 4.6. Severity of menopause related symptoms by menopause status and domains of the green climacteric scale, Kollam, Kerala, 2017

GCS domain	Severity	Menopause transition	Early post menopause	Late post menopause	Chi-square p value
Psychological					
Severe		49(47.6)	46(46.9)	**143(65.3)**	**0.001**
Total (%)		103(100)	98(100)	219(100)	420(100)
Physical					
Severe	Severe	76(73.8)	65(66.3)	155(70.8)	0.506
Total (%)		103(100)	98(100)	219(100)	420(100)
Vasomotor					
Severe	Severe	55(53.4)	53(54.1)	99(45.2)	0.217
Total (%)		103(100)	98(100)	219(100)	420(100)
Sexual dysfunction	Severe	3(3.5)	8(11.4)	**19(13.7)**	0.048*
Total (%)		85(100)	70(100)	139(100)	294(100)

*One cell value is less than 5.

The GCS scale scores by domain were computed and this has been tabulated along with the observed and expected ranges in table 4.7. The average score for psychological anxiety subscale and depression subscale was 6.67 with standard deviation 4.9 and 46 with standard deviation 3.5 respectively. The average score for physical symptoms was 7.61 with standard deviation of 4.86.The average score for vasomotor symptoms is 2.7 with standard deviation of 2.7 .The mean score for sexual dysfunction was 1.1 with standard deviation of 1.0. The domains

of distress with respect to menopause related symptoms seem to be related to psychological-anxiety related and also physical symptoms.

Table.4.7.Menopause Related Symptoms-Average scores using Green Climacteric Scale, Kollam, Kerala, 2017

Domain	Average Score Mean(SD)	Observed Range	Expected Range
Psychological-Anxiety	6.67(4.92)	0-18	0-18
Psychological-Depression	4.56(3.51)	0-14	0-15
Physical Symptoms	7.61(4.86)	0-21	0-21
Vasomotor Symptoms	2.74(2.66)	0-6	0-6
Sexual dysfunctional score	1.14(1.01)	0-3	0-3
Total score-GCS	22.39(11.90)	0-52	0-63

4.4. Patterns of health care seeking menopause related symptoms

4.4.1. Health care seeking and preferences of health systems for care.

Health care seeking patterns of the women who had experienced menopause related symptoms within each domain of the GCS were assessed along with the preferred system of care (table 4.8). About half of the women who experienced physical symptoms sought care. The data shows women experienced psychological, vasomotor, sexual symptoms are less likely to seek care. A majority of the study participants who experienced at least one symptom preferred to go to modern medicine health care facility. A quarter of those with symptoms (25%) preferred to seek AYUSH treatment.

Table.4.8. Patterns of health care seeking and preference for type of care for MRS among women with symptoms, Kollam, Kerala, 2017

GCS Domains	Sought care	Total N (%)
Psychological	70(19.1)	366(100)
Physical	186(49.7)	374(100)
Vasomotor	33(14.0)	235(100)
Sexual	3(1.6)	192(100)
Health system preference	**Yes**	**Total N (%)**
Modern medicine	247(64.3)	384(100)
AYUSH	96(25.0)	384(100)
Medical Pharmacy	2(0.5)	384(100)
Traditional healers	7(1.8)	384(100)
Two or more of any system of care	32(8.3)	384(100)

4.4.2. Place for health care seeking for menopause related symptoms

Place of health seeking by the women for menopause related symptoms are described in table 4.9. For psychological symptoms majority of the women went to public secondary care facility (20%), followed by private clinic (20%) and public primary level (8.6%) health care facility. Women seem to prefer AYUSH, private secondary and private clinics to treat their physical symptoms. Most of the women with vasomotor symptoms went to private secondary, private clinic and AYUSH.

Table.4.9.Place for health care seeking for menopause related symptoms, Kollam, Kerala, 2017

Place for health seeking /GCS domains	Psychological N=70 (100%)	Physical N=186 (100%)	Vasomotor N=33 (100%)	Sexual N=3 (100%)
Public primary	13(18.6)	29(15.6)	2(6.1)	Nil
Public secondary	14(20)	25(13.4)	4(12.1)	1(33.3)
Public tertiary	3(4.3)	2(1.1)	1(3)	Nil
Public speciality-medicine/ neuro	Nil	Nil	1(3)	Nil
Public speciality-gynaecology	Nil	Nil	1(3)	Nil
Public speciality-Psychology/psychiatry /ortho	2(2.9)	Nil	Nil	Nil
Private clinic	14(20)	30(16.1)	7(21.2)	Nil
Private secondary	10(14.3)	35(18.8)	9(27.3)	Nil
Private tertiary	Nil	Nil	Nil	1(33.3)
Private speciality-gynaecology	3(4.3)	2(1.1)	3(9.1)	Nil
Private speciality-Psychology/psychiatry /ortho	1(1.4)	14(7.5)	Nil	Nil
AYUSH	9(12.9)	42(22.6)	5(15.2)	1(33.3)
Public primary and private secondary	1(1.4)	2(1.1)	Nil	Nil

4.4.3. Frequency of care seeking and satisfaction with treatment received among those who sought treatment for menopause related symptoms

The frequency of care seeking and the self reported satisfaction with care are tabulated in table 4.10. Among study participants who experienced menopause related symptoms 60 percent sought treatment about one to three times and 40 percent sought care more than three times in a year. About 60 percent of the women who sought any care were satisfied with the treatment they underwent.

Table.4.10.Self reported satisfaction to the treatment and among those who sought treatment for menopause related symptoms

	N=200(100)
How many times sought care for symptoms in one year	
One-three times	120 (60)
More than three times	80 (40)
Satisfaction with access and treatment to health service	
Satisfied	121 (60.5)
Moderately satisfied	69 (34.5)
Not at all satisfied	10 (5)

4.5. Correlates of menopause related symptoms

The correlates for menopause related symptoms were assessed using simple bivariate analysis. For this analysis, menopause related symptoms have been categorised into two discrete groups, those with severe symptoms and other with mild, moderate and no symptoms. Only 4 percent of the participants had never experienced any symptoms according to GCS score. Chi-square test was done to explore the possible association between the severities of symptoms experienced and the specifically identified correlates. . The level of significance for this statistical analysis was considered as $p<0.05$(at 5 percent). The results of Chi-square for association between severity of menopause related symptoms and these correlates are arranged in Table 4.11.

Table 4.11.Distribution of women by menopause related symptoms and associated factors like nature of menopause, socio-economic characteristics and socio-economic support, Kollam, Kerala, 2017

Independent variable	Category	Menopause related symptoms		Total N (100%)	Chi square p-value
		Severe	Not severe		
Nature of Menopause					
Menopausal status	Menopause Transition	57(55.3)	46(44.7)	103(100)	0.062
	Early post menopause	49(50)	49(50)	98 (100)	
	Late post menopause	139(63.5)	80(36.5)	219(100)	
Type of menopause	Natural menopause	133(55.9)	105(44.1)	238(100)	**0.031**
	Induced menopause	**55(69.6)**	24(30.4)	79(100)	
Age at menopause	40years and less	**36 (75.0)**	12(25.0)	48(100)	**0.016**
	More than 40 years	152(56.5)	117(43.5)	269(100)	
Socioeconomic characteristics and menopause related symptoms					
Place of residence	Rural	138(58.2)	99(41.8)	237(100)	0.960
	urban	107(58.5)	76(41.5)	183(100)	
Education	Less than high school	92(64.8)	50(35.2)	142(100)	0.055
	High school and above	153(55.0)	125(45.0)	278(100)	
Occupation	Do not have remuneration	124(57.9)	90(42.10	214(100)	0.869
	Have remunerated work	121(58.7)	85(41.3)	206(100)	
Marital status	Currently Married	164(56.0)	129(44.0)	293(100)	0.136
	Currently unmarried/widow/ separated/divorced	81(63.8)	46(36.2)	127(100)	
Caste	SC/ST	30(58.8)	21(41.2)	51(100)	0.296
	General	94(54.3)	79(45.7)	173(100)	
	OBC	121(62.4)	73(37.6)	194(100)	
Economic status	Low	84(66.7)	42(33.3)	126(100)	**0.023**
	Middle and high	161(54.8)	133(45.2)	294(100)	

Table 4.11.Distribution of women by menopause related symptoms and associated factors like nature of menopause, socio-economic characteristics and socio-economic support, Kollam, Kerala, 2017.Cont'd…

Independent variable	Category	Menopause related symptoms		Total N (100%)	Chi square p-value
		Severe	Not severe		
Socio economic support and menopause related symptoms					
Family support	Have family support	130(52.8)	116(47.2)	246(100)	**0.007**
	Do not have family support	115(66.1)	59(33.9)	174(100)	
Social support	Have social support	104(59.1)	72(40.9)	176(100)	0.789
	Do not have social support	141(57.8)	103(42.2)	244(100)	
Economic independence	Economically independent	142(61.2)	90(38.8)	232(100)	0.185
	Economically dependent	103(54.8)	85(45.2)	188(100)	

Note: (%) are row percentages.
Not applicable/do not know/refused to answer/missing values are removed from analysis.

4.5.1. Menopause related symptoms (MRS) and associated factors (nature of menopause, socio-economic characteristics and socio-economic support)

A higher proportion of women in the late menopause status were having severe symptoms when compared to those in menopause transition stage or early menopause stages. This difference is not statistically significant. Women who had induced menopause were more likely to have severe symptoms and this association was statistically significant. Premature menopause increases the chance of severity of symptoms. The highest level of education attainment was categorized into two groups for this analysis and the results indicate that women who had education less than high school report severe symptoms when compared to those with education level of high school and above**.** Current occupational status was categorised as those with remuneration and without remuneration**.** However, occupational status does not seem to affect the experience of MRS.

Ec**o**nomic status is significantly associated with the severity of the symptoms with a lower proportion of those with better economic status experiencing severe MRS when compared to those of lower economic status. A higher proportion of women who do not have family support report severe symptoms when compared to women who report having family support.

4.5.2. Menopause related symptoms and other factors (lifestyle, reproductive history, and other medical history)

In this section the relation between severity of the menopause related symptoms and self reported life style factors like physical activity, diet, reproductive history and medical history have been reported in table 4.12.Women with menstrual irregularity (68.3% vs. 56.6%) and those with one or more pregnancies as opposed to none (59.2% vs.38.9%) report MRS more frequently. A higher percentage of participants who had gynecological morbidity had severe MRS. The participants who reported have high blood pressure, high cholesterol, and other medical conditions have significantly different severity of MRS when compared to women who do not have the specific medical condition.

Table 4.12. Distribution of women with menopause related symptoms and lifestyle factors, reproductive health history, other medical history, Kollam, Kerala, 2017.

Independent variable	Category	Menopause related symptoms		Total N (100%)	Chi square p-value
		Severe	Not severe		
Life style factors					
Physical activity	Sedentary	25(73.5)	9(26.5)	35(100)	
	Mild	101(55.2)	82(44.8)	183(100)	0.263
	Moderate	108(58.7)	76(41.3)	184(100)	
	Vigorous	11(57.9)	8(42.1)	19(100)	
Dietary choice	Vegetarian	14(50)	14(50)	28(100)	0.355
	Non vegetarian	231(58.9)	161(41.1)	392(100)	
Diet control	Have control in fat and sugar in diet consumption	93(55.0)	76(45.0)	169(100)	0.269
	Do not have control in fat and sugar	152(60.6)	99(39.4)	251(100)	
Reproductive health history					
Previous menstrual history	Had menstrual irregularity	43(68.3)	20(31.7)	63(100)	0.083
	Did not have any irregularity	202(56.6)	155(43.4)	357(100)	
Number of pregnancy	Never	7(38.9)	11(61.1)	18(100)	0.087
	One and more	238(59.2)	164(40.8)	402(100)	
Number of Delivery	One	24(57.1)	18(42.9)	42(100)	0.774
	Two and more	214(59.4)	146(40.6)	360(100)	
Normal Vaginal Delivery	One	27(54.0)	23(46.0)	50(100)	0.373
	Two and more	173(60.7)	112(39.3)	285(100)	
Caesarean section	One	24(51.1)	23(48.9)	47(100)	0.914
	Two and more	29(50.0)	29(50.0)	58(100)	
Contraceptive history	Ever used	128(55.7)	102(44.3)	230(100)	0.094
	Never used	110(64.0)	62(36.0)	172(100)	

Table 4.12. Distribution of women with menopause related symptoms and lifestyle factors, reproductive health history, other medical history, Kollam, Kerala, 2017.Cont'd…

Independent variable	Category	Menopause related symptoms		Total N (100%)	Chi square p-value
		Severe	Not severe		
Complication during delivery	Yes	23(60.5)	15(39.5)	38(100)	0.862
	No	215(59.1)	149(40.9)	364(100)	
Gynecological morbidity	Ever had	59(73.8)	21(26.3)	80(100)	**0.002**
	Never had	186(54.7)	154(45.3)	340(100)	
Gynecological surgery	Underwent	48(70.6)	20(29.4)	68(100)	NA*
	Never underwent	10(83.3)	2(16.7)	12(100)	
Other health condition and menopause related symptoms					
High blood pressure	Yes	**105(64.4)**	58(35.6)	163(100)	**0.044**
	No	140(54.5)	117(45.5)	257(100)	
Diabetes mellitus	Yes	68(60.7)	44(39.3)	112(100)	0.551
	No	177(57.5)	131(42.5)	308(100)	
High Cholesterol	Yes	**99(67.3)**	48(32.7)	147(100)	**0.006**
	No	146(53.5)	127(46.5)	273(100)	
Other medical conditions	Yes	**46(75.4**)	15(24.6)	61(100)	**0.003**
	No	199(55.4)	160(44.6)	359(100)	
Central obesity	Waist circumference < 80 cm	124(56.9)	94(43.1)	218(100)	0.530
	Waist circumference >80 cm	121(59.9)	81(40.1)	202(100)	

Note: (%) are row percentages.

Not applicable/do not know/refused to answer/missing values are removed from analysis

* One cell value less than5

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4.6. Health care seeking for menopause related symptoms and associated factors

Pattern of health care seeking by the women who experienced menopause related symptoms has been examined by categorising care seeking into those who sought care at least once sought care for any symptoms and those who never sought care for any symptoms. This enabled the identification of key factors associated with health care seeking for MRS.

4.6.1 Health care seeking for menopause related symptoms and nature of menopause, socio-economic factors

Health care seeking for MRS tabulated by specific socioeconomic factors and socioeconomic support are presented in table 4.13. Care seeking for MRS was not associated with any of these factors.

Table.4.13.Health care seeking for MRS by nature of menopause, type of menopause and socio-economic characteristics, Kollam, Kerala, 2017

Independent variable	Category	Health seeking for any of the MRS		Total N (100%)	Chi square p-value
		Sought care at least once	*Never sought care*		
Nature of Menopause					
Menopausal status	Menopause transition	44(43.1)	58(56.9)	102(100)	
	Early post menopause	50(54.3)	42(45.7)	92(100)	0.140
	Late post menopause	114(54.5)	95(45.5)	209(100)	
Type of menopause	Natural menopause	117(51.8)	109(48.2)	226(100)	0.101
	Induced menopause	47(62.7)	28(37.3)	75(100)	
Socioeconomic characteristics and health seeking					
Place of Residence	Rural	114(49.8)	115(50.2)	229(100)	0.399
	Urban	94(51.0)	80(46.0)	174(100)	
Education	Less than high school	74(54.8)	61(45.2)	135(100)	0.361
	High school and above	134(50.0)	134(50.0)	268(100)	

Table.4.13.Health care seeking for MRS by nature of menopause, type of menopause and socio-economic characteristics, Kollam, Kerala, 2017.Cont'd…

Independent variable	Category	Health seeking for any of the MRS		Total N (100%)	Chi square p-value
		Sought care at least once	*Never sought care*		
Occupation	Do not have remuneration	105(51.5)	99(48.5)	204(100)	0.954
	Have remunerated work	103(51.8)	96(48.2)	199(100)	
Marital status	Currently Married	142(50.5)	139(49.5)	281(100)	0.511
	Currently unmarried/widow/ separated/divorced	66(54.1)	56(45.9)	122(100)	
Caste	SC/ST	20(39.2)	31(60.8)	51(100)	0.158
	General	86(52.1)	79(47.9)	165(100)	
	OBC	101(54.3)	85(47.9)	186(100)	
Economic status	Low	59 (47.6)	65(52.4)	124(100)	0.280
	Medium and above	149(53.4)	130(46.6)	279(100)	
Socio economic support and health care seeking					
Family support	Have family support	121(51.5)	114(48.5)	235(100)	0.953
	Do not have family support	87(51.8)	81(48.2)	168(100)	
Social support	Have social support	86(50.9)	83(49.1)	169(100)	0.804
	Do not have social support	122(52.1)	112(47.9)	234(100)	
Economic independence	Economically independent	122(54.5)	102(45.5)	224(100)	0.200
	Economically dependent	86(48.0)	93(52.0)	179(100)	

4.6.2. Health care seeking for menopause related symptoms and lifestyle factors, reproductive health history, other medical conditions

Health care seeking for MRS was tabulated by lifestyle related factors, reproductive health history and other medical conditions (table 4.14) Participants who experienced any menstrual irregularity or reported some gynecological

morbidity were more likely to seek health care MRS when compared to women who did not**.** Women who reported Diabetes Mellitus (DM) and other medical conditions were also more likely to seek health care for MRS, even though women who have DM do not report severity of MRS in anyway different from those who do not report having DM. Care seeking for MRS amongst those who did not have any other additional morbidities was examined (not shown in table). There was not variation in care sought for MRS amongst those who had additional morbidities when compared to those who did not (54.4% vs. 46.5%).

Table 4.14.Health care seeking for MRS by lifestyle factors, reproductive health history, other medical conditions, Kollam, Kerala, 2017

Independent variable	Category	Health seeking for any of the MRS		Total N (100%)	Chi square p-value
		Sought care at least once	*Never sought care*		
Reproductive health history and health care seeking for menopause related symptoms					
Previous menstrual irregularity	Ever had Never had	**38(63.3)** 170(49.6)	22(36.7) 173(50.4)	60(100) 43(100)	**0.049**
Number of pregnancy	Never One and more	10(58.8) 198(51.3)	7(41.2) 188(48.7)	17(100) 386(100)	0.543
Number of Delivery	One Two and more	19(45.2) 179(52.0)	23(54.8) 165(48.0)	42(100) 344(100)	0.405
Complication during delivery	Yes No	17(47.2) 181(51.3)	19(52.8) 169(48.3)	36(100) 350(100)	0.608
Presence of any gynecological morbidity	Yes No	**50(65.8)** 158(48.3)	26(34.2) 169(51.7)	76(100) 327(100)	**0.006**
Gynecological surgery	Underwent Never had	41(64.1) 9(75.0)	23(35.9) 3(25.0)	64 (100) 12(100)	0.464

Table 4.14.Health care seeking for MRS by lifestyle factors, reproductive health history, other medical conditions, Kollam, Kerala, 2017.Cont'd…

Independent variable	Category	Health seeking for any of the MRS		Total N (100%)	Chi square p-value
		Sought care at least once	*Never sought care*		
Other medical history and health seeking for MRS					
High blood pressure	Yes	84(52.8)	75(47.2)	159(100)	0.693
	No	124(50.8)	120(49.2)	244(100)	
Diabetes mellitus	Yes	**65(60.7)**	42(39.3)	107(100)	
	No	143(48.3)	153(51.7)	296(100)	**0.027**
High Cholesterol	Yes	82(56.6)	63(43.4)	145(100)	
	No	126(48.8))	132(51.2)	258(100)	0.137
Other medical conditions	Yes	**39(65.0)**	21(35.0)	60(100)	**0.025**
	No	169(49.3)	174(50.7)	343(100)	

4.7. Multivariate regression model to explore the factors associated with MRS.

The variables identified through the bivariate analysis were used to examine the strength of association using for multivariate logistic regression model to assess the while controlling for other variables. The variables considered were family support, social support and economic independence. Lack of family support was found to be associated with severity of menopause related symptoms.

Table.4.15. MRS Severity and predictors

Predictor variables(reference category)	Adjusted Odds Ratio(OR)	95% CI
Family support(no)	1.789	1.182-2.697
Social Support(no)	0.844	0.561-1.268
Economic independence(no)	0.234	00.531-1.168

CHAPTER 5
DISCUSSION

5.1. Summary of key findings

This chapter discusses the key results of the study, which aimed to assess the magnitude of menopause related symptoms, health seeking behaviour and associated factors among women aged 35-60 years who were in menopause transition or in the post menopausal phase. The study mainly looked into the extent of menopause related symptoms and factors related to the experience of these symptoms among women in Kollam district. Since there is cross-cultural variation in menopause related symptoms(Kumar Mishra, 2011), the results of the current study results have been compared to other studies conducted in India.

The participants were randomly selected from the rural and urban communities with proportional allocation to rural and urban population in Kollam District (Census, 2011b). Ages of the participants ranged from 35-60 years and 44.8% participants belong to age group 55 or more. The currently available census data on age distribution of the female population in Kollam district in four categories was 44percent below 45 years of age, 20.5percent of 45-49 years of age, and 16.4percent as 50-54 years of age and 19.2percent belonging to the above 55 years of age category(Census, 2011a). But the sample in the current study has an age distribution that did not exactly match that from the Census of 2011 with 44.8% are in age group more than 55 and above, 24.3 percent are in between 50-54 years old, 20.5 percent are in 45-49 years and only 10.5 percent are in age group less than 45 years old. The disparity in distribution of women in different

age group can be explained by three reasons. One is that the average age at menopause in the current study was 46.11 years, so the women who are in or around the menopause were only included in the study. Second is the inclusion of the women in the study based on menopausal status. The study participants were selected using a screening questionnaire and this excluded women who were not in menopausal transition or in the post menopausal phase. A third reason could be because of women in the working age group (less than 55 years) were not available and therefore excluded from the study (due to replacement for closed houses during the sample selection process).

There were 103 women in menopausal transition, 86 women in early post menopausal stage and 219 women are in late post menopausal stage. Among 317 women who attained menopause, 79(24.9%) had an induced menopause and for 68(21.45%) of them it was surgically induced. Early age at menopause or premature menopause is associated with the prevalence of menopause related morbidity(Grigoriou et al., 2013).

Out of 317 post menopausal women 48(15.14%) were in the premature menopause stage, that is menopause occurred when they were less than 40 years among all women who were aged 35 to 60 years of age and included in the study. When the percentage of women who experienced premature menopause was assessed among those aged 35-49, it was 11.9 percent. The estimate of those who experienced premature menopause in the present study is higher than that estimated for Kerala (3.7%) but comparable with states like Gujarat (10.7%) and Karnataka (10.6%) (estimated the proportion of premature menopause in 30-49

years old women) in non Empowered Action Group (non EAG) States using the National Family Health Survey-2 data of 1997-98 (Syamala and Sivakami, 2005). Nearly half of the women had highest level of their education as high school. Half of the women did not undertake remunerated work. Majority of the women were currently married and most of the others were widows. A higher proportion of the women belonged to medium economic index compared to low and high economic index. More than half of the participants had family support and economic independence; but most women do not seem to have social support. A majority of the study participants were older and educated. This study examined family support, economic independence and social support as part of the process of empowerment and assessed associations with menopause related symptoms and health seeking behaviour.

More than half of the participants had two pregnancies and two deliveries. There were 4.3 percent women who never had a pregnancy. Around one fourth of the participants underwent caesarean section. Among 420, eighty women had history of gynecological morbidity, 68 participants underwent gynecological surgery and six of the participants had a history of gynecological cancer. According to population based cancer registry, commonly occurring gynecological cancer prevalence among 35-60 years old women is 0.22 percent in Kollam(Sebastian et al., 2008). The current study shows 1.42 percent participant as affected by most common gynecological cancer like CA breast (3 cases), CA ovary (2 cases) and CA cervix (1 case).So in the current study cancer prevalence seems to be higher than that reported ($p<0.0001$).

High blood pressure was reported by 163 participants, Type 2 Diabetes Mellitus was reported by 112 participants, high cholesterol was reported by 147 participants and other known medical conditions was reported by 61 participants. Waist circumference was measured and central obesity was present in 46.4 percent of the participants. Since there is a sizable proportion of the population who underwent hysterectomy and attained menopause prematurely, there is a likelihood of long exposure to menopause and menopause related symptoms.

Average age at menopause among post menopausal women in the current study was 46.1 years and average age at natural menopause was 47.4 years. The estimated mean age at menopause in the current study is less than that estimated in two other studies from Kerala which were conducted in Idukki and Kannur, but among a relatively smaller sample. The present mean age at menopause of 46.1 years is higher than that obtained from a Pan Indian Study, which estimated the age at menopause of Indian woman as 45.6 years and age at natural menopause as 46.2 years(Ahuja, 2016).

Recent literature in India on estimates of age at menopause ranges from 44.54 years to 49.95 years. The average age at menopause in different studies has been listed in **Table 5.1.**

Table5.1.Mean age at menopause in different studies in India

Studies	Region	Sample size*	Age group of study participant (in years)	Mean age at natural menopause
Present study	Rural and Urban Kollam, Kerala	317	35-60	47.41
(Subrahmanyam and Padmaja, 2016)	Rural Idukki, Kerala	120	40-55	47.95
(Borker et al.,2013)	Rural Kannur, Kerala	106	40-80	48.26
(Monika Satpathy.,2014)	Urban Odisha	100	>40	44.82
(Kulkarni et al., 2016)	Urban Mysore, Karnataka	100	40-65	46.70
(Singh and Pradhan, 2014)	Rural New Delhi	252	40-54	46.24
(Kakkar et al., 2007)	Urban Punjab	208	35-65	48.70
(Randhawa and Sidhu, 2014)	Rural Amritsar, Punjab	100	40-60	49.95
(Sharma et al., 2007a)	Urban Jammu	117	>40	47.35
(Bairy et al., 2009)	Coastal Karnataka, Udupi	352	>40	48.67
(Ahsan et al., 2015)	Patna, Bihar	95	40-65	45.29
(Mahajan et al., 2012)	Shimla, Himachal Pradesh	100	35-65	44.54
(Garg et al.,2015)	Agra,Uttar Pradesh	286	40-55	48.26

*women who attained menopause only considered for analysis for average age at natural menopause.

A significantly high proportion (95.95%) of women had any one of menopause related symptoms. The percent of the women suffering from any of the menopausal symptoms such as psychological, physical, vasomotor and sexual dysfunction were 86.9%, 89.3%, 56% and 65.6% respectively; as assessed by Green Climacteric Scale across the four domains. Psychological symptoms were

comparatively more severe in the late post menopausal stage. Physical symptoms and vasomotor symptoms have equal severity among all menopausal stages and did not vary significantly. Sexual dysfunction is comparatively high in late post menopausal stage and less severe in menopausal transition stage.

Psychological Symptoms: The common severe psychological symptoms were psychological anxiety with sub domains of heart beating quickly or strongly (61.1%) and difficulties in sleeping (55.95%).The psychological symptom which was the most frequent was feeling tired or lacking energy (68.09%) and it was severe for 48.3 percent of the women and the most common mild psychological symptom was crying spells (65.4%) and it was present in 37.1 percent of women. Physical symptoms were assessed using a seven symptom scale and the most frequently reported physical symptom was muscle and joint pain (73.3%) and 62 percent of women have severe muscle and joint pain. Vasomotor symptoms were hot flushes and night sweats. Hot flush was present in 54.5 percent of the women and it was severe for 62 percent of those with such symptoms. Night sweats were present in 55.2 percent of the women and it was severe in 61.2 percent of them. Among 294 participants in the study, with menopause related symptoms, 193 (65.64%) reported sexual dysfunction.

Reports of menopause related symptoms vary across different studies. The current study has low prevalence reported than a similar study in Idukki with Green Climacteric scale using 120 participants. The study findings were muscle and joint pain 95%($p<0.0001$),parts of the body feeling numb or tingling 93.3%($p<0.0001$), difficulty in sleeping 86.5% ($p<0.0001$), irritability 85.8%($p<0.0001$) and these rates were significantly higher than those reported in

the current study, but the prevalence of muscle and joint pain ($p<0.14$) were similar to the study findings from Agra(Garg et al., 2015).Vasomotor symptoms like hot flushes 46.7%($p< 0.0013$) and night sweats 50%($p<0.032$) reported from the study based in Idukki were lower than that reported in the current study. The mean score of previous Kerala study and current study in psychological anxiety subscale (6.49 vs. 6.67), depression subscale (4.83 vs. 4.56) physical scale (6.54 vs. 7.61) and sexual dysfunction scale (1.28 vs. 1.14) are comparable. But the mean score of vasomotor scale was 1.28 in the previous study and 2.74 in current study is different.(Subrahmanyam and Padmaja, 2016) Hot flushes and sweats (53.9%) were reported in a study from urban Jammu (Sharma et al., 2007) wherein the rates are similar(0.573) to the present study findings.

The study findings concur with Global and Asian study findings regarding more prevailing symptom as physical than vasomotor symptoms(Avis et al., 2001; Haines et al., 2005).

5.2. Menopause related symptoms and its correlates

Women in late menopause, who had induced menopause and premature menopause were affected by severe symptoms. There was a significant positive correlation between postmenopausal symptoms and age. The number of symptoms and severity increased with age. (Kulkarni et al., 2016; Mahajan et al., 2012) . These findings from earlier studies underpin the current study results that women in the late menopause status are more vulnerable to experiencing severity of menopause related symptoms.

While considering the place of residence there were no differences in reporting of menopause related symptoms among rural and urban residents. The lowest inequality in rural-urban divide in terms of public health status may be the rationale behind it in Kerala(Kumar and Devi, 2010). Women in low economic status, have no family support are reported to have more severe symptoms. The participants who reported to have ever been diagnosed gynecological morbidity, high blood pressure, high cholesterol, and other medical conditions are more likely to have severe symptoms. Menopause related symptoms are significantly related to sociodemographic characteristics, life style, and other health problems and these factors have a direct and modifiable effect on prevalence of menopause related symptoms.(Li et al., 2003; Ishizuka et al., 2008). The factors contributing severity of menopause related symptoms are low income, low educational status, divorce, higher parity, high BMI, and presence of chronic diseases.(Li et al., 2012). The present study findings about correlates of menopause related symptom severity are in correspondence with existing knowledge in terms of low economic status, less family support, and presence of chronic diseases. The other correlates like menstrual and reproductive history were also related to menopause related symptoms and this matches findings from a study of 'Particularly Vulnerable Tribal Group' from West Bengal(Dasgupta et al., 2015). Multivariate analysis indicated that family support is a significant correlate of severity of menopause related symptoms after controlling for other factors. The women who had family support tend to report less severe symptoms. It was already established that the family support in terms of affective support or involvement of the partner, a good communication in the family is associated with less severity of menopausal

symptoms. In other words lack of family support in the middle ages can be a predictor of severity of menopause related symptoms(Huerta et al., 1994).

5.3. Correlates of health care seeking patterns for menopause related symptoms

Health care seeking preference and practice for menopause related symptoms were assessed. Out of 366 participants who had menopause related symptoms 200 women (54.64%) sought care. Among the women who sought care at least once, 19.1 percent sought care for psychological symptoms, 49.7% went for physical symptoms, 33 % for vasomotor symptoms. Psychological symptom were present in 366 women, 70 of them sought care; majority of the women went to public secondary (20%), private Clinic (20%) and public primary (18.6%) health centre. physical symptoms were present in 374 participants and 186 women sought care, majority of them went to AYUSH (22.6%), private secondary (18.8%),public primary(15.6%) and public secondary(13.4%).Vasomotor symptoms were present in 235participants, only 33 women sought care mainly in private secondary (27.3%) and private clinics(21.2%).For sexual dysfunction only 3 women sought care. Among the women who sought care 60 percent of them sought care one to three times and 40 % of them sought care more than three times in a year.

The proportions of women sought care for any one of the menopause related symptoms can be comparable to a population based study in United States, were 60 percent of the participants sought care(Williams et al., 2007) and it is different from population studied in Malaysia in which three by fourth of the study participants did not seek care for any menopause related symptoms.(Bahiyah Abdullah et al., 2017). The current study participants prefer to seek health care from modern health care facility rather than AYUSH or directly from pharmacy.

One study from Nepal found that the majority of the women sought care directly from pharmacy and most of them were ignorant about health care seeking for menopause related symptoms(Gyawali S et al., 2016). In the current study, around one third of the women who sought care were not satisfied with the access and treatment that they received. A study in Aligarh, India found that most of the rural women had no access to the treatment when compared to those living in urban area(Khan et al., 2016).

Majority of the women sought care for physical symptoms mostly muscle and joint aches. The suffering of the women from physical symptoms like muscle and joint pain may have been interpreted as a part of the aging process or any medical condition or any other pathology rather than a consequence of menopausal status.

The factors associated with health care seeking for menopause related symptoms were history of previous menstrual irregularity, presence of gynecological morbidity; Type 2 Diabetes mellitus and other medical conditions in the current study.

The health care seeking behaviour of women with any menopause related symptoms were influenced by age, frequency and severity of symptoms in Europe(Constantine et al., 2016). The pattern of health seeking was not associated with race, age group, parity, marital status and occupational status(Bahiyah Abdullah et al., 2017). The current study could not find any association of sociodemographic factors with health seeking behaviour for menopause related symptoms. The health care seeking behaviour of the current study participants were not specific for menopause related symptoms, most of them sought care for physical symptoms that is easy to address because it can be related to either some

known pathology or as a process of aging. The lack of knowledge regarding menopause related symptoms like psychological depression, anxiety, vasomotor symptoms and sexual dysfunction persist even in a state like Kerala which has achieved high human development index and gender related development index(CDS, 2005).

5.4. Limitations of the study

The Questionnaire used in the study contained 8 sections. Section F –Knowledge attitude perception questionnaire could not find any objective data because it was highly correlated with the part of the questionnaire. It was already loaded by the influence of other questions. The study could not address the actual factors associated with severity of menopause related symptoms because the factors are highly correlated with each other, so further effort for multivariate analysis to identify the independent factors and effects was not carried out. Inclusion of qualitative research methods could have been a better option to explore the factors associated with menopause related symptoms and health care seeking in this context in terms of bio-cultural perspective. The role of recall bias in self reporting of the symptoms and morbidity could have affected the objective measurement and it was one of the limitations in the study.

5.5. Strengths of the study

The community based cross sectional study and primary data were collected allowing for rural and urban representation. The ward clusters were randomly selected from the list of Panchayats, Muncipality and Corporation in Kollam District. The chance of inter- observer variability reduced, since it was a single investigator study. The Green climacteric scale (used for assessing the outcome

variable) was validated in these study settings. Reliability of waist circumference measurement (WC) made sure by using standardized protocol and instrument.

5.6. Conclusions

Menopause related symptoms are highly prevalent among middle aged women in Kollam district. Physical symptoms are the most commonly reported ones. The prevalence of psychological anxiety, depression, hot flushes, night sweats and sexual dysfunction are not negligible. The factors associated with severity of menopause related symptoms are type of menopause, age at menopause, education, economic status and family support. Family support tends to mitigate against severe symptoms. The study participants sought care mainly for physical symptoms rather than any other menopause related symptoms. They did not seek care for sexual dysfunction even though many women reported these symptoms. Health seeking behaviour was not associated with nature of menopause or any of the socio-demographic or economic factors; but it was associated with history of previous menstrual history, gynecological morbidity, type 2 Diabetes Mellitus and other medical conditions. This indicates a lack of knowledge regarding treatable menopause related symptoms. Further studies are needed to ascertain whether the high levels of hysterectomy observed in this study are wide spread. It is need for public health system in the State to address the issues of middle aged women as the State has achieved desirable maternal and child health indicators.

5.7. Policy Implications

1. The health care needs of the middle aged women are influenced by bio-cultural determinants (age at menopause, gender roles, social construction).

Investment should be made for research focusing on these aspects, which should inform policy.

2. Health promotion activities at the community level need to be tailored to address the multiple health needs of middle-aged perimenopausal and post menopausal women. Special focus on lifestyle modifications in this window of opportunity will help also in preventing chronic diseases.
3. As a part of comprehensive health care, the Family Wellness Centre being newly established in Kerala should have Well Women Clinics which include services for both physical and mental health conditions experienced by middle aged women. The existing health programmes for life cycle approach to women The Reproductive, Maternal, Newborn, Child, and Adolescent Health programme (RMNCH+A) and National Program for Prevention and Control of Cancer, Diabetes, CVD and stroke(NCPDCS) can have better links in addressing the health crisis of middle aged women.
4. Since prevalence of common gynecological conditions is high, this signifies the urgent need for community based screening for such condition especially for cancers.
5. Health providers need to be sensitized to special health needs of middle aged women, both physical and mental health needs related to menopause.

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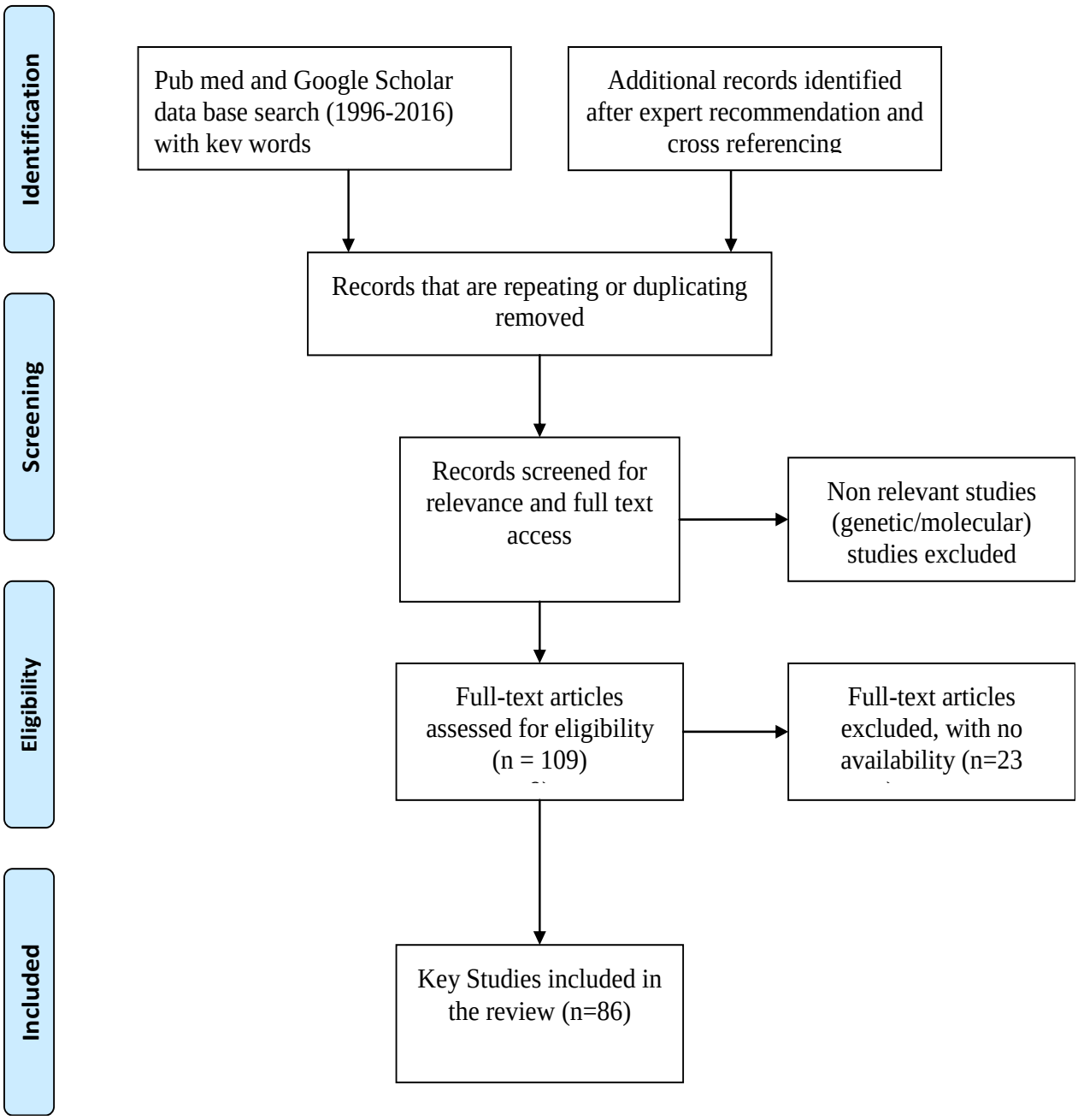
ANNEXURE I
FLOW CHART OF LITERATURE SEARCH PROCESS



ANNEXURE II

NAME AND IDENTIFICATION NUMBER OF CLUSTERS IN THE STUDY

A. Rural Clustering Criteria

Rural clusters –3 selected block division-9 Grama Panchayat clusters -18 wards-13-14 participants (total of 240 participants).

A.1.Name and Numbering of Rural Clusters

1. Chittumula Block -Mandrothuruthu –ward number 7-B01/G01/W01
2. Chittumula Block-Mandrothuruth-ward number11- B01/G01/W02
3. Chittumala Block-Penayam-ward number2-B01/G02/W01
4. Chittumuala Block-Penayam –ward number 14-B01/G02/W02
5. Chittumala Block-Trikkadavoor_ward Number 4-B01/G03/W01
6. Chittumala Block-Trikkadavoor-ward number 10-B01/G03/W02
7. Oachira Block-Kulasekarapuram-ward number18-B02/G01/W01
8. Oachira Block-Kulasekarapuram-ward number21-B02/G01/W02
9. Oachira Block-Oachira-ward number3-B02/G02/W01
10. Oachira Block-Oachira-ward number 9-B02/G02/W02
11. Oachira Block-Thodiyoor-ward Number 9-B02/G03/W01
12. Oachira Block-Thodiyoor-ward number 17-B02/G03/W02
13. Kottarakara Block-Veliyam-wardnumber1-B03/G01/W01
14. Kottarakara Block-Veliyam-ward number3-B03/G01/W02
15. Kottarakara Block-Ezhukone-ward number13-B03/G02/W01
16. Kottarakara Block-Ezhukone-ward number 16-B03/G02/W02
17. Kottarakara Block-Poyappally-ward number 7-B03/G03/W01
18. Kottarakara Block-Pooyapally-ward number 10-B03/G03/W02

B.Urban Clustering Criteria

Muncipality-3mucipality clusters -3 wards from each=10-11 participants

Corporation clusters=9 wards=10participants

B.1.Name and Numbering of Urban Clusters- Muncipality

1. Muncipality-Karunagappally-Manpozhil-M01/W01
2. Muncipality-Karunagappally-Kanneti-M01/W02
3. Municipality-karunagappally-Pakal veedu-M01/W03
4. Muncipality-Punalur-Arampunna-M02/W01
5. Muncipality-Punalur-Kakkode-M02/W02
6. Muncipality-Punalur-Paravattom-M02/W03
7. Muncipality-Pravoor-Attinpuram-M03/W01
8. Muncipality-Paravoor-Kurandikkulam-M03/W02
9. Muncipality-Paravoor-Karamandal-M03/W03

B.2.Name and Numbering of Urban Clusters-Corporation

1. Kollam Corporation-Maruthadi-C1/W01
2. Kollam Corporation-Neeravil-C1/W02
3. Kollam Corporation-Uliyakovil-C1/W03
4. Kollam Corporation-Kavanadu-C1/W04
5. Kollam Corporation-Mathili-C1/W05
6. Kollam Corporation-Asramam-C1/W06
7. Kollam Corporation-Bharanikkav-C1/W07
8. Kollam Corporation-Tangassery-C1/W08
9. Kollam Corporation-Thirumullavaram-C1/W09

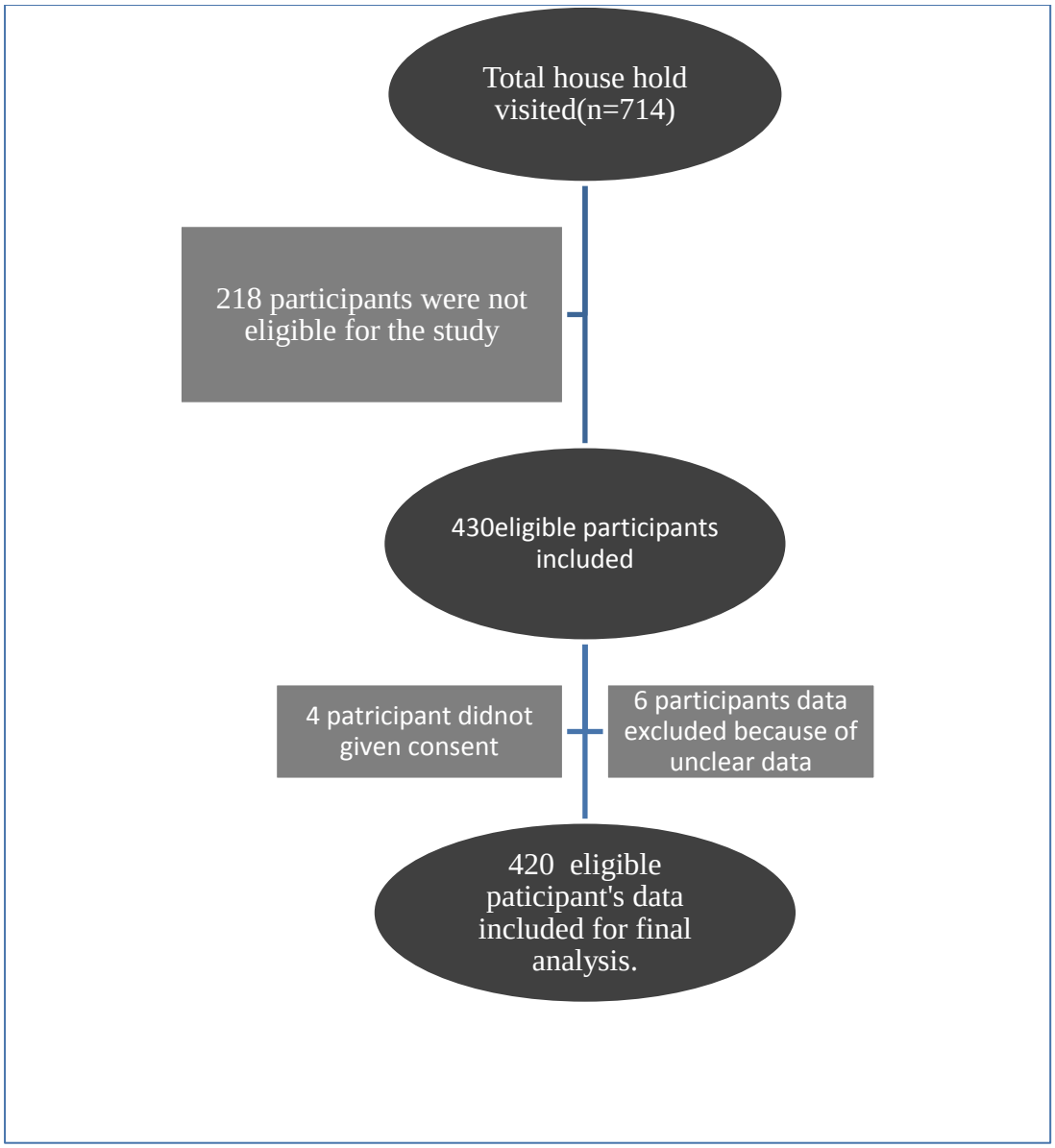
Total Number of Clusters in Rural area-18

Total Number of Clusters in Urban area-18

Total Number of clusters-36

ANNEXURE III

FLOW CHART-PARTICIPANTS RECRUITMENT



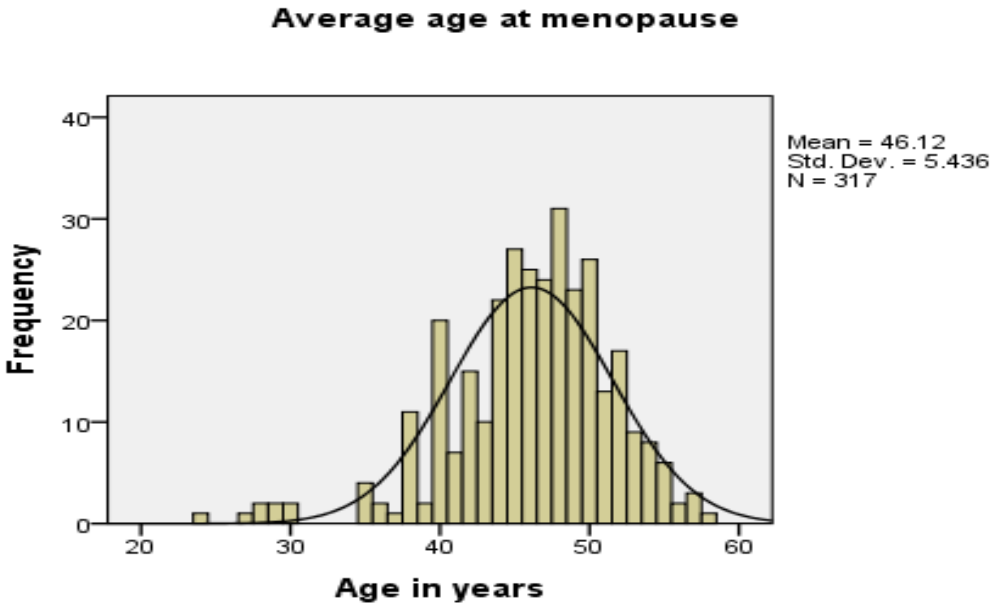
ANNEXURE IV

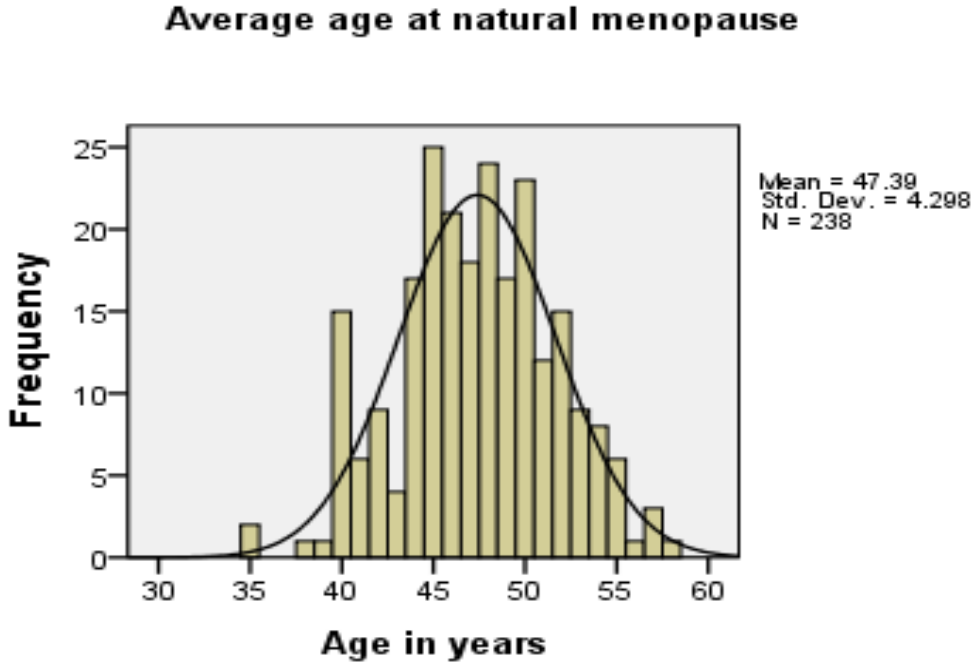
CLUSTERWISE REPORT ON RESPONSE OF STUDY PARTICIPANTS

Serial Number	*Cluster ID*	*Area*	*Number of women in the inclusion criteria*	*Number who give consent*	*Number to be included in the study*
1	C1/W01	Urban	10	10	10
2	C1/W09	Urban	10	10	10
3	C1/W04	Urban	10	10	10
4	M01/WO2	Urban	10	10	10-11
5	B01/G01/W01	Rural	14	14	13-14
6	B02/G01/W01	Rural	13	13	13-14
7	B2/G01/W02	Rural	13	13	13-14
8	B2/G03/W01	Rural	14	14	13-14
9	B02/G03/W02	Rural	13	13	13-14
10	B01/G03/W01	Rural	13	13	13-14
11	B01/G03/W02	Rural	15	15	13-14
12	C01/W06	Urban	***10***	***9***	10
13	C1/W03	Urban	10	10	10
14	B02/G02/W01	Rural	13	13	13-14
15	B02/G02/W02	Rural	13	13	13-14
16	M01/WO1	Urban	10	10	10-11
17	M01/W03	Urban	10	10	10-11
18	C01/W05	Urban	10	10	10
19	C01/W02	Urban	10	10	10
20	C01/W07	Urban	***10***	***9***	10
21	C01/W08	Urban	10	10	10
22	B03/G03/W01	Rural	14	14	13-14
23	B01/G03/W02	Rural	13	12	13-14
24	B03/G02/W01	Rural	13	13	13-14
25	B03/G02/W02	Rural	14	14	13-14
26	B01/G02/W01	Rural	13	13	13-14
27	B01/G02/W02	Rural	14	14	13-14
28	B03/G01/W01	Rural	13	13	13-14
29	B03/G01/W02	Rural	14	14	13-14
30	M03/W01	Urban	11	11	10-11
31	M03/W02	Urban	11	11	10-11
32	M03/W03	Urban	11	11	10-11
33	M02/W01	Urban	***12***	***11***	10-11
34	M02/W02	Urban	***12***	***11***	10-11
35	M02/W03	Urban	12	12	10-11
36	B01/G01/W02	Rural	12	12	13-14
Total number of clusters-36			**430**	**426**	

ANNEXURE V

DISTRIBUTION OF AVERAGE AGE AT MENOPAUSE AND AVERAGE AGE AT NATURAL MENOPAUSE





ANNEXURE VI

AchuthaMenon Centre for Health Science Studies (AMCHSS)

Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)

Trivandrum-11

INFORMED CONSENT - Participant Information Sheet.

Survey number	Location	Date of Survey	Name Of Corporation/Municipality/CD block
	Rural ☐	D D M M Y Y Y Y	
	Urban ☐		Name of Panchayat &Ward

Namaskaram, I am Sajitha.S, Student of Master of Public Health in Achuta Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Science and Technology, Thiruvananthapuram. I am conducting a study on 'Menopause Related Symptoms and their correlates in Kollam District, Kerala.' My study participants are women aged 35 to 60 years. I came here as a part of my study to collect information regarding the specific health related issues of women in middle ages.

The purpose of my study is to find out the extent of menopause related symptoms, to describe the personal and sociodemographic factors associated with menopause and to the characteristics of health seeking behaviour and its associated factors in women in menopausal transition and post menopause period in the community. The importance of my study is that, majority of women not reporting their reproductive health related issues in midlife which affects the daily quality of life of the women, and is a window period need individualized attention to prevent development of chronic disease in later ages.

If you are willing to participate it will take 15-25 minutes, you will be asked few questions on your social, economic characteristics, reproductive related details, medical conditions if any, knowledge and perception regarding menopause, menopause related symptoms, and health care seeking behaviour. I will measure waist circumference which is variable in my study. I will make sure your convenience and privacy while interview and assuring it will not harm you any way.

Your participation in the study will not give any direct benefit to you now, but it may help to influence the policy makers or programme planners while making new health policy for women or review of existing programmes for middle aged women.

The information that researcher collected will be kept confidential and safe with the researcher. The participation in the study is completely voluntary, and at any point of time you can withdraw from study. It will not harm you anyway. If you have any doubts regarding the research you can contact me (my number is 8111818098).If you want any clarification, regarding the study you can contact the Member Secretary of Institutional Ethics Committee (IEC), Dr. Mala Ramanathan of SCTIMST. The Member Secretary can be contacted as 0471 2524234.

Thank You,

Signature of the Researcher:
Sajitha.S, MPH 2016 Batch, AMCHSS, SCTIMST, Trivandrum- 11

INFORMED CONSENT-Participant Consent Form

Survey number	Location Rural ☐ Urban ☐	Date of Survey D D M M Y Y Y Y	Name Of Corporation/Municipality/CD block Name of Panchayat & Ward

1.I have read about this study in the information form and I have clarified all the doubts that I.

2. I also understand that my participation in the study is voluntary and that I can, at any time, discontinue my participation in tl dy.

3. I understand that my identity won't be revealed in any published or released information from this study.

4. I am voluntarily agreeing to be a part of this study.

Signature part of Consent Form

- Signature/ Thumb impression of Participant:
- Name of the Participant: _____

IN CASE OF VERBAL CONSENT

- Signature of Witness:
- Relation To the participant:

_____

- Name of the Witness:

_____

- Signature of interviewer:
- Date and Time: _____/_____/_____

ANNEXURE VII

AchuthaMenon Centre for Health Science Studies (AMCHSS)
Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)
Trivandrum-11

Interview Schedule

Survey number	Location	Date of Survey	Name of Corporation/ Municipality/CD block
	Rural ☐	D D M M Y Y Y Y	
	Urban ☐		Name of Panchayat/Ward Number

SECTION A. Checklist before proceeding

House Number	**Number of women aged 40-60 years old**	**NO.**	**Name of the Woman**	**Age(Completed age by June 2017)**	**Currently Pregnant/ Delivered in last six months/ history of abortion in last three months**		**Willingness to participate**	
CODE	A*	**B***	**C***	**D***	**E***		**F***	
		1			**Yes**	**No**	**Yes**	**No**
If more than one women present in the household, list who all are present and enquire information, then select by KISH method.		**2**			**Yes**	**No**	**Yes**	**No**
		3			**Yes**	**No**	**Yes**	**No**
		4			**Yes**	**No**	**Yes**	**No**
		5			**Yes**	**No**	**Yes**	**No**

(Note: A*-Women with eligible age group in the household. B*-Number of women from eligible age group in household, who were present at the time of survey. C*-Name of the woman who are present in the time of survey. D*-the completed years of women by 2017.E*-Using for inclusion or exclusion criteria. F*-asked for willingness to participate.)

SECTION B: Screening Questionnaire for Ascertainment of Menopausal stages

Sl no.	***Question***	***Response***	***Answer***	***Instructions***
i	***Name of the Respondent***			
ii	***Address***			
iii	***Cluster ID /UID***			
iv	***Age of the respondent(in completed years)***			
1.	I am going to ask a few questions about your menstrual periods. Have you had your periods during the past two months?	***1.Yes***		*If Yes, can Quit the study after explanation. If No, proceed to Qes.2*
		2.No		
2.	For those who answer No, check: Just to make sure I am verifying, you have not had your periods during the past two months	1.Yes, I have not had my periods during the past two months		*If Yes, can proceed to Qes.3.If No can quit the study.*
		2. No, I have had periods during the past two months.		
3.	Why do you think you have not had your periods during the past two months?	1. I usually have my periods once in two or more months. 2.I have been having irregular periods for a while now 3.Can't say:		*If the answer is 1, can quit the study. If the answer is 2, proceed to the Qes 5.If the answer is 3 proceed to Qes 4.*
4.	Are you having amenorrhea since last 6 months to 12 months.(reference period; the date of study) can be by natural/induced(surgical/chemotherapy/radiation)	1.Yes 2.No		*If yes, confirmation of Menopause (the current period is post menopause)*
5.	Can you tell me how was your menstrual cycle last 3 years.(Current history of menstrual cycle in last one to three years, since 2014)	1.Regular 2.Irregular		*If the answer is Irregular, go to Qes. no 6,**If it is Regular Quit the interview**.*
6.	Which type of irregularity(Any variability in duration and flow of any one menstrual cycle in the absence of any known pathology)do you have now?(reference period the date of study to 2014 corresponding month –probably June-August 2014)	**1**.Amenorrhea for more than 60 days 2. Persistent difference of 7 days or more in length of consecutive cycles (recurrence within 10 cycles)		*If either one option is present the women can fall in menopausal transition criteria. Can be eligible*

				participant for the study.
Note: Eligible for the study : (Yes/No)				

SECTION C - Socio demographic data

Serial No.	***Question***	***Response***	***(Mark corresponding to the answer)***	***Instructions***
1	Unique Identification Number;	☐☐☐☐☐☐		
2	Date	☐☐☐☐☐☐☐☐		
3	Time	☐☐☐☐		
4	Did you ever attend school?	1.Yes 2.No		*If yes, go qes.5.If no go to qes.6*
5	Up to what level have you studied?	1 .Primary. 2. High school. 3.Higher secondary and above 4.Professional education		
6	Are you currently earning a financial remuneration?	1.Yes 2.No		If Yes go to Qes.7.If No go to qes.8.
7.	What is the nature of your work?	1.Daily wages (eg.MNREGA) 2. Self employment. 3. Salaried employment. 4.others(specify)		
8.	What is your current marital status	1.Married 2.Not married 3.Widowed 4.Separated 5.Divorced 99. No response/Refuse to respond.		
9	In this household who all are living with you? (can elicit multiple answer)	1.Spouse 2.Children only(<=14 years) 3.Older children(>14 years) 4.Adult female relatives 5.Adult male relatives 6.Living alone 7.others(specify)		
10.	What is your current	1. Income from current		

	means of household livelihood? (multiple answers can be possible)	employment.		
		2. Income from previous employment & other welfare Govt. fund		
		3. Spouse income.		
		4. Children's income.		
		5.Supported by relatives		
		6.Others(specify)		
11.	What is the nature of ownership of the house you currently live in?	1.Owned		
		2.Rented		
		3.Relatives' house		
		4.Others(specify)		
		99. Don't know/No response/Refuse to respond		
12.	What type of house do you have? (Observed information also can be used)	1. House with roof tiled/sheet/leaf and floor which is not finely cemented(unpolished floor)		*Either one of the option can be selected. If the particulars in the options fall together, then specify.*
		2.House with concrete roof but floor is only cemented/red oxide		
		3. House with paved tiles in the courtyard and concrete roof with tiled floor with designed landscape.		
		4.others(specify)		
13.	Which of these Electrical appliances do you own?(Multiple answer can be)	1.Mixer Grinder		
		2.Refrigerator		
		3.Washing machine		
		4.Air Conditioner		
		2.Two wheeler Motor cycle		
		3.Car		
		5.Others(specify)		
14	Approximately, how much is the average spending of the household per month?	1.1500-5000		
		2.5000-9000		
		3.9000 And above.		
15.	What is the community you belong to?	1.SC/ST		
		2.General		
		3.OBC		
		4.Others(specify)		

		99. Don't know/No response/Refuse to respond		
16.	Are you participating in any self help group like Kudumbasree/ Janasree/ Sreesakthi?	1.Yes 2. No		
17.	What is your working pattern daily?			
	a. Not doing any physical work.	1.Yes 2.No		Yes=Sedentary
	b. Mild nature of work?(doing either domestic work or caring household)	1.Yes 2.No		Yes=Mild PA
	c. Moderate nature of work?(doing domestic work and caring household objects)	1.Yes 2.No		Yes=Moderate PA
	d. Severe nature of the work? (Doing domestic work, caring household objects and higher level in physical activity in remunerable or non remunerable employment).	1.Yes 2.No		Yes=Vigorous PA
18	What is your dietary pattern?	1.Vegetarian 2.Non Vegetarian		
19.	Are you controlling High fat diet?	1. Yes 2. No		
20.	Are you controlling high sugar diet?	1.Yes 2.No		

SECTION D. Reproductive and menstrual History

Sl no.	***Question***	***Response***	***Mark Answer***	***Instructions***
1.	Do you ever have menstrual irregularities during menstrual years except during pregnancy and lactation or any known pathology?	1.Yes 2.No		
2.	What was the nature of irregularity you had? (past asking history of menstrual cycle 3years before)-can be multiple answers.	1. Heaviness of flow during menstrual period. 2. Bleeding in		

			between two menstrual cycles or experiencing frequent menstrual periods. 3. Scanty blood flow during menstrual period. 4. Pain with menstrual bleeding.			
3.	How many pregnancies have you had?		1.None 2.One 3.Two 4.Three 5. Four and more.			
4.	How many live births did you have?		1.One 2.Two 3.Three 4.Four and more 99. Not applicable.			
5.	What was the type of delivery?(specify the number of each type of delivery in the right)		1.Vaginal Delivery- 2.Caesarean section- 3.Others(specify)-			
6.	Did you have any complication during the last Delivery?		1.Yes 2.No			
7	Have you ever used any contraceptive method in the past?		1.Yes 2.No			
8	Gynecological morbidity, health care seeking(history of gynecological disorders and health care seeking for the problem)					
	Type of gynaecological morbidity	Ever had or ever diagnosed	When did you have that problem& Place of Diagnosis***(PH/PR/PD).***	Sought care (Yes/No)	Place of care *(list of institutions)* ********PPHC/PSHF/PTHF/PVC/PVST/AYUSH/Others.***	Type of management (Medical/Surgical/Others)

		(Yes /No)				
8a.	Uterine fibroid					
8b.	Ovarian cyst					
8c.	Uteri vaginal prolapse					
8d.	Others(specify)_ _____					

Note*- PH (Public Health facility) PR (Private Health facility),PD (Private doctor clinic),Others.

*****-PPHC(public primary health centre),PSHF(Public Secondary Health Facility),PTHF(Public Tertiary Health Facility),PVC(Private Clinic),PVST(Private Hospital, Secondary/Tertiary),AYUSH, Others.***

9.	If you underwent surgery, for any of the above condition, Can you tell what kind of surgery?	1.Hysterectomy	
		2.Hysterectomy with oophorectomy	
		3. Oopherectomy only.	
		4.Others (specify)	
10.	When was the (month and year) surgery?	_____	

SECTION E. Self Reported Medical Condition

Sl no	***Questions***	***Response***	***Mark Answer***
1.	**Waist circumference**	_____cm	

2. Have you ever been diagnosed or treated for the following diseases?(reported that on medicine or showing medicine prescription or medical report if available)

Medical condition	Ever had(Yes/ No)	When did you have that problem(Month &Year)	Sought care(Yes/No)	Which is the h care facility, you are taking treatment/Pla *(list of institut ****PPHC/PSH PVC/PVST/AY Others.*
2a. Hypertension				
2b.Diabetes mellitus				
2c. Blood cholesterol				

	variations.					
	2d.Others(specify)					

Note**-PPHC(public primary health centre),PSHF(Public Secondary Health Facility),PTHF(Public Tertiary Health Facility),PVC(Private Clinic),PVST(Private Hospital, Secondary/Tertiary),AYUSH, Others.

Malignant Conditions and the Process of screening.

Malignant condition related to reproductive organs	Ever screened for the cancer(Yes/No)	Ever Diagnosed(Yes/No)	If Yes, Current status (on treatment//treated completely/ remission)
3a.Breast cancer			
3b.Ovarian cancer			
3c.Endometrial/uterine cancer			
3d.Cervical cancer			
3e.Others(specify)			

SECTION F.Knowledge, Attitude, Perception about Menopause

Sl no.	***Question***	***Response***	***(Mark corresponding correct answer)***
Knowledge and attitude towards menopause to all women			
1.	Have you heard the term 'Menopause'	1.Yes	
		2.No	
2.	If yes, what is menopause?	1.Natural Process	
		2.Pathology	
		3.Side effects of medicine	
		4. Pollution in the environment.	
		5. Others(specify)	
		6.Donot know	
3.	Does menopause cause health problems for the women?	1.Yes	
		2.No	
		99.Donot know	
4.	Should such menopause related health problem be treated?	1.Yes	
		2.No	
		99.Do not know	
Perceptions of Menopause and related symptoms			
5.	You have now reached menopause. Thinking about the phase when you were going through it, how would	1.It was not different from earlier times	
		2.It was a very difficult phase of my life	

	you describe it? (How do you feel this period?)	3. Do not want to say anything about it.	
6.	When you were experiencing symptoms of menopause, how long did you think it would last? (acute/chronic)	1.Short time	
		2.Long time	
		3.Improve in time	
7.	I would like to know of the your frequency of these symptoms.(can you say what type of pattern you think you have) 7.1 Symptoms followed a regular repetitive pattern (can be predicted)	1.Yes 2.No	
	7.2 Symptoms seem to come whenever (cannot be predicted)	1.Yes 2.No	
	7.3. Symptoms were sometimes predictable but some times not	1.Yes 2.No	
	7.4 Some symptoms were predictable, some were not	1.Yes 2.No	
8.	Can you describe the way these symptoms affect you and your everyday life?(multiple answer can be) 1. Symptoms have major consequences on life.	1.Yes 2.No	Scoring ***One Yes-1*** ***Two Yes-2*** ***Three Yes-3***
	2. Symptoms have serious financial consequences.	1.Yes 2.No	
	3 .Symptoms cause difficulties for those who are close to me.	1.Yes 2.No .	
9.	What do you think that can do with your symptoms?(control over symptoms)	1. The course of illness depends on me.	
		2. Nothing I do will affect my illness.	
		3. I have the power to influence my illness.	
		99. Do not know/Refuse to answer.	
	General Health Care Seeking Behaviour		
10.	If you are experiencing any symptoms and you feel you want treatment or remedy where you will prefer to go?	1.Religious leaders	
		2.Traditional healers	
		2.AYUSH	
		3.Medicine Pharmacy	

		5.Modern medicine(health care facility) 6.Others(specify)	
11.	In the past 12 months, how many times did you see a doctor or other healthcare Professional primarily for treatment of your menopausal symptoms?	1.Never 2.One-three times 3.Four-six times 4.Seven-nine times 5.Ten or more times	
12.	How satisfied are you with your access, treatment to health services available to you?	1.Satisfied 2.moderately satisfied 3.Not at all satisfied	

SECTION G. Menopause Related Symptom Questionnaire –The Green Climacteric Scale.

☐ Women having irregular menstrual cycle in last one to three year.(menopausal transition period).

☐ Women attained menopause, and this is six months to one year from the last menstrual period up to the fifth year (Early post menopausal period).

☐ Women attained menopause five years before but age is within 60 years (late post menopausal period).

The Green Climacteric Scale

Now I am going to ask some questions regarding menopause related symptoms. For every question there are four options. They are not at all, having little, little more and severe. Please answer accordingly.

Sl no.	Symptoms	Not at all	A Little	Quite a bit	Extremely	Score(0-3)
1	Heart beating quickly or strongly					
2	Feeling tense or nervous					
3	Difficulty in sleeping					
4	Excitable					
5	Attacks of Panic					
6	Difficulty in Concentrating					
7	Feeling tired or lacking in energy.					
8	Loss of interest in most things					
9	Feeling unhappy or depressed					
10	Crying spells					
11	Irritability					
12	Feeling dizzy or faint					
13	Pressure or tightness in head or body.					
14	Parts of the body feel numb or					

	tingling.					
15	Headaches					
16	Muscle and joint pain					
17	Loss of feeling in hands or feet.					
18	Breathing difficulties					
19	Hot flushes					
20	Sweating at night					
21	Loss of interest in sex					

Score:

Psychological (1-11)= ☐ **Somatic(12-18)=** ☐ **Vasomotor(19-20)=** ☐ **Sexual(21)=** ☐

Anxiety(1-6)= ☐ Depression(7-11)= ☐

SECTION H: Health seeing behaviour for the above symptoms

Sl no.	Questions	Sought Care (Yes/No)	**Where do you seek treatment if you experienced menopausal symptoms?**			
			*Public Facility(Pr./Sr. /Tr./ Sp.F/Sp.M/ Sp.G/Sp.P)	**Private Facility(PC/PSr. /PTr. /Sp. F/Sp.M /Sp.G/Sp.P)	*** AYUSH(PHF/Pr.HF)	OTHERS (specify)
1.	Psychological Symptoms					
2.	Somatic symptoms					
3.	Vasomotor symptoms					
4.	Sexual problems					

Note:* ***Public Facility*** *(Pr.-Primary; Sr.-Secondary; Tr.-Tertiary; Sp.F –Speciality family medicine; Sp.M –Speciality/internal medicine; Sp.G-Speciality Genecology; Sp.P-Speciality Psychology/ Psychiatry/Ortho).*

******Private Facility*** *(PC-Private clinic; PSr.-Private Secondary; PTr.-Private Tertiary; Sp.F –Speciality family medicine; Sp. M –Speciality/internal medicine; Sp.G-Speciality Genecology; Sp.P-Speciality Psychology/ Psychiatry/Ortho).*

****AYUSH (PHF)-AYUSH public health facility: ***AYUSH (Pr.HF)-AYUSH private health facility.*

ANNEXURE VIII

അച്യുത മേനോൻ സെന്ററർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസ് ,ശ്രീ ചിത്തിര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ് ടെക്നോളജി,തിരുവനന്തപുരം,695011

`സമ്മതപത്രം - പങ്കാളിത്ത വിവരണം

സർവേ നമ്പർ	സ്ഥലം ഗ്രാമം ☐ നഗരം ☐	സർവേ തീയതി	കോർപ്പറേഷൻ / മുനിസിപ്പാലിറ്റി / സി ഡി ബ്ലോക്ക് പഞ്ചായത്ത് & വാർഡിന്റെ പേര്

നമസ്കാരം ,

ഞാൻ സജിത. എസ്സ് . ശ്രീ ചിത്തിര തിരുനാൾ ഇനിസ്റ്റിട്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ് ടെക്നോളജി യുടെ ഭാഗമായുള്ള അച്യുതമേനോൻ സെന്ററ് ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസിൽ പബ്ലിക് ഹെൽത്ത് ബിരുദാനന്തര ബിരുദ വിദ്യാർത്ഥിയാണ്. ഞാൻ എന്റെ പഠനത്തിന്റെ ഭാഗമായി കേരള സംസ്ഥാനത്തു കൊല്ലം ജില്ലയിലെ 35 മുതൽ 60 വയസ്സുവരെയുള്ള സ്ത്രീകളിൽ ആർത്തവിരാമവുമായി ബന്ധപ്പെട്ടു വരുന്ന രോഗങ്ങളെയും അതിന്റെ രോഗ ലക്ഷണങ്ങളെയും പറ്റി ഒരു പഠനം നടത്തുന്നുണ്ട് അതിനു വേണ്ടിയുള്ള വിവരങ്ങൾ ശേഖരിക്കുവാൻ വേണ്ടിയാണു ഞാൻ ഇവിടെ എത്തിയിട്ടുള്ളത്. എന്റെ പഠനം ഉദ്ദേശ്യം, ആർത്തവവിരാമം ബന്ധപ്പെട്ട ലക്ഷണങ്ങളുടെ വ്യാപ്തി കണ്ടെത്താനു ആർത്തവവിരാമവുമായി ബന്ധപ്പെട്ട വ്യക്തിപരവും സാമൂഹികവുമായ ഘടകങ്ങളും ആർത്തവവിരാമ ത്തിലേക്കുള്ള പരിവർത്തന കാലഘട്ടം സ്ത്രീകളുടെ പെരുമാറ്റം അതിന്റെ സാമൂഹിക ഘടകങ്ങൾ എന്നിവയാണ് . എന്റെ പഠനത്തിന്റെ പ്രാധാന്യം ഭൂരിപക്ഷം സ്ത്രീകളും അവരുടെ മദ്ധ്യ വയസിൽ ഉണ്ടാകുന്ന പ്രത്യുല്പാദന ആരോഗ്യവുമായി ബന്ധപ്പെട്ട പ്രശ്നങ്ങൾ റിപ്പോർട്ട് ചെയ്യുന്നില്ല .ഇത് സ്ത്രീകളുടെ ദൈനദിന ജീവിതത്തെ ബാധിക്കുന്നു . ഈ കാലയളവിലെ പ്രേത്യേക ശ്രദ്ധ പിന്നീട് ഗുരുതരമായ രോഗങ്ങൾ തടയാൻ സഹായിക്കും .

നിങ്ങക്ക് ഇതിൽ പങ്കെടുക്കാൻ തയ്യാറാണെങ്കിൽ ഇതിനുവേണ്ടി 15-25 മിനിറ്റ് സമയം തരിക, ആർത്തവം, ആർത്തവവിരാമം ബന്ധപ്പെട്ട ലക്ഷണങ്ങൾ,ആരോഗ്യം എന്നിവ സംബന്ധിച്ചും നിങ്ങളുടെ സാമൂഹിക, സാമ്പത്തിക പ്രത്യേകതകൾ, പ്രത്യുൽപ്പാദനവുമായി ബന്ധപ്പെട്ട വിശദാംശങ്ങൾ,മെഡിക്കൽ അവസ്ഥ, തുടങ്ങിയവയെ പറ്റിയുള്ള ചില ചോദ്യങ്ങൾക്കു മറുപടി ആവശ്യപ്പെടും . ഞാൻ എന്റെ പഠനത്തിൽ ആവശ്യത്തിനായി അരയുടെ ചുറ്റളവ് എടുക്കും . അഭിമുഖ സമയത്ത് ഞാൻ നിങ്ങളുടെ സൗകര്യം, സ്വകാര്യത എന്നിവ ഉറപ്പുവരുത്തുകയും അതു നിങ്ങളെ ഏതെങ്കിലും വിധത്തിൽ ഉപദ്രവമോ ബുദ്ധിമുട്ടോ വരുത്തുകയില്ല എന്ന് ഉറപ്പുനൽകുകയും ചെയ്യുന്നു .

പഠനത്തിൽ നിങ്ങളുടെ പങ്കാളിത്തം ഇപ്പോൾ നിങ്ങൾക്ക്നേരിട്ട് യാതൊരു ആനുകൂല്യംനൽകുന്നതല്ല , പക്ഷേ അത് സ്ത്രീകൾ അല്ലെങ്കിൽ മധ്യ പ്രായമുള്ള സ്ത്രീകൾക്ക് നിലവിലുള്ള പ്രോഗ്രാമുകളുടെ അവലോകനത്തിനായോ അല്ലെങ്കിൽ പുതിയ ആരോഗ്യ നയം നിർമ്മിക്കുന്ന സമയത്ത് നയരൂപീകരണത്തിനായോ . പ്രോഗ്രാം ആസൂത്രകരെ സ്വാധീനിക്കാൻ സഹായിച്ചേക്കാം.

ഗവേഷക ശേഖരിച്ച വിവരങ്ങൾ രഹസ്യമായും സുരക്ഷിതമായി സൂക്ഷിക്കും. പഠനത്തിൽ സന്നദ്ധ പങ്കാളിത്തമാണ് വേണ്ടത്. ഏതു സമയവും ഏതുഘട്ടത്തിലും നിങ്ങള്ക്ക് ഈ പഠനത്തിൽ നിന്നും പിൻമാറാൻ കഴിയും.അത് ഒരുവിധത്തിലും നിങ്ങൾക്കു ദോഷം ചെയ്യുകയില്ല . ഈ പഠനത്തെ കുറിച്ച് എന്തെങ്കിലും സംശയം ഉണ്ടെങ്കിൽ താഴെ

കൊടുത്തിരിക്കുന്ന എന്റെ ഫോൺ നമ്പറിൽ വിളിക്കാവുന്നതാണ്. പഠനത്തെക്കുറിച്ചു കൂടുതലായുള്ളഅന്വേഷണങ്ങൾക്കു സ്ഥാപനത്തിലെ നീതി നിർവാഹക(ഐഇസി)മെമ്പർ സെക്രട്ടറിയെ ഫോണിൽ ബന്ധപ്പെടാവുന്നതാണ്.

ഡോക്ടർ .മാലാ രാമനാഥൻ
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അച്യുത മേനോൻ സെന്ററർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസ് ,
ശ്രീ ചിത്തിര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ്
ടെക്നോളജി,തിരുവനന്തപുരം,695011

സമ്മതപത്രം -പങ്കാളിത്ത സമ്മതപത്രം

സർവേ നമ്പർ	സ്ഥലം ഗ്രാമം ☐ നഗരം ☐	സർവേ തീയതി D D M M Y Y Y Y	കോർപ്പറേഷൻ / മുനിസിപ്പാലിറ്റി / സി ഡി ബ്ലോക്ക് പഞ്ചായത്ത് & വാർഡിന്റെ പേര്

1) ഞാൻ ഈ പഠനത്തെ സംബന്ധിക്കുന്ന വിവരങ്ങൾ ഇവിടെ വായിക്കുകയും എനിക്കുള്ള സംശയങ്ങൾ ദൂരീകരിക്കുകയും ചെയ്തിട്ടുണ്ട് ☐

2) ഈ പഠനത്തിൽ എൻറെ പങ്കാളിത്തം സ്വന്തം ഇഷ്ടപ്രകാരം ആണെന്നും , ഏത് സമയത്തും, പഠനത്തിൽ എന്റെ പങ്കാളിത്തം പിൻവലിക്കാൻ സാധിക്കുമെന്നും ഞാൻ മനസ്സിലാക്കുന്നു. ☐

3) ഞാൻ എന്റെ ഐഡന്റിറ്റി ഈ പഠനത്തിൽ നിന്ന് ഏതെങ്കിലും പ്രസിദ്ധീകരനങ്ങൾ വഴിയോ അല്ലെങ്കിൽ മറ്റു വിവരങ്ങൾ വഴി വെളിപ്പെടുത്തുകയില്ലെന്ന് ഞാൻ മനസ്സിലാക്കുന്നു . ☐

4) ഞാൻ സ്വമേധയാ ഈ പഠനത്തിൽ ഭാഗമായതായി അംഗീകരിക്കുന്നു ☐

സമ്മതപത്രത്തിൽ ഒപ്പിട്ടിരുന്നു ഭാഗം

പങ്കെടുക്കുന്ന ആളുടെ ഒപ്പ് / വിരലടയാളം

പങ്കെടുക്കുന്ന ആളുടെ പേര് _____

വാക്കാൽ ഉള്ള അംഗീകാരം ആവശ്യമെങ്കിൽ

സാക്ഷിയുടെ ഒപ്പ്:

പഠനത്തിൽ പങ്കെടുത്ത ആളുമായുള്ള ബന്ധം: _____

സാക്ഷിയുടെ പേര്:_ _____

അഭിമുഖം നടത്തിയ ആളുടെ ഒപ്പ്:

തീയതിയും സമയവും: _____/_____/_____

ANNEXURE IX

അച്യുത മേനോൻ സെന്ററർ ഫോർ ഹെൽത്ത് സയൻസ് സ്റ്റഡീസ് ,ശ്രീ ചിത്തിര തിരുനാൾ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഫോർ മെഡിക്കൽ സയൻസ് ആൻഡ് ടെക്നോളജി,തിരുവനന്തപുരം,695011

ആർത്തവവിരാമ രോഗ ലക്ഷണങ്ങളും അതിന്റെ അനുബന്ധ ഘടകങ്ങളും-കൊല്ലം ജില്ലയിൽ നിന്നുള്ള പഠനം

അഭിമുഖ ഫോറം

സർവേ നമ്പർ ☐☐☐☐	സ്ഥലം ഗ്രാമം ☐ നഗരം ☐	സർവേ തീയതി ☐☐☐☐☐☐☐☐	കോർപ്പറേഷൻ / മുനിസിപ്പാലിറ്റി / സി ഡി ബ്ലോക്ക് ☐ പഞ്ചായത്ത് & വാർഡിന്റെ പേര് ☐

സെക്ഷൻ A: പരിശോധന ചോദ്യാവലി

വീട് നമ്പർ	35-60 വയസ്സുവരെയുള്ള സ്ത്രീകളുടെ എണ്ണം	ക്രമനമ്പർ	വ്യക്തിയുടെ പേര്	2017മെയിൽ പൂർത്തിയായ വയസ്സ്	താങ്കൾ ഇപ്പോൾ ഗർഭിണി/ആറു മാസത്തിനകമുള്ള പ്രസവം/മൂന്ന് മാസത്തിനകം ഗർഭഛിദ്രം ഇതിൽ ഏതെങ്കിലും അവസ്ഥായിലാണോ?		താങ്കൾക്കു പഠനത്തിൽ പങ്കെടുക്കാൻ താല്പര്യം ഉണ്ടോ?	
കോഡ്	A*	B*	C*	D*	E*		F*	
		1			ഉണ്ട്	ഇല്ല	ഉണ്ട്	ഇല്ല
വീട്ടിൽ ഒന്നിൽ കൂടുതൽ സ്ത്രീകൾ മേല് പറഞ്ഞ വയസ്സിനുള്ളിൽ ഉണ്ടെങ്കിൽ എല്ലാരേയും ലിസ്റ്റ് ചെയ്തിട്ടു ഒരാളെ തിരഞ്ഞെടുക്കുക.(by Kish method)		2			ഉണ്ട്	ഇല്ല	ഉണ്ട്	ഇല്ല
		3			ഉണ്ട്	ഇല്ല	ഉണ്ട്	ഇല്ല
		4			ഉണ്ട്	ഇല്ല	ഉണ്ട്	ഇല്ല
		5			ഉണ്ട്	ഇല്ല	ഉണ്ട്	ഇല്ല

(*Note: A*-Women with eligible age group in the household. B*-Number of women from eligible age group in household, who were present at the time of survey. C*-Name of the woman who are present in the time of survey. D*-the completed years of women by 2017.E*-Using for exclusion criteria. F*-asked for willingness to participate.)*

സെക്ഷൻ B: ആർത്തവിരാമ കാലഘട്ടം തിട്ടപ്പെടുത്താനുള്ള ചോദ്യാവലി

ക്രമനമ്പർ	ചോദ്യങ്ങൾ	ഉത്തരം	മറുപടി	കുറിപ്പുകൾ
i	ഉത്തരം നൽകുന്ന വ്യക്തിയുടെ പേര്			
ii	അഡ്രസ്			
iii	ക്ലസ്റ്റർ ലൊക്കേഷൻ ഐ ഡി			
iv	ഉത്തരം നൽകുന്ന വ്യക്തിയുടെ വയസ്സ്			
v				
1	ഞാൻ നിങ്ങളുടെ ആർത്തവവുമായി ബദ്ധപ്പെട്ട കുറച്ചു ചോദ്യങ്ങൾ ചോദിയ്ക്കാൻ പോകുവാണ്. കഴിഞ്ഞ രണ്ടു മാസം നിങ്ങള്ക്ക് മാസമുറ ഉണ്ടായിരുന്നോ?	1	ഉണ്ട്	ഉണ്ട് എന്നാണ് ഉത്തരമെങ്കിൽ,അഭിമുഖം അവസാനിപ്പിക്കാം.
		2	ഇല്ല	
2	(ഇല്ലെന്നു ഉത്തരം പറഞ്ഞവരോട് ഒന്നുടെ ഉറപ്പിക്കാൻ വേണ്ടി ചോദിക്കുന്നു)നിങ്ങള്ക്ക് കഴിഞ്ഞ രണ്ടു മാസം മാസമുറ ഇല്ലാരുന്നല്ലോ അല്ലെ?	1	അതെ,കഴിഞ്ഞ രണ്ടുമാസം എനിക്ക് മാസമുറ ഇല്ലായിരുന്നു	ഇല്ലെന്നാണ് ഉത്തരമെങ്കിൽ അഭിമുഖം അവസാനിപ്പിക്കാം.
		2	ഇല്ല,കഴിഞ്ഞ രണ്ടുമാസം എനിക്ക് മാസമുറ ഉണ്ടായിരുന്നു	
3	എന്ടുകൊണ്ടാവാം കഴിഞ്ഞ രണ്ടുമാസം മാസമുറ ഇല്ലാഞ്ഞത്? ഈ കഴിഞ്ഞ ആറു മാസം മുതൽ പന്ത്രണ്ടു മാസം വരെ തങ്ങളുടെ മാസമുറ എങ്ങനെയാണു?	1	എനിക്ക് എപ്പോഴും എന്റെ മാസമുറ രണ്ടുമാസമോ അതിൽ കൂടുമ്പോളോ ഒരിക്കലേ ഉള്ളു	
		2	എനിക്ക് ഈയിടെയായി കൃത്യതയില്ലാതാണ് മാസമുറ വരുന്നതു	
		3	പറയാൻ പറ്റില്ല	
4	കഴിഞ്ഞ ആറു മാസം മുതൽ പന്ത്രണ്ടു മാസം വരെ മാസമുറ ഇല്ലാരുന്നോ?	1	ഇല്ല	ഇല്ല എന്നാണ് ഉത്തരമെങ്കിൽ ആർത്തവവിരാമമായിട്ടു കണക്കാക്കാം.
		2	ഉണ്ട്	
5	ഈകഴിഞ്ഞ മൂന്ന് വരഷത്തിനിടയിൽ തങ്ങൾക്കു മാസമുറ എങ്ങനെയായിരുന്നു?(2014 മുതൽ)	1	കൃത്യമായിട്ടായിരുന്നു	
		2	കൃത്യതയില്ലായിരുന്നു.	
6	എങ്ങനെടുള്ള ക്രമരഹിതമായ മാസമുറയാണ് തങ്ങൾക്കനുഭവപ്പെടുന്നതെന്നു പറയാമോ?	1	60 ദിവസത്തിൽ കൂടതൽ മാസമുറ ഇല്ലാത്ത അവസ്ഥ.	ഇതിൽ ഏതെങ്കിലും ഉണ്ടെങ്കിൽ ആർത്തവിരാമ പരിവർത്തന കാലഘട്ടമായി കണക്കാക്കാം.
		2	ഏഴു ദിവസത്തിൽ കൂടുതൽ രണ്ടു മാസമുറകൾ വരുന്നതിലുള്ള വ്യത്യാസം.	

	പഠനത്തിന് വേണ്ടി തിരഞ്ഞെടുത്തു/ /ഇല്ല

സെക്ഷൻ D : സംമൂഹിക കുടുംബചുറ്റുപാടുകളെക്കുറിച്ചുള്ള വിവരങ്ങൾ

ക്രമ നമ്പർ	ചോദ്യങ്ങൾ	ഉത്തരം	മറുപടി	കുറിപ്പുകൾ
1	യൂണിക് ഐ ഡി നമ്പർ			
2	തീയതി			
3	സമയം			
4	താങ്ങൾ സ്കോളിൽ പോയിട്ടുണ്ടോ	1	ഉണ്ട്	
		2	ഇല്ല	
5	താങ്ങൾ എത്രവരെ പഠിച്ചിട്ടുണ്ട്?	1	പ്രൈമറി	
		2	ഹൈ സ്കൂൾ	
		3	ഹയർ സെക്കന്ററിയും അതിൽ കൂടുതലും	
		4	സാങ്കേതിക വിദ്യാഭാസം	
6	താങ്ങൾക്കു ജോലിയിൽ നിന്നുള്ള വരുമാനം എന്തെങ്കിലുമുണ്ടോ?	1	ഉണ്ട്	
		2	. ഇല്ല	
7.	ഏതുതരത്തിലുള്ള ജോലിയാണ് ചെയ്യുന്നതു?	1	ദിവസ വേദന തൊഴിൽ	
		2	സ്വയം തൊഴിൽ	
		3	മാസ ശമ്പളതൊഴിൽ	
		4	മറ്റുള്ളവ (വ്യക്തമാക്കുക)	
8.	താങ്കളുടെ ഇപ്പോഴത്തെ വൈവാഹിക നില?	1	വിവാഹിത	
		2	അവിവാഹിത	
		3	വിധവ	
		4	ബന്ധം വേർപിടുത്തിയവർ	
		5	വിവാഹമോചിത	
		99	പറയാൻ താല്പര്യം ഇല്ല	
9	ഈ വീട്ടിൽ ആരൊക്കെയാണ് നിങ്ങളുടെ കൂടെ താമസം?(ഒന്നിൽ കൂടുതൽ ഉത്തരങ്ങൾ ആകാം)	1	ഭർത്താവ്	
		2	14 വയസ്സും അതിൽ പ്രായം കുറഞ്ഞ കുട്ടികൾ	
		3	14 വയസ്സിൽ കൂടിയ പ്രായം ഉള്ള കുട്ടികൾ	
		4	പ്രായപൂർത്തിയായ വനിതാ ബന്ധു	
		5	പ്രായപൂർത്തിയായ പുരുഷ ബന്ധു	
		6	ഒറ്റയ്ക്ക് താമസിക്കുന്നു	
		7	മറ്റുള്ളവർ(വ്യക്തമാക്കുക)	
10	താങ്കളുടെ ഇപ്പോഴത്തെ ജീവിതോപാധി എന്താണ്? (ഒന്നിൽ കൂടുതൽ ഉത്തരങ്ങൾ ആകാം)	1	ഇപ്പോഴുള്ള ജോലിയിൽ നിന്നുള്ള വരുമാനം	
		2	നേരുത്തെയുള്ള ജോലിയിൽ നിന്നുള്ളതോ അല്ലെങ്കിൽ ഏതെങ്കിലും ക്ഷേമനിധിയിൽ നിന്നുള്ളത്തൂ ആയ വരുമാനം	
		3	ഭർത്താവിന്റെ വരുമാനം	
		4	കുട്ടികളുടെ വരുമാനം	
		5	ബന്ധുക്കളുടെ സാമ്പത്തിക സഹായം	

		6	.മറ്റുള്ളവ(വ്യക്തമാക്കുക)	
11	ഇപ്പോൾ താമസിക്കുന്ന വീടിന്റെ ഉടമസ്ഥാവകാശം	1	സ്വന്തം	
		2	വാടകക്ക്	
		3	ബന്ധുവിന്റെ വീട്	
		4	.മറ്റുള്ളവ(വ്യക്തമാക്കുക	
		5	പറയാൻ താല്പര്യം ഇല്ല	
12.	എങ്ങനെയുള്ള വീട്ടിലാണ് താമസിക്കുന്നത്? (നിരീക്ഷണ വിവരം ചേർക്കാം)	1	മേഞ്ഞതോ ഓടിട്ടതോ ഷീറ്റ് ഇട്ടതോ ആയ കൂരയോട് കൂടിയതും മിനുസമല്ലാത്ത തറയോടും കൂടിയ വീട്	ഇതിൽ ഒന്നും പെടാത്തതാണെങ്കിൽ വ്യക്തമാക്കുക.
		2	കോൺക്രീറ്റ് ചെയ്ത കൂരയോട് കൂടിയതും സിമെന്റോ റെഡ് ഓക്സിടോ ഇട്ടതുമായ വീട്.	
		3	മുറ്റത്തു തറയോട് പാകിയതും തറയിൽ മാർബിൾ /ടൈൽസ്/ഗ്രാനൈറ്റ് ഇട്ട കോൺക്രീറ്റ് കൂരയും ഉള്ള വീട്	
		4	മറ്റുള്ളവർ(വ്യക്തമാക്കുക)	
13.	ഏതൊക്കെ ഇലക്ട്രോണിക് ഉപകരണങ്ങളാണ് വീട്ടിലുള്ളത്?ഒന്നിൽ കൂടുതൽ ഉത്തരങ്ങൾ ആകാം)	1	മിക്സർ ഗ്രൈൻഡർ	
		2	റെഫ്രിജറേറ്റർ	
		3	വാഷിങ് മെഷീൻ	
		4	എയർ കണ്ടിഷണർ	
14.	താങ്കളുടെ കുടുംബം ഏകദേശം ഒരു മാസം ചിലവാക്കുന്ന തുക	1	1500-5000	
		2	5000-9000	
		3	9000 അതിൽ കൂടുതലും	
15	താങ്കൾ ഏതു സമുദായത്തിപ്പെടുന്നതാണ്?	1	എസ് സി / എസ് ടി	
		2	ജനറൽ	
		3	ഒബിസി	
		4	മറ്റുള്ളവർ(വ്യക്തമാക്കുക)	
		99	അറിയില്ല / പ്രതികരിക്കുന്നില്ല	
16.	താങ്കൾ ഏതെങ്കിലും സ്ത്രീ ശാക്തീകരണ സഹായ കൂട്ടത്തിൽ പങ്കാളിയാണോ?(ഉദാ; കുടുംബശ്രീ / ശ്രീശക്തി)?	1	.ആണ്	
		2	അല്ല	
17.	താങ്കളുടെ ദിവസേനയുള്ള ശാരീരിക പ്രവർത്തനങ്ങളുടെ രീതി പറയാമോ?	1	എന്റെ കാര്യങ്ങളല്ലാതെ വേറെ ശാരീരിക പ്രവർത്തികൾ ഒന്നും ചെയ്യാറില്ല.	ഉദാസീനത
		2	വീട്ടിലെ ജോലികളൊ അല്ലെങ്കിൽ വീട്ടുകാര്യങ്ങളോ നോക്കും	കുറച്ചു
		3	വീട്ടിലെ കാര്യങ്ങളും വീട്ടുജോലികളും ചെയ്യും	കൂടുതൽ
		4	വീട്ടിലെ കാര്യങ്ങളും വീട് ജോലികളും പിന്നെ ജോലി സംബന്ധമായ ശരീര അധ്വാനവും ചെയ്യും	കഠിനമായ
18	താങ്കളുടെ ആഹാര രീതി എങ്ങനെയാണു?	1 2	.സസ്യാഹാരം മാംസാഹാരം	

19	താങ്കൾ കൊഴുപ്പടങ്ങിയ ആഹാരം നിയന്ത്റിക്കാറുണ്ടോ?	1	ഉണ്ട്	
		2	ഇല്ല	
20.	താങ്കൾ കൂടുതൽ മധുരം അടങ്ങിയ ആഹാരം നിയന്ത്രിക്കാറുണ്ടോ?	1	ഉണ്ട്	
		2	ഇല്ല	

സെക്ഷൻ D: ആർത്തവ പ്രത്യുത്പാദന ചരിത്രം

ക്രമനമ്പർ	ചോദ്യങ്ങൾ	ഉത്തരം	മറുപടി	കുറിപ്പുകൾ
1	ഗർഭമോ,പ്രസവമോ,മറ്റേതെങ്കിലും അസുഖങ്ങളോ ഇല്ലാതിരുന്ന സമയത്തു താങ്ങൾക്കു മാസമുറയിലെന്തെങ്കിലും മാറ്റങ്ങൾ വന്നിട്ടുണ്ടോ?(മൂന്ന് വർഷങ്ങള്ക്കു മുൻപ്)	1	ഉണ്ട്	
		2	ഇല്ല	
2	എന്ത് മാറ്റമാണ് ഉണ്ടായിരുന്നത്? (ഒന്നിൽ കൂടുതൽ ഉത്തരങ്ങൾ ആകാം.)	1	രക്തത്തിന്റെ കൂടുതൽ ഒഴുക്ക്	
		2	രണ്ടു മാസമുറകൾക്കിടയിലുള്ള രക്തസ്രാവം അല്ലെങ്കിൽ ഇടക്കുള്ള മാസമുറ	
		3	ഒരു മാസമുറയിൽ വളരെകുറച്ചു രക്തമൊഴുക്ക്	
		4	മാസമുറയിൽ കൂടുതൽ വേദന.	
3.	താങ്ങൾ എത്ര തവണ ഗർഭിണി ആയിട്ടുണ്ട്?	1	ആയിട്ടില്ല	
		2	ഒന്ന്	
		3	രണ്ടു	
		4	മൂന്നു	
		5	നാലും അതിൽ കൂടുതലും	
4.	എത്രതവണ കുട്ടികളെ പ്രസവിച്ചിട്ടുണ്ട്?	1	ഒന്ന്	
		2	രണ്ടു	
		3	മൂന്നു	
		4	നാലും അതിൽ കൂടുതലും	
		99	ബാധകമല്ല	
5.	ഏതു രീതിയിലുള്ള പ്രസവമായിരുന്നു.കൂടാതെ എത്രതവണ ?	1	സാധരണ പ്രസവം	
		2	സിസേറിയൻ ഡെലിവറി	
		4	മറ്റുള്ളവ(വ്യക്തമാക്കുക)	
6.	ഏതെങ്കിലും സന്ഗീർണതകൾ പ്രസവത്തിൽ എപ്പോഴെങ്കിലും	1	ഉണ്ട്	

	ഉണ്ടായിട്ടുണ്ടോ?	2	ഇല്ല	
7.	താങ്കൾ എപ്പോഴെങ്കിലും ഏതെങ്കിലും ഗർഭനിരോധന മാർഗങ്ങള് ഉപയോഗിച്ചിട്ടുണ്ടോ?	1	ഉണ്ട്	
		2	ഇല്ല	

8.	സ്ത്രീ സംബന്ധമായ അസുഖങ്ങളും അവയ്ക്കുവേണ്ടി ചികിത്സാതേടലും				
	സ്ത്രീ സംബന്ധമായ രോഗങ്ങൾ	എപ്പോഴെങ്കിലും ഉണ്ടാകുകയോ നിർണയിക്കപ്പെടുകയോ ചെയ്തിട്ടുണ്ടോ? ഉണ്ട് / ഇല്ല)	ചികിത്സ തേടി (ഉണ്ട് / ഇല്ല)	ചികിത്സാ തേടിയ തെവിടെ **PPHC/PSHF/PTHF/PVC/PVST/AYUSH/Others.**	ഏതു തരത്തിലുള്ള ചികിത്സയാണു കിട്ടിയത്? (ശസ്ത്രക്രീയ/മരുന്ന്/മറ്റെതെങ്കിലും)
8a.	ഗർഭാശയ മുഴ				
8b.	അണ്ഡാശയ മുഴ				
8c.	ഗർഭപാത്രം പുറത്തേക്കു തള്ളിവരുന്നത്				
8d.	മറ്റുള്ളവ(വ്യക്തമാക്കുക)				

.Note:-PPHC(ഗവണ്മെന്റ് പ്രാഥമിക ആരോഗ്യകേന്ദ്രം),PSHF(ഗവൺമെൻറ് താലൂക്ക് ആശുപത്രി/ സാമൂഹികാരോഗ്യകേന്ദ്രം/ജില്ലാ ആശുപത്രി),PTHF(ഗവണ്മെന്റ് മെഡിക്കൽ കോളേജ് സ്ട്രീകൾക്ക് മാത്രമായിട്ടുള്ള സ്പെഷ്യലിറ്റി ആശുപത്രി),PVC(പ്രൈവറ്റ് ക്ലിനിക്),PVST(പ്രൈവറ്റ് ആശുപത്രി),AYUSH(ആയുഷ്) Others(മറ്റുള്ളവ)**

9.	താങ്കൾ മുൻപ് പറഞ്ഞ അസുഖങ്ങൾക്ക് ഏതെങ്കിലും ശസ്ത്രക്രീയക്ക് വിധേയമായിട്ടുണ്ടെങ്കിൽ ഏതാണെന്നു പറയാമോ?	1	ഗർഭാശയം നീക്കൽ
		2	ഗർഭാശയവും അണ്ഡാശയവും നീക്കൽ
		3	അണ്ഡാശയം മാത്രം നീക്കൽ
		4	മറ്റുള്ളവ(വ്യക്തമാക്കുക)
10.	ശസ്ത്രക്രീയ എപ്പോൾ ആയിരുന്നെന്നു പറയാമോ (മാസവും വർഷവും)	_____	

സെക്ഷൻ D : രോഗാവസ്ഥ

ക്രമനമ്പർ	ചോദ്യങ്ങൾ	മറുപടി	ഉത്തരം
1.	**അരചുറ്റളവ്**	**_____cm**	

2 താഴെപറയുന്ന ഏതെങ്കിലും രോഗാവസ്ഥ നിർണയിക്കപ്പെടുകയോ ചികിത്സിക്കുകയോ ചെയ്തിട്ടുണ്ടോ?

രോഗാവസ്ഥ	എപ്പോഴെങ്കിലും ഉണ്ടായിട്ടുണ്ട്(ഉണ്ട്/ ഇല്ല)	എപ്പോഴാണ് ഉണ്ടായത്(മാസവും വർഷവും)	ചികിത്സാ തേടി (ഉണ്ട് / ഇല്ല)	എവിടെയാണ് ചികിത്സ തേടിയത് (list of institutions) **PPHC/PSHF/PTHF/ PVC/PVST/AYUSH/ Others.
2a.രക്താതിസമ്മർദം				
2b.പ്രമേഹം				
2c.കൊളസ്ട്രോളിന്റെ അസാധാരണ നില				
2d.മറ്റേതെങ്കിലും(വ്യക്തമാക്കുക)				

Note:-PPHC(ഗവണ്മെന്റ് പ്രാഥമിക ആരോഗ്യകേന്ദ്രം),PSHF(ഗവൺമെൻറ് താലൂക്ക് ആശുപത്രി/ സാമൂഹികാരോഗ്യകേന്ദ്രം/ജില്ലാ ആശുപത്രി),PTHF(ഗവണ്മെന്റ് മെഡിക്കൽ കോളേജ് സ്ത്രീകൾക്ക് മാത്രമായിട്ടുള്ള സ്പെഷ്യലിറ്റി ആശുപത്രി),PVC(പ്രൈവറ്റ് ക്ലിനിക്),PVST(പ്രൈവറ്റ് ആശുപത്രി),AYUSH(ആയുഷ്) Others(മറ്റുള്ളവ)**

3 മാരകമായ രോഗങ്ങളും പരിശോധനയും

പ്രതിയുല്പാദന അവയവങ്ങളുമായി ബന്ധപ്പെട്ട അർബുദം	എപ്പോഴെങ്കിലും പരിശോധന നടത്തിയിട്ടുണ്ടോ? (ഉണ്ട് / ഇല്ല)	എപ്പോഴെങ്കിലും നിർണയിക്കപ്പെട്ടിട്ടുണ്ടോ? (ഉണ്ട് / ഇല്ല)	നിർണയിക്കപ്പെട്ടിട്ടുണ്ടെങ്കിൽ ഇപ്പോൾ പൂർണമായി മാറി പൂർണമായി സുഖപ്പെട്ടു / ചികിത്സയിൽ ആണ്/ വീണ്ടും വന്നു
3a.സ്തനാർബുദം			
3b.അണ്ഡാശയ അർബുദം			
3c.ഗർഭാശയ ഭിത്തിയിലുണ്ടാകുന്ന അർബുദം			
3d.ഗർഭാശയമുഖ അർബുദം			
3e.മറ്റുള്ളവ(വ്യക്തമാക്കുക			

9.	ഇത്തരം ലക്ഷണങ്ങളെ എന്ത് ചെയ്യാൻ കഴിയുമെന്ന് നിങ്ങൾ കരുതുന്നത് (അസുഖങ്ങളുടെ മേലുള്ള നിയന്ത്രണം)	1	രോഗത്തിൻറെ ഗതി എന്നെ ആശ്രയിച്ചിരിക്കുന്നു	
		2	ഞാനെന്തു ചെയ്താലും രോഗം എന്നെ ബാധിക്കും	
		3	എന്റെ രോഗത്തെ സ്വാധീനിക്കാനുള്ള ശക്തി എനിക്കുണ്ട്	
		99	അറിയില്ല/ പറയാൻ ആഗ്രഹിക്കുന്നില്ല	
	പൊതു ആരോഗ്യ പരിപാലനം			
10.	നിങ്ങൾക്ക് ഏതെങ്കിലും ലക്ഷണങ്ങൾ	1	മത നേതാക്കൾ	
		2	പാരമ്പര്യ വൈദ്യന്മാർ	

	അനുഭവിക്കുകയാണെങ്കിൽ, നിങ്ങൾ എവിടെയാണ് ചികിത്സ അല്ലെങ്കിൽ പ്രതിവിധി തേടാൻ ആഗ്രഹിക്കുന്നത്?	3	ആയുഷ്	
		4	മെഡിക്കൽ ഫാർമസി	
		5	ആധുനിക വൈദ്യശാസ്ത്രം (ആരോഗ്യ പരിപാലന സൗകര്യം)	
		6	മറ്റുള്ളവർ (വ്യക്തമാക്കുക)	
11.	നിങ്ങളുടെ ആർത്തവവിരാമ ലക്ഷണങ്ങളുമായി ബന്ധപ്പെട്ട പ്രാഥമിക ചികിത്സായ്ക്കു കഴിഞ്ഞ 12 മാസത്തിൽ ഒരു ഡോക്ടറോ മറ്റ് ആരോഗ്യപരിരക്ഷയോ എത്ര തവണ തേടി?	1	ഒരിക്കലും ഇല്ല	
		2	ഒന്ന് മുതൽ മൂന്നു തവണ	
		3	നാലു മുതൽ ആര് തവണ ഏഴ് മുതൽ ഒമ്പത് തവണ	
		4	പത്തോ അതിൽ കൂടുതലോ തവണ	
12.	നിങ്ങൾക്ക് ലഭ്യമായ ആരോഗ്യ സേവനങ്ങൾ, ചികിത്സ എന്നിവയിൽ എത്രത്തോളം സംതൃപ്തിയുണ്ട്?	1	സംതൃപ്തി	
		2	കുറച്ചു തൃപ്തികരം	
		3	തൃപ്തികരമല്ല	

സെക്ഷൻ F - ആർത്തവ വിരാമത്തെ സംബന്ധിക്കുന്ന അറിവ്, ബോധനം, മനോഭാവം

ക്രമനമ്പർ	ചോദ്യങ്ങൾ	മറുപടി		
എല്ലാ സ്ത്രീകളുടെയും ആർത്തവ വിരാമത്തെ ക്കുറിച്ചുള്ള അറിവും മനോഭാവവും				
1.	നിങ്ങൾ ആർത്തവ വിരാമം എന്ന വാക്കു കേട്ടിട്ടുണ്ടോ	1	ഉണ്ട്	
		2	ഇല്ല	
2.	ഉണ്ട് എങ്കിൽ, എന്താണ് ആർത്തവവിരാമം?	1	പ്രകൃതി പ്രക്രിയ	
		2	രോഗങ്ങൾ കൊണ്ടുണ്ടാകുന്നത്	
		3	മരുന്നുകളുടെ ദൂഷ്യം	
		4	മലിനീകരണം കൊണ്ടുണ്ടാകുന്നത്	
		5	മറ്റുള്ളവ (വ്യക്തമാക്കുക)	
		6	അറിയില്ല	
3	ആർത്തവവിരാമം സ്ത്രീകൾക്ക് ആരോഗ്യപ്രശ്നങ്ങൾ ഉണ്ടാകുന്നുണ്ടോ?	1	ഉണ്ട്	
		2	ഇല്ല	
		99	അറിയില്ല	
4.	ആർത്തവവിരാമം ബന്ധപ്പെട്ട ആരോഗ്യപ്രശ്നങ്ങൾ ചികിത്സിക്കേണ്ടത് ഉണ്ടോ ?	1	ഉണ്ട്	
		2	ഇല്ല	

		99	അറിയില്ല	
ആർത്തവവിരാമം, ബന്ധപ്പെട്ട ലക്ഷണങ്ങൾ മനോഭാവം				
5.	നിങ്ങൾ ഇപ്പോൾ ആർത്തവ വിരാമ ഘട്ടത്തിൽ എത്തിച്ചേർന്നു. നിങ്ങൾ ഈ ഘട്ടത്തിലൂടെ കടന്നു പോകുന്നതിനെ കുറിച്ച് ചിന്തിക്കുമ്പോൾ , അത് എങ്ങനെ വിശദീകരിക്കും? (ഈ കാലത്തെ പറ്റി എങ്ങിനെയാണ് നിങ്ങൾക്ക് തോന്നുന്നത്?)	1	അത് മുൻ കാലങ്ങളിൽ നിന്ന് വ്യത്യസ്തമല്ല	
		2	എന്റെ ജീവിതത്തിലെ വളരെ പ്രയാസകരമായ ഘട്ടമായിരുന്നു	
		3	അതിനെക്കുറിച്ച് എന്തെങ്കിലും പറയാൻ ആഗ്രഹമില്ല	
6.	നിങ്ങൾ ആർത്തവ വിരാമത്തിന്റെ ലക്ഷണങ്ങൾ അനുഭവിക്കുകയാണെങ്കിൽ, എത്രകാലം നീണ്ടുപോകും എന്നു നിങ്ങൾ ചിന്തിച്ചിട്ടുണ്ടോ?	1	കുറച്ചു കാലം	
		2	കൂടുതൽ കാലം	
		3	ഒരുസമയം കഴിയുമ്പോൾ മെച്ചപ്പെടും	
7.	ഈ ലക്ഷണങ്ങളുടെ ആവൃത്തിയെക്കുറിച്ച് അറിയാൻ ഞാൻ ആഗ്രഹിക്കുന്നു. (നിങ്ങൾക്ക് ഏത് തരത്തിലാണ് ഉണ്ടാകുന്നതു എന്ന് പറയാമോ)	1	തുടർച്ചയായ ആവർത്തന രീതി പിന്തുടർന്ന ലക്ഷണങ്ങൾ (പ്രവചിക്കാൻ പറ്റും)	
		2	ഉണ്ടാകുമ്പോൾ മാത്രം ലക്ഷണങ്ങൾ കാണിക്കും (പ്രവചിക്കാനാകില്ല)	
		3	ലക്ഷണങ്ങൾ ചിലപ്പോൾ പ്രവചിക്കാൻ കഴിയുന്നവയാണ്, പക്ഷേ ചില സന്ദർഭങ്ങളിൽ അല്ല.	
		4	ചില ലക്ഷണങ്ങൾ മുൻകൂട്ടി നിശ്ചയിക്കപ്പെട്ടവയായിരുന്നു, ചിലത് ഇല്ലായിരുന്നു	
8.	ഈ ലക്ഷണങ്ങൾ നിങ്ങളുടെ ദൈനംദിന ജീവിതത്തെ ബാധിക്കുന്ന രീതി നിങ്ങൾ വിവരിക്കാമോ? (ഒന്നിലധികം ഉത്തരം ഉണ്ടാകും)			Score; Any **One yes Answer-1 Two yes answer-2 Three yes answer-3**
	ലക്ഷണങ്ങൾ ഗുരുതരമായ പ്രത്യാഘാതങ്ങൾ ജീവിതത്തിൽ ഉണ്ടാക്കുന്നു		ഉണ്ട് / ഇല്ല	
	ലക്ഷണങ്ങൾ ഗുരുതരമായ സാമ്പത്തിക പ്രത്യാഘാതങ്ങൾ ഉണ്ടാക്കുന്നു.		ഉണ്ട് . / ഇല്ല	
	എന്നോട് അടുപ്പം ഉള്ളവർക്ക് രോഗലക്ഷണങ്ങൾ ബുദ്ധിമുട്ടു ഉണ്ടാക്കുന്നു		ഉണ്ട് / ഇല്ല	
9.	ഇത്തരം ലക്ഷണങ്ങളെ എന്ത് ചെയ്യാൻ കഴിയുമെന്ന് നിങ്ങൾ	1	രോഗത്തിൻറെ ഗതി എന്നെ ആശ്രയിച്ചിരിക്കുന്നു	

	കരുതുന്നത് (അസുഖങ്ങളുടെ മേലുള്ള നിയന്ത്രണം)	2	ഞാനെന്തു ചെയ്താലും രോഗം എന്നെ ബാധിക്കും	
		3	എന്റെ രോഗത്തെ സ്വാധീനിക്കാനുള്ള ശക്തി എനിക്കുണ്ട്	
		99	അറിയില്ല/ പറയാൻ ആഹ്രഹിക്കുന്നില്ല	
	പൊതു ആരോഗ്യ പരിപാലനം			
10.	നിങ്ങൾക്ക് ഏതെങ്കിലും ലക്ഷണങ്ങൾ അനുഭവിക്കുകയാണെങ്കിൽ, നിങ്ങൾ എവിടെയാണ് ചികിത്സ അല്ലെങ്കിൽ പ്രതിവിധി തേടാൻ ആഗ്രഹിക്കുന്നത്?	1	മത നേതാക്കൾ	
		2	പാരമ്പര്യ വൈദ്യന്മാർ	
		3	ആയുഷ്	
		4	മെഡിക്കൽ ഫാർമസി	
		5	ആധുനിക വൈദ്യശാസ്ത്രം (ആരോഗ്യ പരിപാലന സൗകര്യം)	
		6	മറ്റുള്ളവർ (വ്യക്തമാക്കുക)	
11.	നിങ്ങളുടെ ആർത്തവവിരാമ ലക്ഷണങ്ങളുമായി ബന്ധപ്പെട്ട പ്രാഥമിക ചികിത്സായ്ക്കു കഴിഞ്ഞ 12 മാസത്തിൽ ഒരു ഡോക്ടറോ മറ്റ് ആരോഗ്യ പരിരക്ഷയോ എത്ര തവണ തേടി?	1	ഒരിക്കലും ഇല്ല	
		2	ഒന്ന് മുതൽ മൂന്നു തവണ	
		3	നാലു മുതൽ ആര് തവണ ഏഴ് മുതൽ ഒമ്പത് തവണ	
		4	പത്തോ അതിൽ കൂടുതലോ തവണ	
12.	നിങ്ങൾക്ക് ലഭ്യമായ ആരോഗ്യ സേവനങ്ങൾ, ചികിത്സ എന്നിവയിൽ എത്രത്തോളം സംതൃപ്തിയുണ്ട്?	1	സംതൃപ്തി	
		2	കുറച്ചു തൃപ്തികരം	
		3	തൃപ്തികരമല്ല	

സെക്ഷൻ G. ആർത്തവ വിരാമവുമായി ബന്ധപ്പെട്ട ലക്ഷണങ്ങളെ പറ്റിയുള്ള ചോദ്യാവലി

☐ കഴിഞ്ഞ ഒരു വർഷം മുതൽ മൂന്നു വർഷം വരെ ക്രമരഹിതമായ ആർത്തവചക്രം ഉള്ള സ്ത്രീകൾ (ആർത്തവ വിരാമത്തിലേക്കു മാറുന്ന കാലഘട്ടം).

☐ കഴിഞ്ഞ ആറു മാസം മുതൽ പന്ത്രണ്ടു മാസം വരെ മാസമുറ ഇല്ലാത്ത അവസ്ഥ(തുടർനുള്ള അഞ്ചു വർഷം വരെ).

☐ അഞ്ചു വർഷം മുമ്പ് ആർത്തവവിരാമം എത്തിയ സ്ത്രീകൾ 60 വയസ്സിനുള്ളി

ദി ഗ്രീൻ ക്ലൈമാക്റ്ററിക് സ്കെയിൽ

No.	രോഗലക്ഷണങ്ങൾ	ഒരിക്കലുമില്ല	കുറച്ച്	കുറച്ചധികം	വളരെ	സ്കോർ(0-3)

1	ഹൃദയം വേഗത്തിൽ അല്ലെങ്കിൽ ശക്തമായി ഇടിക്കുന്നത്					
2	ടെൻഷൻ അല്ലെങ്കിൽ ആത്മവിശ്വാസക്കുറവ് തോന്നുന്നത്					
3	ഉറങ്ങുന്നതിനുള്ള ബുദ്ധിമുട്ട്					
4	ക്ഷോഭിക്കുന്ന പ്രകൃതം					
5	പരിഭ്രാന്തി					
6.	ഏകാഗ്രതക്കുള്ള ബുദ്ധിമുട്ട്					
7.	ക്ഷീണം അനുഭവപ്പെടുന്നു അഥവാ ഉത്സാഹകുറവു					
8	എല്ലാത്തിലും താത്പര്യം നഷ്ടപ്പെട്ടുന്നു					
9	വിഷാദം അഥവാ അസന്തുഷ്ടമായ തോന്നുന്നു					
10	ഇടക്ക് ഇടക്ക് കരയുന്ന അവസ്ഥ					
11	അസ്വസ്ഥതയുണ്ടാക്കുക					
12	തലകറക്കമോ തളർച്ചയോ തോന്നുന്നു.					
13	തലക്കും ശരീരത്തിനും മുറുക്കവും സമ്മർദ്ദവും തോന്നുന്നു					
14	ശരീരത്തിൽ തരിപ്പോ മരവിപ്പോ തോന്നുന്നു					
15	തലവേദന					
16	സന്ധികളിലും പേശികളിലുമുള്ള വേദന					
17	കൈയിലും കാലിലും ഉള്ള സംവേദന നഷ്ടം (തൊട്ടാൽ അറിയാൻ പറ്റാത്ത അവസ്ഥ).					
18	ശ്വാസോച്ഛ്വാസ പ്രശ്നങ്ങൾ					
19	അത്യുഷ്ണ അനുഭവം					
20	രാത്രിൽ അമിതമായുള്ള വിയർപ്പ്					
21	ലൈംഗിക താല്പര്യക്കുറവ്					

സ്കോർ;

- മനഃശാസ്ത്രപരമായ**(1-11)**= ☐ ഉത്കണ്ഠ(1-6) ☐
  - വിഷാദം(7-11) ☐
- ശാരീരിക ലക്ഷണങ്ങൾ(12-18)= ☐
- വസോമോട്ടോർ ലക്ഷണങ്ങൾ(19-20)= ☐
- ലൈംഗിക പ്രശ്നങ്ങൾ(21)= ☐

സെക്ഷൻ H: ആർത്തവവിരാമ ആരോഗ്യപ്രശ്നങ്ങൾക്കു ചികിത്സാ തേടുന്നത്

ക്രമനമ്പർ	ചോദ്യങ്ങൾ	എപ്പോഴെങ്കിലും ഉണ്ടായിട്ടുണ്ട്(ഉണ്ട്/ഇല്ല)	ചികിത്സാ തേടി(ഉണ്ട്/ഇല്ല)	എവിടെയാണ് ചികിത്സാ തേടിയത്.			
				*Public Facility(Pr./Sr./Tr./ Sp.F/Sp.M/ Sp.G/Sp.P)	**Private Facility(PC/PSr./PTr. /Sp. F/Sp.M /Sp.G/Sp.P)	*** AYUSH(PHF /Pr.HF)	OTHERS (specify)
1.	മനഃശാസ്ത്രപരമായ ലക്ഷണങ്ങൾ						
2.	ശാരീരിക ലക്ഷണങ്ങൾ						
3.	വസോമോട്ടോർ ലക്ഷണങ്ങൾ						
4.	ലൈംഗിക പ്രശ്നങ്ങൾ						

Note:**** Public Facility (Pr.-Primary; Sr.-Secondary; Tr.-Tertiary; Sp.F –Speciality family medicine; Sp.M –Speciality/internal medicine; Sp.G-Speciality Genecology; Sp.P-Speciality Psychology/ Psychiatry/Ortho).***

*****Private Facility (PC-Private clinic; PSr.-Private Secondary; PTr.-Private Tertiary; Sp.F – Speciality family medicine; Sp. M –Speciality/internal medicine; Sp.G-Speciality Genecology; Sp.P-Speciality Psychology/ Psychiatry/Ortho).***

******AYUSH (PHF)-Ayush public health facility: ***AYUSH (Pr.HF)-AYUSH private health facility.***

ANNEXURE X

श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)
Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee
(IEC Regn No. ECR/189/Inst/KL/2013)

SCT/IEC/1042/MAY-2017 29.05.2017

Ms. Sajitha. S
MPH Student
AMCHSS
SCTIMST, Thiruvananthapuram

Dear Ms. Sajitha,

The Institutional Ethics Committee reviewed and discussed your application to conduct the study entitled "MENOPAUSE RELATED SYMPTOMS AND THEIR CORRELATES: A COMMUNITY BASED CROSS SECTIONAL STUDY IN KOLLAM DISTRICT, KERALA" (IEC/1042) on 20th May, 2017.

The following documents were reviewed:

1. *Covering Letter addressed to the Chairman, IEC, SCTIMST dated 12.05.2017 with checklist*
2. *TAC Approval letter*
3. *IEC Application Form*
4. *Cover page*
5. *Principal investigator's short curriculum vitae*
6. *Revised Project Proposal*
7. *Abdominal(Waist) Circumference Measurement Protocol*
8. *Participant information sheet-English*
9. *Informed consent for Participants –English*
10. *Checklist for Participant recruitment in English and Malayalam*
11. *Screening Questionnaire in English and Malayalam*
12. *Structured Questionnaire including Green Climacteric Scale– English*
13. *Translated Participant Information Sheet-Malayalam*
14. *Translated Informed consent for Participant-Malayalam*
15. *Translated Structured Questionnaire including Green Climacteric Scale – Malayalam*

The following members of the Ethics Committee were present at the meeting held on 20th May, 2017 at G. Parthasarathi Board Room, AMCHSS, SCTIMST

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature	Female	Lay Person	No
2.	Dr. Kala Kesavan. P	MBBS, MD	Female	Basic Medical Scientist	No
3.	Dr. Mala Ramanathan	PhD	Female	Social Scientist (Member Secretary)	Yes

The guide, Dr. Mala Ramanathan, recused herself from discussions on the submissions.

IEC Decision

The IEC approved the conduct of the study in the present form.

Remarks:
The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,

Mala Ramanathan
Member Secretary, IEC