ADDIS ABABA UNIVERSITY, COLLEGE OF HEALTH SCIENCES, SOM, DEPARTMENT OF GYNECOLOGY AND OBSTETRICS

Research Report:

Age at onset of natural menopause and associated factors in women, Addis Ababa, Ethiopia

A Research report submitted to the Department of Gynecology and Obstetrics for partial fulfillment of Sub-specialty Diploma in REI.

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Abstract

Background: Menopause is defined as 12-month of amenorrhea after the final menstruation. It is the permanent cessation of menstruation. During menopausal period most women experience hot flashes, sleep disorders, sweating, vaginal atrophy and related sexual dysfunctions which all affect woman's health. Symptoms and relating it to menopause may not be known and most feel embarrassed to draw attention for support and worsen in developing countries. They are at increased risk of developing cardiovascular diseases and osteoporosis in early menopause and breast, endometrial and ovarian cancers in late menopause, respectively. They are also crucial for family well-being in terms of social aspects of life, particularly in Africa.

Objectives: The aim of the study was to know the timing of menopause and prevalence of associated symptoms and explore the existing gap of postmenopausal women health needs.

Methods: A cross-sectional study was conducted from February to March 2024. Data was collected using pretested standardized questionnaire of menopausal women from four Hospitals in Addis Ababa. Patient visitors and attendants at the four Hospitals age 30 to 60 yrs who fulfill the inclusion criteria were included in the study. Data was analyzed using SPSS version 20.

Result: Data was collected from 408 participants who fulfill the eligibility criteria. The mean age of participants was 51.78 ± 5.43 years. The mean age of menopause was 45.05 (±4.65) years. Premature menopause was reported in 10.0% of them. Only 1.5% had late menopause (≥55 yrs) while 47.3% (193) had menopause at ages 45-49 years and 12.5% at age of 50-54 years. Hot flush was the commonest peri-menoausal symptom experienced by almost half, 202 (49.5 %), of the participants. Night sweating 199 (48.8%), mood change 147 (36.0%), history of peri-menoausal weight gain 158 (38.7%) and sleep disturbance 128(31.4%) were among the symptoms reported by participants. Although only 56 (27.7%) of those with hot flush were treated all improved after treatment. In the majority of the symptomatic cases only less than one third of cases were seeking treatment from health provider. Multiparity and implant use were significantly associated with age at menopause. Multiparity was associated with 3.4 times

higher odds of age of menopause of ≥ 45 yrs (AOR= 3.4, 95%CI=1.138-9.796) and also Previous implant contraceptive use (AOR= 2.05, 95%CI=1.033-4.058).

Conclusion: The mean age of menopause in our study was 45.05 years. The prevalence of pre mature menopause in the current study was 10.0% which is higher than prior reports. Hot flush was the commonest menopausal symptom. Only less than a third of women who had menopausal symptoms sought care from a health provider. This potentially is due to lack of knowledge on availability of treatment for menopausal symptoms. Parity and use of Implants D were significantly associated with age at menopause of ≥ 45yrs.

Recommendation: Awareness creation on menopause in the population should be done to increase their health seeking behavior. Large population based studies are recommended to better identify factors associated with lower mean age at menopause and high prevalence of premature menopause in our set up.

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ABBREVATION

ANM	Age of Natural Menopause
EDHS	Ethiopian Demographic and Health Survey
EM	Early Menopause
GMH	Gandhi Memorial Hospital
MRS	Menopausal Rating Scale
MOH	Ministry of Health
PM	Premature Menopause
SOM	School of Medicine
SPSS	Statistical Package for social science
SRH	Sexual and Reproductive Health
TASH	Tikur Anbessa Specialized Hospital
ZMH	Zewditu Memorial Hospital

1. INTRODUCTION

Back ground

Menopause is an important milestone in women signaling the end of a woman's reproduction life. The median age at natural menopause is approximately 51 years and varies in different populations.(1, 2) As a result of ovarian follicular depletion the level of estrogen drops during this stage of life and finally leads to cessation of menstruation.Women tend to live one third of their life during this period. Many studies have reported the impact of menopause on middle aged women on different body functional system including the genitourinary, musculoskeletal and endocrine systems. (2-4)

Factors influencing the age at menopause include: genetic, obesity, substance use, social levels, cigarette smoking, BMI, ethnicity, education, nutrition and supplements, menarche age, oral contraceptive use, parity, region, and country.(3) Women in poor countries experience menopause earlier than women from economically reach countries. Some women develop premature or early menopausal symptoms earlier as a result they are at increased risk of cardiovascular diseases, and osteoporosis and its related morbidities. With an increase age of menopause by one year there is reduction of mortality by 2% and hence it is an important marker of population health. (5)

Early symptoms of menopause include commonly autonomic symptoms and menstrual disorders whereas late symptoms are related to genitourinary, musculoskeletal and cardio vascular symptoms. (3, 6, 7) Menopausal symptoms and their severity differ from women to women as a result of different factors including their BMI, lifestyle, economic status and level of education. In this age group quality of life is affected by menopausal symptoms, particularly the vasomotor and sexual ones.(8) Women populations in this age group are growing as a result of population-wide increases in life expectancy. In order to plan for early diagnosis and management of various complications, understanding the physiologic changes associated with menopause is required. Menopause is linked to a variety of chronic diseases. Early menopause has been associated with an increased risk of cardiovascular disease and osteoporosis, whilst

late menopause has been associated with an increased risk of breast, endometrial and ovarian cancer.(9-11)

Statement of the problem

The World Health Organization estimates that by 2030, more than 1.2 billion women would be experiencing menopause, associated with obesity, high body mass index (BMI), and that every year, 47 million women enter this stage of their life.(3) Age of menopause is lower in developing countries compared to industrialized nation which has a great impact on early morbidity and mortality of women due to a progressive decline in estrogen secretion.(12) In our society; losing a mother is so traumatic as she is the corner stone of the family. Few studies on menopause that were conducted in Ethiopia focused on severity of symptoms and reported that the age of menopause is very low compared to other African studies.(13)

The risks of cardiovascular disease, RR 1.34 [1.13-1.58], and osteoporosis (Odds ratio [OR] = 1.48; 95% confidence interval [CI] = 1.04-2.10) tend to be higher for women with an earlier menopause. Women who have an early menopause are less likely to develop breast, endometrial, or ovarian cancer, but they are at an increased risk for osteoporosis and cardiovascular diseases.(8, 13)

The timing of natural menopause may vary genetically, ethnically, and geographically, these finding seen in major regions of the world including Europe (50.1-52.8 years), North America (50.5- 51.4), Latin America (43.8-53), and Asia (42.1-49.5).(1,14)A cross sectional study from Ethiopia showed that the age of menopause ranges from 46.04 to 49.08 years in various studies.(13, 15)

According to certain studies, the prevalence of menopause symptoms is unexpectedly high, ranging from 40 to 87%, and it has a negative impact on the on the wellbeing of individuals.(4, 7) Menopause is also highly associated with poor reproductive health quality of life, emotional instability, decrease cognitive ability (fogging) and repetitive vasomotor symptoms in addition musculoskeletal and sexual dysfunction. These outcomes may, in turn, result in poor work performance and social activity, inability to work effectively particularly in those who have early menopause.

Significance of the study

Identifying factors associated with menopausal age are important to the prevention of chronic diseases among postmenopausal women. There are insufficient studies in developing countries and most are derived from developed countries.

The aim of this study was to assess the age of menopause and associated factors in adult women from selected representative Hospitals in Addis Ababa, Ethiopia. It would be a great input to know the age of menopause and the magnitude of associated health problems in this middle-aged women population as previous studies are scarce and does not meet the changing population need. Some of the findings are controversial such as the relationship between early and late menarche and the age of menopause, as well as the relationship between coffee intake, low socioeconomic status, education, high parity and late first child birth. These findings are additional reasons to look for in our population.

There were few old published literatures in our country, and majority of the literature were from developed countries. We know the time line and the right to access health care in this age group which is considered to be a public health challenge as it is a neglected sector for many years particularly in developing countries. In addition; the prevalence, symptoms, and complication vary among countries even at population level with urban and rural set up or economic difference in the same country. Therefore, our aim is to determine the existing, present new evidence to our community which will be a milestone for government officials and non-government organizations (NGO) to focus and pay attention to this underserved segment of the population in Addis Ababa, Ethiopia.

2. LITRATURE REVIEW

Natural age at menopause differs across the world and literature search reveled high in developed countries and low in low income countries. A study in three different towns of three eastern Europe countries showed the median age at menopause to be 50 years in Novosibirsk (Russia), 51 years in Czech towns (Czech Republic) and 52 years in Krakow (Poland). The Cox regression hazard ratios of menopause, compared with Krakow, were 1.47 (95% CI 1.40–1.55)

for Novosibirsk and 1.10 (1.04–1.16) for Czech women. In multivariate analyses, higher education, using vitamin and mineral supplements and ever use of oral contraceptives were associated with later menopause, while smoking, abstaining from alcohol and low physical activity were associated with earlier menopause. (16)

According to a large scale population based Study done in China showed the mean age at natural menopause was 48.94 years, with 3.40% of the women experienced premature menopause and 6.75% early menopause. Younger age, higher education, consumption of meat (1–3 days per week) and increased parity were associated with late menopause. Smoking, underweight, higher physical activity, , earlier age at menarche and older age at first birth were associated with earlier age at natural menopause.(17)

A Jordanian Hospital based study on the natural age of menopause included a total of 409 women aged between 20−75 years. The mean ANM of the sample was 48.5±5.0, with 2.7% of the women experienced premature menopause and 7.8% early menopause. Within the menopause women (n=242), the percentage of women who had premature menopause was 4.5%, 13.6% with early menopause, and 21.1% with late menopause (ANM >52). Smoking was the major risk factor for ANM <40 and 40–44among women with an OR of 2.46 (95% CI: 1.08–5.59, p<0.05).(18)

A study conducted in Iran revealed the ANM of below 50 years. Among participants of the Tabari cohort, 2,753 were menopausal women. The mean age of natural and induced menopause was 49.2 ± 4.7 and 43.2 ± 6.4 years, respectively (P = 0.001). The number of pregnancies, level of education, residency, and body mass index affected the age of menopause. After adjustments for confounding variables, parity remained significantly associated with late menopause.(3)

An African cross sectional study done in Zaria town, Northern Nigeria, revealed mean and median ages at menopause of 46.16±0.37 and 46.0 years, respectively. A significant positive correlation (0.263) was found between menopausal age and parity (p0.05). (19) Ethiopian study done in three different cities across the country found that the mean age for menopause is lower in different cities and their difference is statistically significant: lower (44.18, p= 0.05) for

the research participants from Bahir-Dar compared to that of women from Hawassa (48.78, p=0 .05) and Addis Ababa (49.08, p= .05). There was no statistically significant difference between the mean menopause age of women from Hawassa and Addis Ababa towns (p= 0.05). (14) A research conducted in rural area of North Ethiopia revealed that the average age onset for women`s menopause in Dangla is 46.35 years, and the age range lies between 38 and 53 years. (13) But a study from Jordan showed even large segment of women with late menopause premature (2.7%), Early (7.8%) and late menopause(21.1%)our country result is low.(18)

Many recent studies in different countries show that timing of menopause is influenced by many factors including genetic, diet, life style, reproductive history, body composition, generalhealth condition, social status, and psychological status are related to timing of menopause.(20) A study done in Norway on the effect of the age at menarche and child birth to age at natural menopause showed that women with menarche at age 16 years or age ≥ 17 years had menopause 1 year later [median: 52 years, interquartile range (IQR): 49–54 years] than women with menarche at age 13 years (median: 51 years, IQR: 49–54 years, reference) (crude hazard ratio (HR) = 0.95; 95% CI: 0.93–0.97 and 0.95; 95% CI: 0.92–0.99, P < 0.001).

Additional study women with three childbirths had the highest mean age at menopause (51.36 years; 95% CI: 51.33–51.40 years), and women with no childbirths had the lowest (50.55 years; 95% CI: 50.48–50.62 years). Thus, women with no childbirths had higher hazard ratio compared to women with three childbirths (reference group) (adjusted hazard ratio, 1.24; 95% CI: 1.22–1.27). (21,22)

According to a study on the influence of occupation, smoking, marital status, age at first birth, and diet on timing of menopause among 87,349 postmenopausal Chinese women, the mean ANM (SD) was 48.7 (4.3) years. Older age, being a housewife, earlier menarche, and passive smoking were associated with both premature menopause and early menopause. A higher odds for early menopause (EM) was observed in women who were widowed (OR: 1.10, 95% CI: 1.04-1.16), had spontaneous abortions (1.33 [1.05-1.69]), current regular smoking (1.19 [1.07-1.37]), and frequent spicy food intake (1.11 [1.05-1.08]). Wealth, late first birth, intake of fruits and soybean products and high BMI are associated with higher age of menopause.(23)

In a cross sectional study done in India on onset of Natural menopause, menopause prior to age 40 was reported by approximately 1.5 per cent of women. In the national data set, significant associations with age at natural menopause were identified with marriage breakdown or widowhood, poverty, Muslim religious affiliation, 'scheduled caste' status, not having received schooling, rural residence, having never used contraceptive pills, not been sterilized or had an abortion, low parity and residence in the western region. Within data from five selected States examined separately, the strength of these associations varied.(24)

Additionally there are many health risk factors and symptoms during menopausal period which can affect quality of life. In a study done in China the mean age was 46.9 years, and 15.7% (1,001/6,364) of participants has menopausal symptoms. The prevalence of menopausal symptoms was 9.3% (303/3,256), 23.9% (293/ 1,227), and 21.5% (405/1,881) in the reproductive stage, menopausal transition, and postmenopausal stage, respectively. Overall, the three most prevalent menopausal symptoms were insomnia (44.7%), fatigue (40.4%), and mood swings (37.2%). (7)

A research conducted in India the prevalence of menopausal symptoms was found to be high 87.7%. Majority of the study subjects had anxiety (80%), followed by physical and mental exhaustion (71.5%), sleep problem (61.2%), irritability (60.7%), Joint and muscular discomfort (56%) and heart problems (54%). The most classical symptom i.e., hot flushes were reported in 36.7%. The mean age of menopause was 47.53 standard deviation 4.5 years. The QOL was impaired in 70.2% of study subjects. The psychological symptoms attributed 70.8% to the poor QOL.(6)

According to a cross-sectional study on the prevalence of menopausal symptoms in Ethiopian women the most prevalent types of menopausal symptoms reported from the menopausal rating scale (MRS) were from somatic subscale (65.9%) while psychological (46.0%) and urogenital subscale symptoms (30.5%) were also prevalent. The most commonly reported individual symptoms were: hot flushes (65.9% (95% CI: 59.4%–72.1%)), difficulty falling asleep (49.6% (95% CI: 42.9%-56.3%)), depressive mood (46.0% (95% CI: 39.4%-52.8%)), irritability (45.1% (95% CI: 38.5%-51.9%)), and anxiety (39.8% (95% CI: 33.4%-46.5%)). MRS is higher in postmenopausalcompared to premenopausal women with high rate of psychological and

somatic scales. (8) One of the factors that have a significant association with the severity of menopausal symptoms was age with [AOR=1.46 (95%CI: 1.27–1.64)].(20) In addition in our circumstance there are large number of cases with pelvic floor disorders and recurrent UTI due to deprivation of estrogen in these tissues. It is however difficult to isolate the exact cause as there are many confounding variables that contribute to the development of genitourinary disorders.

3. OBJECTIVES

General Objective

- ✓ To determine the age at onset of natural menopause and associated factors in Addis Ababa, Ethiopia

Specific Objective

- ✓ To determine the age at onset of menopause
- ✓ To determine menopausal symptoms among participants
- ✓ To identify risk factors associated with early menopause.

4. METHOD AND MATERIALS

Study area, period and population

A hospital based cross sectional study was conducted at GMH, ZMH, TASH and ALERT Hospitals with equal proportion. A total of 419 patient attendee and visitors from residents in Addis Ababa were enrolled in the study from February to March 2024. Overall 408 participants who had complete interview records were included in the study. Their questioner response was reviewed to get the necessary information.

Study Designand Setting

A facility based cross-sectional study was conducted from February to March 2024 to determine the timing of natural menopause and associated risk factors in patient attendants and patient visitors fromGandhi Memorial Hospital (GMH), Zewditu Memorial Hospital (ZMH) and Tikur Anbesa Specialized Hospital (TASH) and ALERT Specialized Hospital.These four study hospitals wereselected from a total of 12 governmental Hospitals and all are located in Addis Ababa serving mainly residents from the city. These study sites are thought to have a diverse population with a range of backgrounds, which will provide an urban perspective. The study was designed to recruit women with equal proportion from each facility those fulfill the inclusion criteria; they are at age 30 years and aboveto get the age of menopause and associated factors. The study was done after ethical approval obtained. Data was collected by using standardized pretested questionnaire.

Source Population

- ✓ All womenfrom GMH , ZMH ,TASH and ALERT Specialized Hospitalresiding in AA for more than two years during the study period, Addis Ababa, Ethiopia.

Study population

- ✓ All patient attendeesand visitors aged 30 to 60 yrs who fulfill the inclusion criteria during time of the study, AA, Ethiopia.

Inclusion and Exclusion Criteria

Inclusion criteria

- ✓ All eligible patients' attendant and visitor's age 30to 60 years who are in the post menopausal period in the four hospitals during the study period were included.

Exclusion criteria

- ✓ Women who had primary amenorrhea
- ✓ Women who declined to participate
- ✓ Women who could not answer the questions about the last menstrual period

- ✓ Women who were amenorrhea from taking hormonal contraceptive methods, hysterectomy or bilateral Oophorectomy.
- ✓ Women who werecurrently pregnant or lactating.
- ✓ Women on hormone therapy and had menstrual bleeding age is lessees than 60
- ✓ Women who did not know their age

Sample Size Determination

The sample size was determined by using a single population proportion formula and by considering the prevalence of menopausal hot flush 65.9 % in previous study.(8)

To determine the sample size, single proportion formula will be used

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

Where: **n** = desired sample size

z = z critical value at 95% confidence interval of certainty (CI),Zα⁄2=(1.96)

p = 65.9%

d = margin of sampling error tolerated = 0.05, q = 1-p

The Z value at 95% CI is 1.96 (from significance level α = 5%). Since the prevalence of menopausal symptom (Hot flash) in previous study was 65.9%,**(8)** so I will take p value of65.9%. The tolerated margin of error is 5%.

p = 0.66q = 1- .66 = 0.34, d= 0.05

$$n = \frac{(1.96)^2\,(0.66)\,(0.34)}{(0.05)^2} = 345$$

Adding 15% non-response rate the total sample size calculated to be is 397participants.

Moreover a pre-hok power analysis showed that the achieved sample size of 397 was having a 90% power to detect a moderate difference (OR -1.5) between the compared variables.

Sampling Technique

Since the study was a cross sectional study the participants were recruited by serially registering and selecting the women who fulfill the selection criteria and considered as study candidate until allocated sample size is completed.

Study Variables

Dependent Variable

- ✓ Dependent variable was the age at cessation of menses for more than one year.

Independent Variables

Socio demographic Factors: Maternal education level, maternal occupation, religion, residence, marital status, and estimated average monthly family income

Obstetrical and gynecological related variables: Age of menarche, age at first delivery, parity, contraceptive use,sexual dysfunction, unilateral oophorectomy, menstrual cycle regularity, Hx of infertility

Medical illness:DM, HPT, CVD, osteoporosis

Premenopausal symptoms:Vasomotor disturbance, mood disorders, sleeps disorders,

Life style factors:Smoking, Alcohol, Coffee,Diet

Operational Definitions:

Age of menarche: is the age at which first menstrual period occurred.

Age of a woman: the age which a woman states.

Early menopause: A woman entering menopause at an earlier age between 40 -44 years

Natural menopause: is recognized after 12 consecutive months of amenorrhea for which no other obvious pathological or physiological cause is present.

Perimenopause: Are women in the transition period to menopause that ends 12 months after the last menstrual period.

Post menopause: A period of time from the final menstrual period.

Premature menopause: Menopause that occur before the age of 40 years.

Patient attendant and visitors: Any woman visiting or attending or caring for (an in-patient) who is not visiting the hospital for her medical care at OPD or in any of the wards of the hospital.

Infertility: Is defined as the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse.

Data Quality Control Measures

Training was be provided for data collectors for data accuracy and Completeness and regular monitoring was made by principal investigator to avoid any error or data incompleteness. The questionnaire was pre tested a head of final collection in 10 participants from each facility. The principal investigator supervised the data collection procedure.

Data collection procedure

Data was collected from the study participants using the standardized pretested questionnaire which are organized based on study objectives and the variables are taken and categorized based on similar previous study findings in different institution. Data was collected by trained BSc nurses recruited for data collection.Potential study participants (attendants and visitors) at OPD and wards were contacted and informed about the study using the information sheet. If they are eligible for the study and agree to participate they will be taken to a private quite area prepared for the interview.After taking verbal informed consent which would be signed by the data collector, data was collected through face-to-face interview in confidential and private manner.

Data was collected on socio-demographic, lifestyle behavior and reproductive health characteristics, risk factors for menopause and illness that develop during menopause. All patient attendees in the study Hospitals who fulfilled the inclusion criteria were recruited with equal proportion from each hospital from Feb 10, 2024 until sample size completed. All participants aged 30 to 60 years old and amenorrhic who fulfill the inclusion criteria were interviewed. Those who cannot remember the age of menopause and regarded sick are not included in the study. Data was collected using a pretested data collection tool.

Participants are coded with their initials or last two digit of phone number was used in the questionnaire. To avoid duplication data collectors made sure that data is not already collected from each participant in the same study.

Data analysis

Data was entered to Epi Info version 7.1.3 and analyzed using the Statistical Package for Social Studies (SPSS) version 20.0 for analysis. Socio demographic variables (age, marital status, educational level, religion, ethnicity, occupation, economic status and life style, habits) and reproductive variables (menarche age, age of first birth, parity, menstural pattern and contraceptive use and duration) were independent variables included in analysis. Age at menopause was the dependent variable dichotomized in to age at menopause with outcome variable of age below 45 and ≥45 years. Descriptive statistics was used to describe the findings. Variables those were associated with age at menopause with value p<0.2 in bivariate analysis were included in a multivariable model. For each of the study variables, the association was estimated by the odds ratio (OR) with the 95% confidence interval (95% CI). A P value of less than 0.05 was considered statistically significant and logistic regression was done to identify predictors of age at menopause ≥45 years. Figure 1 below shows that the data has come from a population where the mean age is nearly normally distributed. Hence, we have confirmed that we can apply parametric statistics. (Figure 1)

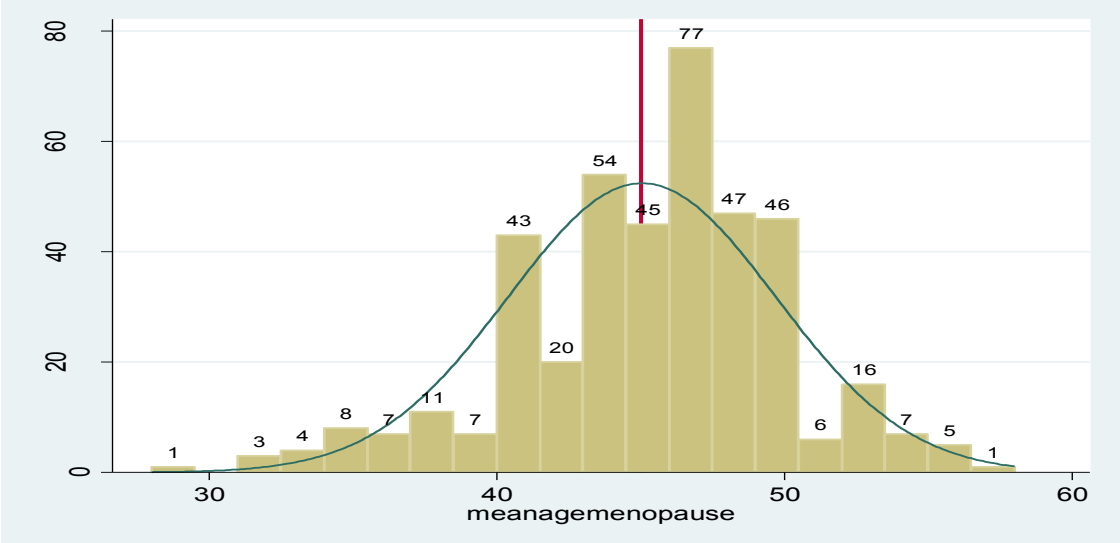

Figure 1: The age distribution of participants (n -408)

5. ETHICAL CONSIDERATION

The study commenced after getting ethical approval from ethical committee of department of Obs–Gyne, CHS , AAU. Support letter of permission obtained from Addis Ababa University and Addis Ababa City Administration Health Bureau and official letter of cooperation from the above organization given to GMH, ZMH, TASH, and ALERT Hospital. All potential identifiers were not documented on data extraction format to ensure anonymity.

The study carried no risk except time devotion for interview and participant get advantage of explanation and referral link to GMH for further management. Informed consent was not necessary. All data collected were only be used by the investigators and were not passed to a third party.

6. RESULT

Socio-demographic and behavioral Characteristics

Over all 419 eligible candidates were enrolled during the study period and reviewed. Eleven participants were dropped from the study due to incomplete data/documentation. Additional 11 participants are also taken exceeding the sample size of 397 making the response rate 408 (102.8%).The mean age of participants was 51.78 ± 5.43 years while the age range was between 37 and 60 years.

Majority were fifty years and above and urban dwellers with proportion of 51.7 % and 99.8 % respectively. Sixty percent were married while 18.9%, 15.2% and 5.6% were widowed, divorced and single respectively. More than 77% had formal education and attended primary, secondary schools or college level. Forty six percent had their own income and the remaining were living based on husband income, pension, house rent and financial support from their children. Only 189 (46.4%) were engaged in different outdoor work activity while others were limited to in house activity home affairs. Majority, 84.6, % were Christians. Majority were from Amhara and oromo ethinic groups with combined proportion of 67.4 %. Majority, 57.4 %, had income less

than 5,000 ETB per month. Coffee drinking habit frequency 77.9%, 12.0%,10% drink coffee daily, occasionally and never drink respectively and alcohol consumption Majority (51.2%) never drink alcohol while 47.8% drink occasionally during holidays (home made local drink “Tella”) and only 4(1%) drink regularly. No woman was found to have smoking history. (Table 1)

Table 1. Socio-demographic characteristics among post-menopausal women (n-408).

Variables		Frequency	Percent (%)
Age group	≤40	8	2.0
	41-50	189	46.3
	51-60	211	51.7
	Urban	407	99.8
	Rural	1	0.2
Marital status	Single	23	5.6
	Married	246	60.3
	Widowed	77	18.9
	Divorced	62	15.2
Educational level	Illiterate	87	21.3
	1^0Education	124	30.4
	2^0Education	110	27.0
	Diploma and above	87	21.3
Occupational status	House wife	115	28.2
	Civil servant	119	29.2
	Business women	70	17.2
	Others, pension	104	25.5
Religion of the women	Orthodox	297	72.8
	Muslim	57	14.0
	Protestant	48	11.8
	Others	6	1.5
Ethnicity	Amhara	164	40.2
	Oromo	111	27.2
	Tigre	36	8.8
	Gurage	63	15.4
	Others	34	8.3
Family income	≤5000	234	57.4
	5001-10000	135	33.1
	>10000	39	9.6
Frequency of coffee intake	Never	41	10.0
	Occasionally	49	12.0
	Regularly	318	77.9
Frequency of alcohol intake	Never	209	51.2
	Occasionally	195	47.8
	Regularly	4	1.0
Frequency of smoking	Never	408	100.0

Age at menopause

The reported age at menopause ranged 28-58 years. The mean age of menopause was 45.05 (±4.65) years. The duration of amenorrhea after the last menses among participants was between 1 and 28 years. Majority, 52.0%, had amenorrhea of 5 years and below where as 5.2 % had amenorrhea of ten years and above. Age of menopause varied significantly among participants with premature menopause<40 reported in 10.0% (41) of them. Only 1.5% (6) had late menopause (≥55 yrs) while 47.3% (193) had menopause at ages 45-49 years and 12.5% (51) at age of 50-54 years. (Table2)

Table 2. Age at menopause among post-menopausal women (n-408)

		Count	Column N %
Age at Menopause	<40	41	10.0%
	40-44	117	28.7%
	45-49	193	47.3%
	50-54	51	12.5%
	≥55	6	1.5%

Reproductive characteristics

The mean age at menarche of the participants was 14.68 (±1.44) years, and majority (91.2%) was in the age at or below 16 years, while the rest (8.8 %) had delayed menses. The mean age at giving first birth was 21.34 (± 4.681) years. Majority, 68.9%, were multiparous while 3.9% and 27.2% were nulliparous and primiparous respectively. Only 12.5 % had history of primary and secondary infertility. The reported age at giving first birth ranged 14 – 40 years. Menstrual pattern in the last four years before onset of amenorrheawas regular in 60.5%. Most women (51.7%) used one or more than type of modern contraceptive methods in their life time. Injectable, oral contraception pills, implants, IUCD and permanent methods were used by 26.2%, 21.1%, 15.0%, 7.6%, and 1.2% of the participants respectively. Past history of pelvic surgery was reported in 7.4% with cesarean section (3.7%) and myomectomy (2.5%) being the commonest. (Table 3)

Table 3. Reproductive characteristics of post-menopausal women (n-408)

Variable		Count	Percent (%)
Age at menarche	≤ 16 years	372	91.2
	> 16 years	36	8.8
Parity	Nulliparous	16	3.9
	Primiparous	111	27.2
	Multiparous	281	68.9
Had history of infertility	No	357	87.5
	Yes	51	12.5
Age at giving first birth (n-392)	≤ 15 Yrs	35	8.6
	16-20 Yrs	210	51.5
	21-25 yrs	93	22.8
	26-30 Yrs	48	11.8
	> 30 Yrs	22	5.4
Menstrual pattern in the last four years before last menses	Irregular	161	39.5
	Regualar	247	60.5
History of OCP use	No	322	78.9
	Yes	86	21.1
History of injectable contraceptive use	No	301	73.8
	Yes	107	26.2
History of implant use	No	347	85.0
	Yes	61	15.0
History of IUCD contraceptive use	No	377	92.4
	Yes	31	7.6
History of permanent contraceptive method use	No	403	98.8
	Yes	5	1.2
Have history of pelvic surgery	No	378	92.6
	Myomectomy	10	2.5
	C/S	15	3.7
	Others specify	5	1.2

Medical characteristics

Medical co-morbidities were reported during this period in 152 (37.25%) of the participants. Hypertension the most frequent co-morbidity followed by diabetes mellitus andMusculoskeletal disorders reported in 91(22.3%),49 (12.0%) and 23(5.63%) of the participants respectively. Others less common morbidities included RVI on ART 6(1.5%) and cardiac diseases 4(1%). (Table 5)

Table 4. Per-menopausal associated medical problems

Type of morbidity		Frequency	Percent (%)
Had history of hypertension	No	317	77.7
	Yes	91	22.3
Had history of diabetic mellitus	No	359	88.0
	Yes	49	12.0
Had history of osteoporosis of pelvic/hand bone fracture	No	385	94.4
	Yes	23	5.6
HIV/AIDS	No	402	98.5
	Yes	6	1.5
Had cardiac diseases	No	404	99.0
	Yes	4	1.0
Others diseases	No	402	98.5
	Yes	6	1.5

Peri-menopausal symptoms

Hot flush was the commonest perimenopausal symptom experienced by almost half, 202 (49.5 %), of the participants. Night sweating 199 (48.8%), mood change 147 (36.0%), history of peri-menoausal weight gain 158 (38.7%) and sleep disturbance 128(31.4%) were among the symptoms reported by participants.

Although only 56 (27.7%) of those with hot flush were treated all improved after treatment. Similarly; though only 29.6% of participant with night sweatiness were treated nearly all (55/56) improved with treatment. Those who had mood change (depression, easily irritable) and seek care were 38 (9.3%) and for those group who were treated the symptom improved markedly in 35 (92.1 %). Participants who had history of weight gain and treated were 48 (11.8%), symptom improved markedly 46 (95.8 %). Participants who had history of sleep disturbance (insomnia) and treated were 30 (7.4%), symptom improved markedly in 26 (86.7%). In the majority of cases the frequency of symptom and health seeking behavior is unbalanced being only less than one third of all. (Table 5)

Among 408 participants only 214(52.5%) were sexually active and the remaining 194(47.5) were sexually inactive. From them, 71(17.4%)have lack of desire and only minority 16 (22.5 %) seek

care and among them treated and improved were only 13 (21.1%). Among sexually inactive majority were widowed or divorced 139(71.6%) but in others the reasons were vaginal dryness and burning sensation 63 (32.4%), and those decided for medical care were 16 (25.4%) and among them treated and improved were 12 (75%).(Table 5)

Table 5. Peri-menopausal symptoms experienced by post-menopausal participants (n-408)

Variable		Frequency	Percent (%)
Had symptoms of hot flush	No	206	50.5
	Yes	202	49.5
Seek care for the hot flush (n-202)	No	146	72.3
	Yes	56	27.7
Did take treatment for the hot flush (n-56)	No	1	1.8
	Yes	55	98.2
The symptom improved after treatment (n-55)	No	0	0
	Yes	55	100
Had night sweatiness	No	209	51.2
	Yes	199	48.8
Did seek treatment for the night sweatiness (n-199)	No	140	70.4
	Yes	59	29.6
Did take treatment for the night sweatiness (n-59)	No	3	5.1
	Yes	56	94.9
The symptom improved after treatment (n-56)	No	1	1.8
	Yes	55	98.2
Had experienced mood change	No	261	64.0
	Yes	147	36.0
The mood change needed treatment (n-147)	No	109	74.1
	Yes	38	25.9
Took treatment for the mood change (n-38)	No	2	5.3
	Yes	36	94.7
The mood change improved after treatment (n-36)	No	1	2.8
	Yes	35	97.2
Had history of weight gain	No	250	61.3
	Yes	158	38.7
Did seek treatment for weight gain (n-158)	No	110	69.6
	Yes	48	31.4
Did receive treatment for the weight gain (n-48)	No	0	0
	Yes	48	100

Did weight gain improve after treatment (n-48)	No	2	4.2
	Yes	46	95.8
Faced sleep disturbance (insomnia)	No	280	68.6
	Yes	128	31.4
Did insomnia need treatment (n-128)	No	98	76.6
	Yes	30	23.4
Did receive treatment for the insomnia (n-30)	No	1	3.3
	Yes	29	96.7
Did the insomnia improve after treatment (n-29)	No	3	10.3
	Yes	26	89.7
Currently sexually active	No	194	47.5
	Yes	214	52.5
Sexually inactive due to lack of desire (n-194)	No	123	63.4
	Yes	71	36.6
Needed treatment for sexual desire (n-71)	No	55	77.5
	Yes	16	22.5
Received treatment for lack of sexual desire (n-16)	No	1	6.3
	Yes	15	93.7
Did lack of sexual desire improve after treatment (n-15)	No	2	13.3
	Yes	13	86.7
Sexually inactive due to vaginal dryness (n-194)	No	131	67.5
	Yes	63	32.5
Did vaginal dryness needs medical care (n-63)	No	47	74.6
	Yes	16	25.4
Did you receive treatment for vaginal dryness (n-16)	No	0	0
	Yes	16	100
Did the dryness improve after treatment (16)	No	4	25
	Yes	12	75

Factors affecting age at menopause

A stepwise analysis was done to see potential association and strength of association between the independent and the selected outcome variable (menopause at age ≥ 45 yrs). Chi square test was done for all independent variables and those independent variables of higher highervalue were included in regression analysis. Independent variables having a p-value <0.2 by bivariate logistic regression were transferred to multivariable logistic regression. Accordingly; family income, parity and Implant contraceptive usewere included in bivariate and

then multivariable regression analysis. After multivariable logistic regression parity and implant use remained to be significantly associated with age at menopause.

Multiparty was significantly associated with 3.5 times higher odds of age of menopause of ≥ 45 yrs (AOR= 3.4, 95%CI=1.138-9.796) compared to nulliparous women. Previous implant contraceptive use was also significantly associated with 2.6 times higher odds of age of menopause of ≥ 45 yrs (AOR= 2.05, 95%CI=1.033-4.058) thannon-users. (Table 6)

Table 6: Regression analysis of selected socio-demographic and reproductive variables Vs Age at menopause of ≥ 45 yrs at health facilities, Addis Ababa, Ethiopia, Feb-March, 2024. GC. (n=408)

	Adjusted prevalence of age at menopause of ≥45 yrs	OR for age at menopause of ≥ 45 yrs			
		COR**		AOR***	
Characteristics		**P-value**	**95% CI**	**P-value**	**95% CI**
Family income (Birr)					
– < 5000	57.3		1		1
– 5001-10000	66.7	0.076	1.493 (0.960-2.322)	0.196	1.366 (0.851-2.192)
– >10000	66.7	0.272	1.493 (0.731-3.049)	0.377	1.422 (0.652-3.102)
Parity					
– 0	37.5		1		1
-- 1	46.8	0.485	1.469 (0.500-4.319)	0.478	1.489 (0.496-4.471)
– >1	68.3	**0.016**	**3.596 (1.267-10.202)**	**0.028**	**3.339 (1.138-9.796)***
Implant use					
– No	58.2		1		1
– Yes	78.7	**0.003**	**2.650 (1.385-5.31071)**	**0.040**	**2.048 (1.033-4.058)***
IUCD					
– No	60.4		**1**		**1**
– Yes	82.4	0.082	3.065 (0.867-10.841)	0.09	3.067 (.841-11.185)

7. DISSCUSSION

Menopause is an inevitable occurrence during women life span occurring at variable ages. The mean age of menopause in our study was 45 years. There are very few local studies done on age at menopause. This finding is lower compared to previous local study reports of 46.7 years done in rural town Dangila and 48.78 years in Hawassa. (13)(15) However it is higher than the 44.18 years mean age reported from a study done in Bahir Dar(15). Our finding is also lower compared to reports from other countries like Nigeria (46.16 yrs), Iran (49.2yrs), Russia (51yrs), China (48.4 yrs) and Jordan (48.5yrs) studies.(3, 7, 10, 17, 18) The difference for the result could partly be due to difference in study approach.

Reports based on the limited available population-based data revealed premature menopause to occur in approximately 1% – 8.6% and early menopause in 4.9%–9.4% of women.(25-28) In the current study the prevalence of pre mature menopause i.e. age of menopause before 40 years and earlier menopause were 10.0% and 28.7% respectively which are higher than many prior reports. Our findings are higher compared to large scale population based study done in China with 3.40% of premature menopause and 6.75% early menopause.

Comparatively studied population almost half of them are asymptomatic while 202 (49.5 %) had hot flushes, 199 (48.8%) night sweating, 147 (36.0%) mood change, 158 (38.7%) had history of weight gain and 128(31.4%) faced sleep disturbance (insomnia). This finding suggest our population has less frequency of postmenopausal symptoms compared to reports from many studies, hot flushes 65.9%, difficulty falling asleep 49.6%, depressive mood 46.0%.(8) Similarly Indian and Chinese studies reported 80% and 40.8% mood disorder and 53.8% insomnia prevalence.(6, 7)On the other hand the Indian study and a Chinese study reported lower prevalence of hot flushes with prevalences of 36.7% and 36.6% respectively. An important finding in the current study is that of women who develop symptoms who were reluctant to seek medical care were only 13.7% even if they were living in the capital city were a lot of private and public health facilities are present possibly due to lack of knowledge for the presence of remedies and accept symptoms as a natural event. During the study period many women reported taking cold bath and wearing light cloth as remedy.

Regression analysis of potential influential factors among participants enrolled for the study was done. In bivariate and subsequently multivariate regression analysis: Parity >1 (p= 0.022) and implant use (p=0.039)were found to be associated with age of menopause of >45yrs. Mean age of menopause of ≥ 45yrs was more than three times more likelyin women with parity of greater than one (AOR=3.34, 95% CI; 1.14 -9.79). This finding is in line with many prior reports(5, 24). Similarly the odds of mean age of menopause of ≥ 45yrs was more than two times in those with use of Implant (AOR=2.05, 95% CI; 1.03 – 4.06).The finding similar to previous study using contraceptive methods.(16,17,19,22)With regard to OCP no significant association probably due to shorter period use without having the desired effect of prolonged

ovarian suppression and also could be related to study population and study design differences.

Socioeconomic status with family monthly income greater than 5000 ETB and greater than 10, 000 ETB were found to be associated with age at menopause but the association was lost on regression analysis. Many factors reported to influence the age of menopause were not seen to have effect on age at menopause. Occupational status unlike Greece study finding being a house wife didn't show the advantage of greater age of menopause ,compared to those who are earning on heavy daily activity civil servants and business women.(12) Intake of caffeine, daily drinking coffee (77.9%) or and occasionally (12.0%) was not found to be related to age of menopause. A similar finding among visitors of Hospitalized patients, caffeine consumption up to 1 cup /day does not found to affect age of menopause. (12) Those who abstain from alcohol consumption didn't show early age of menopause significantly and the finding is similar to Greece study. (12, 16)

In our study finding unlike the finding in China low educational status, early age of menarche and older age of at first birth didn't show correlation to the early age of menopause.(7) Current smoking, underweight, higher physical activity, earlier age at menarche and older age at first birth were associated with earlier age at natural menopause.(17) Age of menarche did not show significant difference by age category but a study in Norway, the late age of menarche more than 16 years, being parous women related to higher age of menopause.(21, 22)

Our finding did not demonstrate significant association of marital status, education, occupation, level of income, religion and ethnicity with age at menopause. Unlike our finding, some prior reports have shown that level of income and occupation to be associated with age of menopause.(5) Indian study also showed that marital status, poverty, religious, illiteracy, having never used contraceptive pills and low parity to be associated with early menopause.(24) Similarly a China study reported that higher socioeconomic status is associated with late menopause.(23) Other studies also showed being illiterate was related to early age of menopause and increased frequency of symptoms of menopause.(3, 17) No woman was found to smoke in our study, which is a well known risk factor for early age of menopause independently.(7, 23)

Conclusion

The mean age of menopause in our study was 45 years. The prevalence of pre mature menopause in the current study was 10.0% which is higher than prior reports. Hot flushes reported by almost half of the participants was the commonest menopausal symptom. It was seen that only less than a third of women who had menopausal symptoms consulted a health provider for treatment and care. This potentially is due to lack of knowledge on availability of treatment for menopausal symptoms.

Parity and use of Implants were significantly associated with age at menopause of ≥ 45yrs. Age of menopause of ≥ 45yrs was more than three times more likely in multiparous women which is in line with many prior reports. Similarly the odds of mean age of menopause of ≥ 45yrs were more than two times in those with use of Implant.

Recommendation

Awareness creation on menopause in the population should be done to increase their health seeking behavior and minimize the risks and disease that are associated with menopause. Large population based studies are recommended to better identify factors associated with lower mean age at menopause and high prevalence of premature menopause in our set up. The newly identified association between age at menopause and Implant also needs further population based study.

Strength and Limitation of the study

The strength study is that it identifies the burden of one of the neglected health issue in the country and completed in short period of time. Being a retrospective study the main limitations is the recall bias. The other limitation is that it cannot represent the national scenario as it is done in aurban set-up only.

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Annexes-1a: Information sheet and verbal consent form (English)

Age at onset of natural menopause and associated factors in Addis Ababa, Ethiopia

General questions

1. Hospital/ facility name: Select (GMH, ZMH, TASH or ALERT Hospital) _____
2. Code _____3.Date of interview ____/____/____

Hello,Myname is.....…. We are conducting a study on age of natural menopause and associated factors in residents of AA middle aged women.The purpose of the study is to know the mean age of natural menopause, associated factors and to identify the most common symptoms of menopause in our set up.

Your participation in the study is completely voluntary. There is norisk in participating in the study. If you agree to be interviewed; I will ask you questions about you on points relatedto your socio-demographic characteristic, and about your experience of menstruation, contraception & menopause and sexual related issue to our study. Whether you participate or not does not affect the medical care of your relative.Your interview is in private and confidential manner.You will not be personally identified in any way and your answers will be confidential and secret. Your identity will not be disclosed in any published and written material resulting from the study. If you do not want to answer any of the questions during the interview you may say so and I will move to the next question. And, if you don't want to continue the interview you can stop me any time. The interview will take about 20minutes to complete.

There is no direct benefit to you for participating in the study. The outcome of the study, however, will help women by creating awareness of post-menopausal changes, draw attention of health professionals and government to bring new health policy to address these marginalized age groups.

If you have any question about the study and your rights as a participant please contact the principal investigator, DrBelay Betemariam, on his mobile phone number 0917811132.

Do you have any questions for me at this time about this study?

(Please respond to any questions that she may have.)

Ask the following six questions and proceed to the next question only if the response is <Yes>.

- → Do you agree to participate in the study? Yes_____ No____
- → Is your age between 30 and 60 years? Yes _____ No____
- → Was your last menses ≥12 months ago? Yes_____ No____
- → You are not currently pregnant or lactating?Yes_____ No____
- → You are not on hormonal contraceptives (pills, implant, injectable, …)? Yes_____ No____
- → You had no hysterectomy or bilateral oophrectomy?Yes_____ No____

If the response is <No> to any of the 6 questions above, thank the participant and close the interview.

Interviewer's name _____ Signature _____ Date ___ /___ /___

Checked by the PI Signature_____ Date ____/____/____

Annex Ib:
ሴቶችየመጨረሻወርአበባቸውንየሚያዩበትንእድሜእናየሚፈጥርባቸውንጫናለይቶለማዎቅለሚደረገውጥናትበአማርኛየተዘጋጀየመረጃናየቃልስምምነትማስገንዘቢያቅጽ

አጠቃላይመረጃ፡

1. የጤናተቋሙስም: _____
2. የካርድቁጥር፡ _____ ኮድ፡ _____
3. ቃለመጠይቅየተደረገበትቀን፡____/____/____

ጤናይስጥልኝ! ስሜ ---------- ስሆን የጤና ባለሙያ ነኝ፡፡ ሴቶች የመጨረሻ ወር አበባቸውን የሚያዩበትን እድሜ እና የሚፈጥርባቸውን ጫና ለይቶ ለማዎቅ ጥናት በማካሄድ ላይ ነን፡፡ የጥናቱም አላማ በሃገራችን የሚገኙ ሴቶች የመጨረሻ ወርአበባቸውን የሚያዩበትን እድሜ እና የሚፈጥርባቸውን ጫና ለይቶ ለማዎቅ ነው፡፡

በአጠቃሊይ መጠይቁ በፍቃደኝነት ላይ የተመረኮዘ ነዉ፡፡ እርሶ በጥናቱ ለመሳተፍም ሆነ ላለመሳተፍ ሙሉ መብት አለዎት፡፡ በጥናቱ በመካተትዎ የሚደርስብዎ ምንም አይነት ጉዳት አይኖርም፡፡ በጥናቱ ለመካተት ፈቃደኛ ከሆኑ ቃለመጠይቅ አደርግልዎታለሁ፡፡ እርሶ የሚሰጡኝ መረጃዎች በሙሉ ሚስጥራዊነታቸዉ በሚገባ የተጠበቀና ለዚህ ጥናት ብቻ የሚዉሉ ናቸዉ፡፡ የሚሰጡኝ መረጃዎች የተለየ ቁጥር ይሰጣቸዋል እንጂ የእርሶ ስም በየትኛዉም ቦታ ላይ አይጻፍም፡፡ የጥናቱ ዉጤት ቢታተምም እንኳን የሚታተመዉ እርሶና ሌሎች የጥናቱ ተሳታፊዎች የምትሰጡት መረጃ አጠቃሊይ ይዘት ሲሆን የእርሶ ስም በየትኛዉም ቦታ ላይ አይጠቀስም ፡፡

በቃለመጠይቁ ጊዜ መመለስ የማይፈልጉትን ጥያቄ አለመመለስ እና በማንኛውም ሰአት ቃለመጠይቁን ማቋረጥ ይችላሉ፡፡ ቃለመጠይቁን ለማጠናቀቅ ሃያ ደቂቃ ያህል ይወስዳል፡፡

በጥናቱ ላይ በመካፈልዎት የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ነግር ግን የዚህ ጥናት ዉጤት ወደፊት ጤና ባለሙያዎች የመጨረሻ ወር አበባቸውን ያዩ ሴቶች የሚፈጥርባቸውን ጫና ለማገዝ ለሚያደርጉት ህክምና መሻሻል እገዛ ያድረጋል፡፡

ይህን ጥናት በተመለከተ ምንም አይነት ጥያቄ ካለዎት የዚህ ጥናት ባለቤት የሆኑትን ዶ/ር በላይ ቤተማርያምን በሞባይል ስልክ ቁጥር 0917811132 ደዉለው መጠየቅ ይችላሉ፡፡

ጥናቱን በተመለከተ እኔን አሁኑኑ የሚጠይቁኝ ጥያቄ አለዎት?

(እባክዎ ለሚጠይቁት ጥያቄ ተገቢዉን ምላሽ ይስጡ)

የሚከተሉትን ስድስት ጥያቄዎች በቅደም ተከተል እየጠየቅህ ምላሹ አዎ ከሆነ ብቻ ወደሚቀጥለ ውጥያቄ እለፍ፡፡

- በዚህ ጥናት በመካፈል ቃለመጠይቅ ለመደረግ ፈቃደኛነዎት? አዎ ------- አይደለሁም -------
- እድሜዎት 30-60 አመት ዉስጥ ነዉ? አዎ ------- አይደለም -------
- የመጨረሻ ወር አበባዎትን ካዩ ከ12 ወራት በላይ ይሆናል? አዎ ------- አይሆንም -------
- አሁን ነፍሰጡር አይደሉም ወይም እያጠቡ አይደልም አዎ ------- አይ -------
- አሁን ባለቅመም እርግዝና መከላከያ እየወሰዱ አይደልም አዎ ------- አይ -------
- ማህፀንዎ ወይም ሁለቱም የዘርፍሬዎችዎ በቀዶህክምና ወጥተዋል አዎ ------- አይ -------

(አንዱምምላሽ ‹አዎ› ካልሆነ ምስጋና በማቅረብ ቃለመጠይቁን ያቋርጡ)

የቃለመጠይቅ አድራጊው ስም _____ ፊርማ _____ ቀን ____/____/____

የጥናቱ ባለቤት የፍተሻ ማረጋገጫ ፊርማ _____ ቀን ____/_____/_____

Annex 2 Questionnaire for the interview on ANM

To be filled by data collectors

Sociodemographic Data	
1. Stated age	…… Yrs
2. Marital status (√)	Yes (√)
2.1 Single	☐
2.2 Marriage	☐
2.3 Widow	☐
2.4 Divorce	☐
3. Educational History (√)	
3.1 Illiterate	☐
3.2 Primary school	☐
3.3 Secondary school	☐
3.4 College / University	☐
4. Residency (√)	
4.1 Addis Ababa (AA)	☐
4.2 Out Side AA	☐
5. Ethnicity (√)	
5.1 Amhara	☐
5.2 Oromo	☐
5.3 Tigre	☐
5.4 Gurage	☐
5.5 Others	☐
6. Religion (√)	
6.1 Orthodox	☐
6.2 Islam	☐
6.3 Protestant	☐
6.4 Others	☐
7. Occupation (√)	
7.1 House wife	☐
7.2 Civil servant	☐
7.3 Business woman	☐
7.4 Others,Pension	☐
8. Monthly household income (√)	……Birr
9. Social Habits	

Never = none, Occasional (1-3X, < 4X per week) , Regular ≥4X/wk					
Coffee Drinking (√)		Alcohol Drinking (√)		Smoking (√)	
9.1 Never	☐	9.1 Never	☐	9.1 Never	☐
9.2 Occasional	☐	9.2 Occasional	☐	9.2 Occasional	☐
9.3 Regular	☐	9.3 Regular	☐	9.3 Regular	☐

Reproductive health related data		
10. Age of menarche (your first mensus) in years?	**…….**yrs old	
11. Parity (Number of children)	Total _____ (Alive _____ Dead _____)	
12.Hx of infertility (failure to conceive for > 1 yr without using contraceptives)	Yes ☐No ☐	
12. Age at giving first birth (√)	**……..** yrs old	
13. Duration of absence of menses	**..……yrs**	
14.1 Menstrual pattern in the 4 yrs before last menses	☐ Regular ☐Irregular	
15. Modern Contraceptives use in the past	Yes☐	NO☐

16. If yes to Q15 Methods of contraception used	
16.1 Oral contraceptive ☐	16.1.4 IUCD☐
16.2 Injectable ☐	16.1.5 Permanent☐
16.3 Implant ☐	16.1.6 Others☐

17 If yes to Q15 How long **…….**Yrs,**…….**months			
18. Previous pelvic surgery (√)	Yes	No	If <Yes> Reason for surgery?
18.1 Myomectomy	☐	☐	
18.2 Unilateral oophorectomy	☐	☐	
18.3 Other	☐	☐	

Peri- menopausal and menopausal associated symptoms and illness Yes (√)

19. Peri-menopausal symptoms (hot flushes, night sweats, insomnia, vaginal dryness, mood disorders, or Wt. gain) **Yes (√) (Tick all that apply)**

	If yes Fill next		Seeked Care*		Did you receive Rx.*		Improved after Rx	
*If yes fill nextcolumn	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
19.1 Hot flush (sudden warmness)	☐	☐	☐	☐	☐	☐	☐	☐
19.2 Night sweats	☐	☐	☐	☐	☐	☐	☐	☐
19.3 Mood change (unhappiness)	☐	☐	☐	☐	☐	☐	☐	☐

19.4 Wt gain	☐	☐	☐	☐	☐	☐	☐	☐
19.5 Sleep disturbance / insomnia	☐	☐	☐	☐	☐	☐	☐	☐
20. Are you sexually active?	☐	☐						
If sexually active fill the next two Q.								
20.1 Sexual dysfunction lack of desire *	☐	☐	☐	☐	☐	☐	☐	☐
20.2 Vaginal dryness*	☐	☐	☐	☐	☐	☐	☐	☐
21. Known peri-menopausal medical Illness								
21.1 Hypertension	Yes….. .☐				No ….☐			
21.2 Diabetes	Yes….. .☐				No ….☐			
21.3 Osteoporosis or pelvic/hand bone fracture	Yes……☐				No ….☐			
21.4 Cardiac disease	Yes……☐				No ….☐			
21.5 Other (specify)								
21. Known peri-menopausal medical Illness								
21.1 Hypertension	Yes….. .☐				No ….☐			
21.2 Diabetes	Yes….. .☐				No ….☐			
21.3 Osteoporosis or pelvic/hand bone fracture	Yes……☐				No ….☐			
21.4 Cardiac disease	Yes……☐				No ….☐			
21.5 Other (specify)								

NOTE:

- If she is belongs of premature menopause or has a post-menopausal symptoms link her to principal investigator for further management or advise her to see a doctor.
- Ask her if she has any questions and respond accordingly.

  THANK HER for her participation and end the interview!

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