



EPIDEMIOLOGICAL ASSESSMENT OF MENOPAUSE ASSOCIATED COMPLICATIONS IN WOMEN OF PUNJAB PAKISTAN

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ABSTRACT

Menopause is one of the most important reproductive health issues of women. As women pass through various stages of menopause, the prevalence of symptoms also varies. The purpose of the present study was to provide a comprehensive assessment of post-menopausal complications in women of Lahore, Pakistan along with the treatment options available for this purpose. A non-experimental, cohort, community based study was performed for the epidemiological assessment of menopause associated complications in women of Punjab, Pakistan of age groups 45-65 Years. Furthermore, women with the cessation of menstruation within the previous 12 months after last menstruation were considered as postmenopausal women. Total 200 patients from Arif Memorial Teaching Hospital, Lahore were included. Maximum number [84.80%] of the hypertensive women were diagnosed with it following menopause, and 15.20% were diagnosed with

hypertension before their menopause. 31.50% respondents reported to have experienced abnormal hair growth on their face. Over 91.90% women reported to have started to experience these symptoms post-menopause whereas 8.10% did not experience these symptoms after their menopause.

Keywords: Menopause, Complications, Epidemiology, Hypertension, Hair Growth

Introduction

Menopause is the permanent cessation of menstruation resulting from the loss of ovarian follicular activity. It is heralded by the menopausal transition, a period when the endocrine, biological, and clinical features of approaching menopause begin [1]. This change is popularly associated with a number of symptoms such as hot flushes that may cause mild inconvenience (to the extent of being incapacitating in rare circumstances), and with some changes such as loss of Bone mineral density that may be cause for serious longer term concern. The hormonal changes that are a part of normal menopause may also have other health effects that are serious enough to change overall mortality risks; identifying such changes in risk may provide clues to possible Interventions. [2]. Age at menopause may be higher in developed than in developing countries, so there may be some cross-regional variation, from perhaps the late 40 year of age in the developing world to the early 50 year of age in the developed world [3]. There are three broad groups of treatment options for menopausal symptoms; hormone therapies, complementary therapies and non-hormonal therapies. Hormone replacement therapy (HRT) is a highly effective treatment for menopausal hot flushes and night sweats [4].

Bone loss is most severe during perimenopause, primarily impacting trabecular bone, according to longitudinal and cross-sectional investigations [5]. The post-menopausal women in between ages 65 and 74. Nowadays, women over 75 have a higher than average prevalence of HTN (85%), as compared to men of their age. The revised guidelines show an interesting effect on the prevalence of HTN among women of age between 45 and 54 (peri-menopausal years), increasing it from 27 to 44 percent [6]. Urinary incontinence is a frequent condition mainly in aged people. Its prevalence in all women is 10 – 20 % and the women in nursing homes is 77% [7]. Among aged women, the worldwide presence of urinary incontinence is described in different studies, in US studies the general worldwide presence is 14% [8]. The worldwide prevalence of urinary incontinence is 37% according to the Investigation in European countries [9]. The epidemiology of urinary incontinence in aged people is 13% according to the studies conducted in Asia [10].

Vasomotor symptoms [hot flushes and night sweats] are known to be the most prevalent and problem causing symptom of menopause [11]. These include hot flashes, nocturnal sweats, sleep abnormalities, vaginal dryness, enuresis, and weight gain. Lethargy, agitation, and anxiety are some of the frequently occurring psychological symptoms due to menopause. [12] Vasomotor symptoms occur in around 50. 3% to 82. 1% of postmenopausal females, however, their occurrence, intensity, and longevity varies [13]. Depression symptoms can start to appear during the menopausal transition. According to longitudinal research and meta-analyses, women in the early postmenopausal years and those in the menopausal transition are more likely to feel lonely than premenopausal women [14]. A person with osteoporosis is more likely to experience fractures, which could happen suddenly or as a result of small traumas, because their bone strength [bone density and quality] are weakened [15].

Methodology

Research Design / Sampling

A non-experimental, cohort, community based study was performed to Epidemiological assessment of menopause associated complications in women of Punjab, Pakistan women of age group 45-65 Years. Furthermore, women with the cessation of menstruation within the previous 12 months after

last menstruation were considered as postmenopausal women.

Calculation of Sample Size

The sample size was calculated by automated software Raosoft online size calculator with confidence interval of 95% and 5% margin of error. By keeping in view the population of women with age group of 45-65 years in Punjab, the original calculated sample was 200.

Duration of Study

3-4 months

Study Place

- Arif Memorial Hospital, Lahore

Inclusion and Exclusion criteria

In this study, the following inclusion criteria were used;

- Participants aged ≥ 45 years.
- Healthy adults without a history of fractures or major diseases.

In this study, the following exclusion criteria were used;

- Women aged ≤ 45 years.
- Women with breast cancer \pm chemotherapy and those with surgically induced menopause.
- Pregnant or lactating women.
- Women suffering from noncommunicable diseases [NCD], acute or chronic surgical conditions, and polycystic ovarian syndrome [PCOS].
- Women who could not understand the questionnaire, refused to participate in the study, and as well as women on hormone replacement therapy [HRT] or hormonal contraceptives.
- Women having a history of traumatic fractures or serious metabolic, cardiovascular or endocrine diseases.

Questionnaire design

The idea of questions in Data Collection form (DCF) was adapted from the previous study and changed according to our research topic and selected local population. It contains four parts. Part A consisted of demographics of the respondents. Part B consisted of Menopausal Status of respondent women. Part C consisted of Complications associated with menopause.

Data Collection and Pilot Study

Interview administered Data Collection form (DCF) was used for data collection. In the selected area, all the women of age group 45-65 years of age were taken as subjects.

Keeping in view objectives of the study draft DCF was developed and pilot tested by interviewing 40 respondents. In the light of pilot testing, the draft DCF was amended and finalized. The final version of the DCF was used for data collection. A copy is attached in Annexure.

Validity of Data Collection Form (DCF)

Face validity was done by experts and content validity was done by pretesting. Before actual survey, pilot study was conducted and found that respondents easily understood and answered the questions of questionnaire. DCF was reviewed and evaluated for content validation. It was sent to 3 Senior Pharmacists having M.Phil. degree in Pharmacy Practice and are Ph D. Scholars. In the light of their suggestions and opinions, final modifications were made.

Informed Consent

Before starting data collection, the respondents were informed about the purpose of the survey. They

were also told the data will be used for my degree project and all the data will be kept confidential. It will be used only in statistical analysis for the project with no identification of their names. After providing above information the respondent was asked if he/she was ready to provide data. The question were asked only if the respondent gave consent voluntarily.

The names of the respondents were kept confidential. They were honestly explained in their language, keeping in view their education and knowledge, that the selection was ‘random’. Meaning that the researcher had no influence for any sample.

Data Analysis

Data was analyzed using the latest version of Microsoft Excel. Descriptive statistics was applied to calculate frequency distribution and percentage for demographic, menopausal and complications associated with menopause questions. Results were presented in the form of tables and graphs.

Result

Question No.1 What is your age?

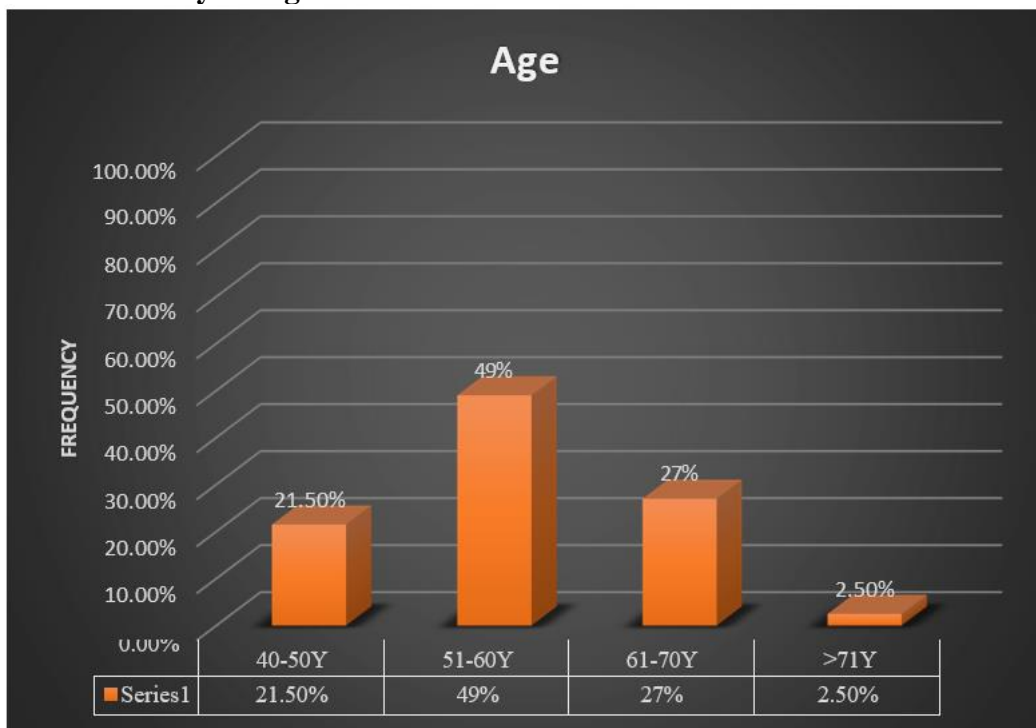


Figure No. 1

Majority of the respondents [49%] were having age ranging from 51-60 years. 27% of the respondents were of ages between 61-70 years. Whereas, 21.05% of the respondents were of ages between 40-50 years and the remaining 2.50% respondents were >71years of ag

Question No.2 What is your Educational Status?

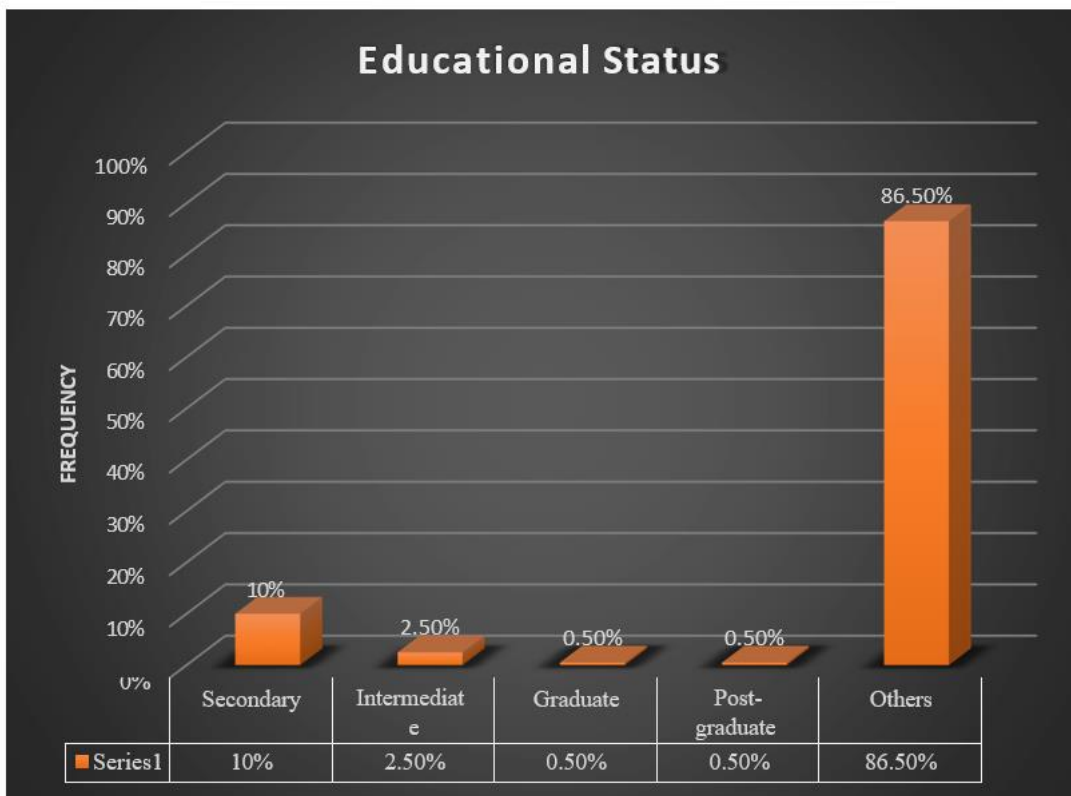


Figure No. 2

Maximum majority [86.50%] of the respondents were related to other professions. While 10% respondents.

Question No. 3 What is your occupational status?

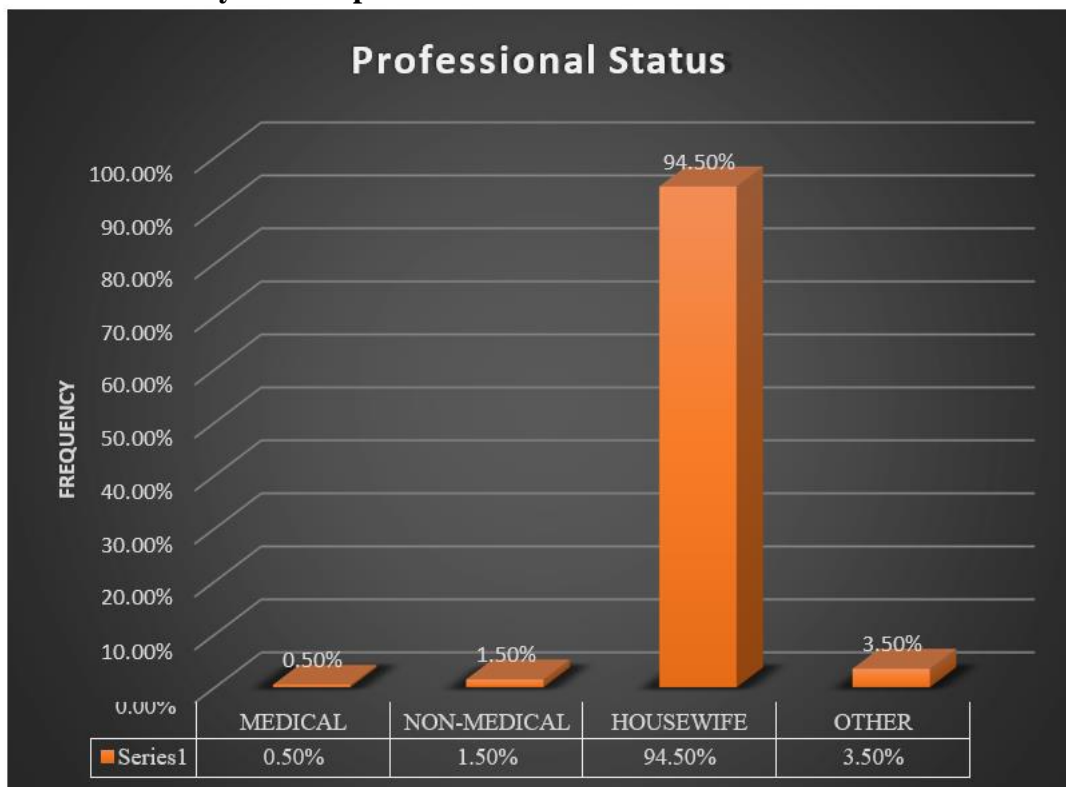


Figure No. 3

94.50% of the respondents were housewives. 0.5% respondents were belonging to medical profession and 1.50% to non-medical profession. 3.50% respondents were related to other professions as shown in the figure

Question No.4 In which area do you live?

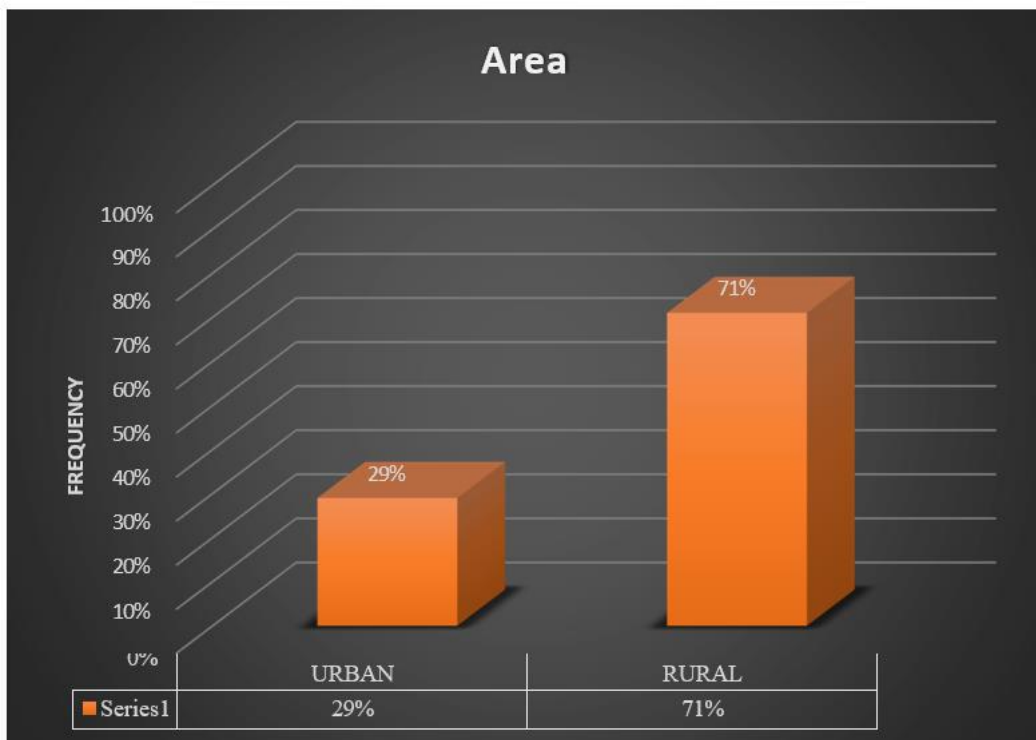


Figure No. 4

29% of the women lived in urban areas, while, 71% belonged to rural areas as shown in the figure.

Question No.5 Are you suffering from any disease?

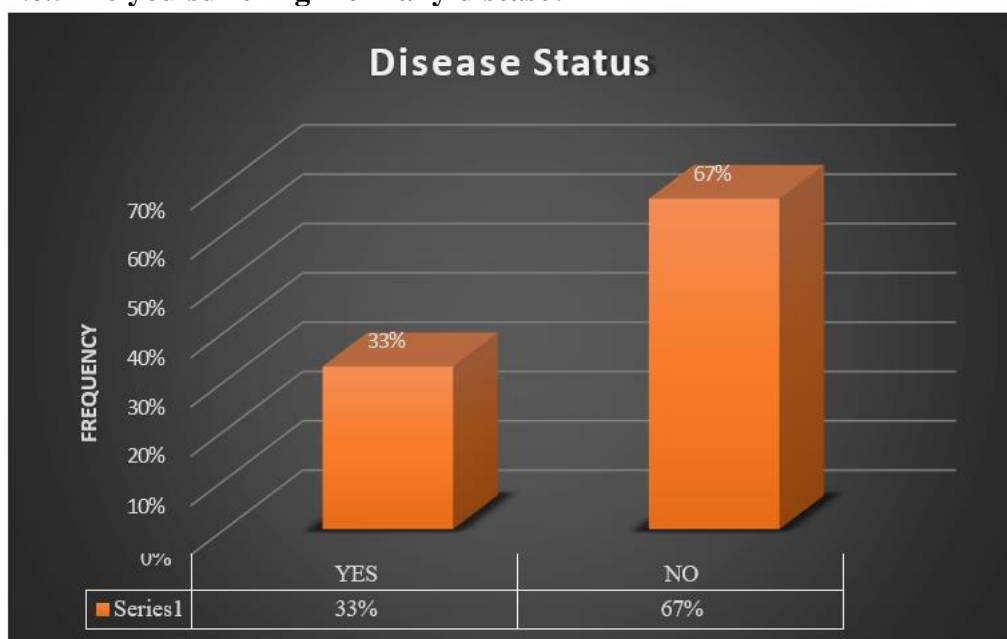


Figure No. 5

33% of the respondents were suffering from chronic illness. Whereas, 67% of the respondents did not have any illnesses as illustrated in the figure

Question No.6 At what age did you start your periods?

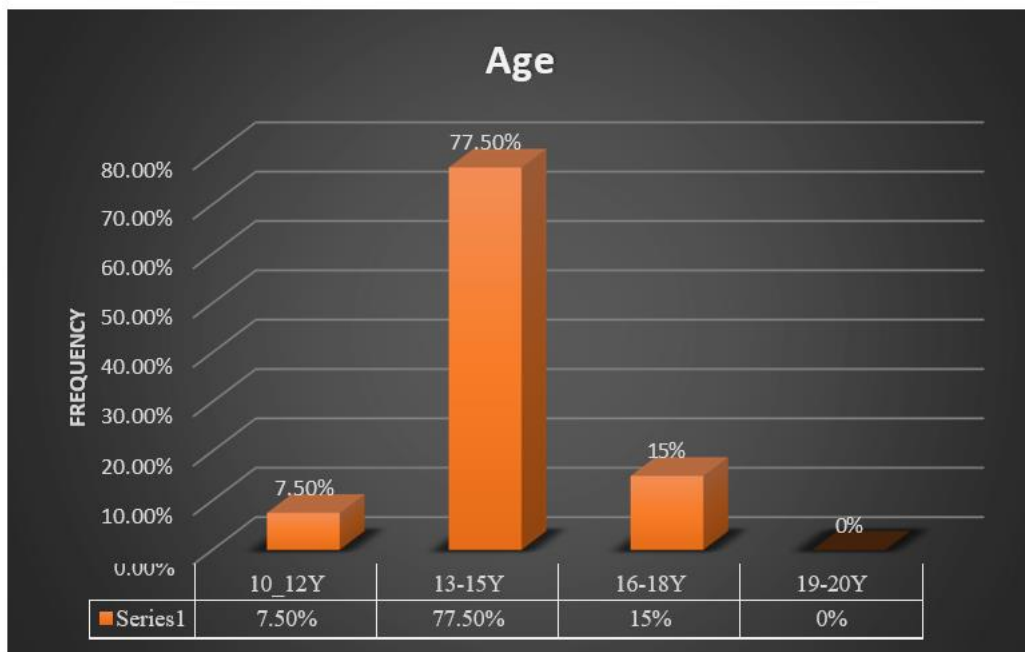


Figure No. 6

7.50% respondents started their period at the age between 10-12 years, 77.50% at the age of 13-15 years, 15% at the age 16-18 years while none of them had their period between the ages of 19-20years.

Question No.7 Did your menstrual cycle repeat every month?

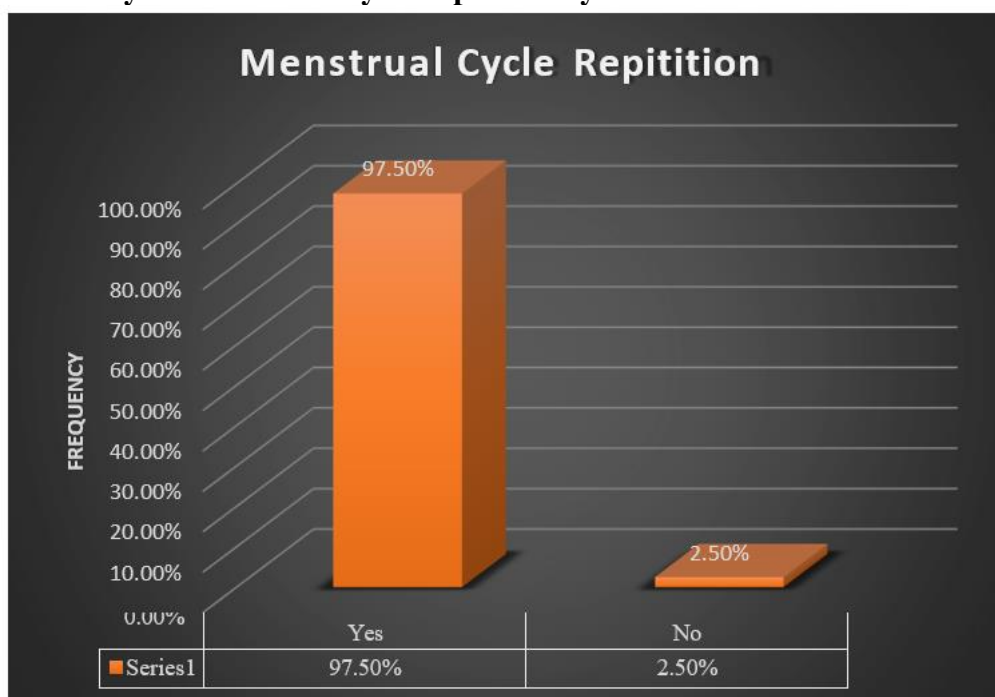


Figure No. 7

97.50% respondents reported that their cycles were regular and 2.50% reported irregularity of cycle as shown in the figure.

Question No.8 If no, then what was the pattern?

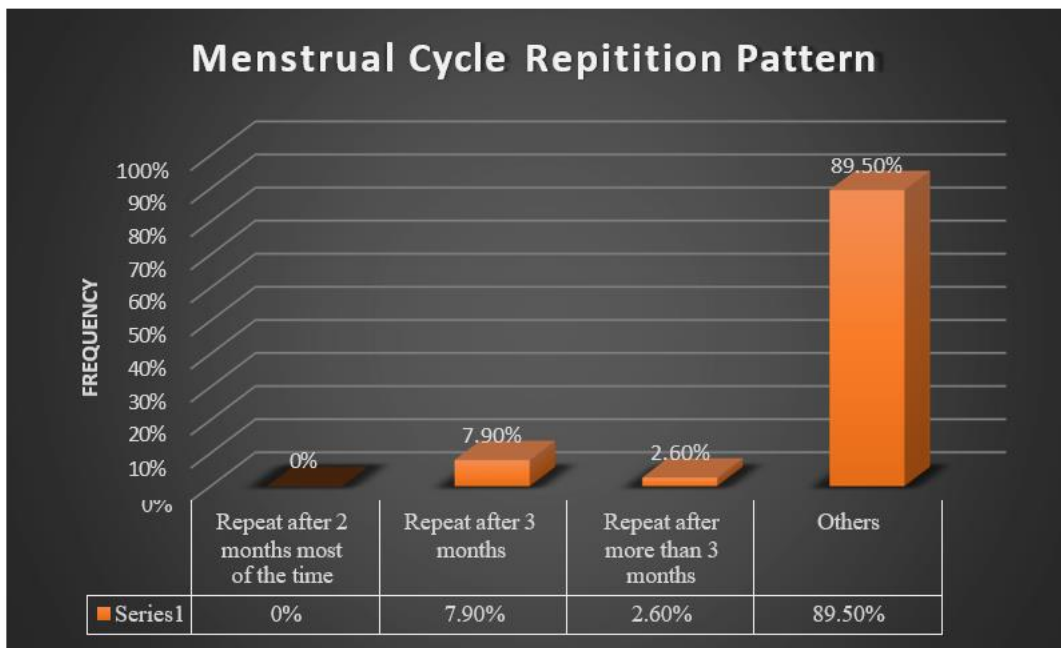


Figure No. 8

None of the respondents reported repetition of menstrual cycle after 2 months. Menstrual cycle of 7.90% respondents repeated after 3 months, of 2.60% repeated after more than 3 months as shown in the figure.

Question No.9 How many days did your menstruation last for normal

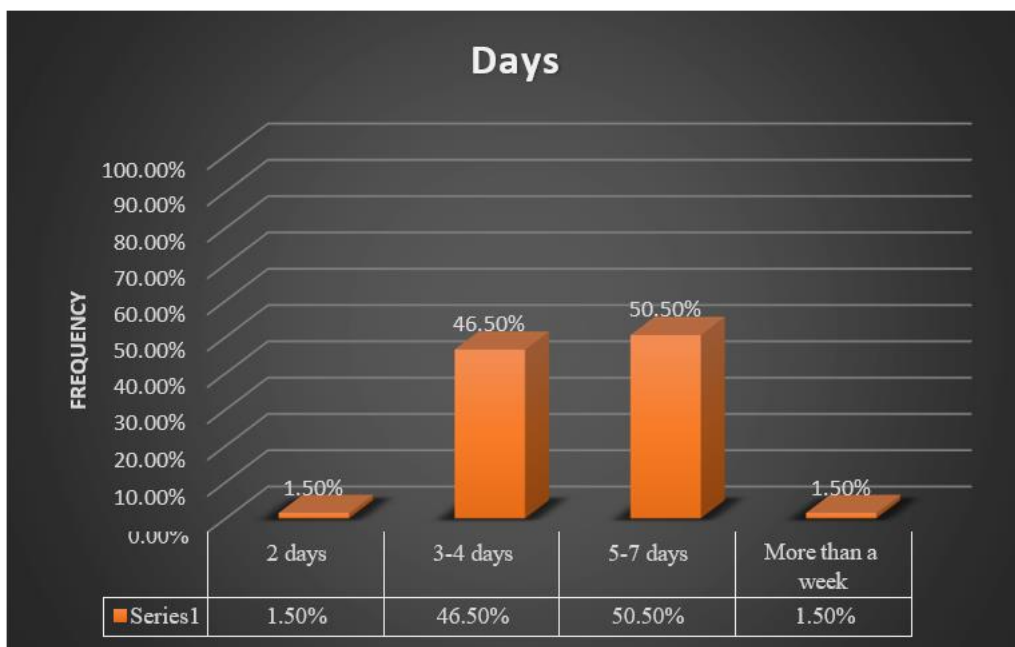


Figure No. 9

1.50% respondents had their menstruation last for 2 days, 46.50% for 3-4 days, 50.50% for 5- 7 days and only 1.50% had their menstruation last for more than a week as illustrated in the figure.

Question No.10 What was your approximate age at the termination of your periods [menopause]?

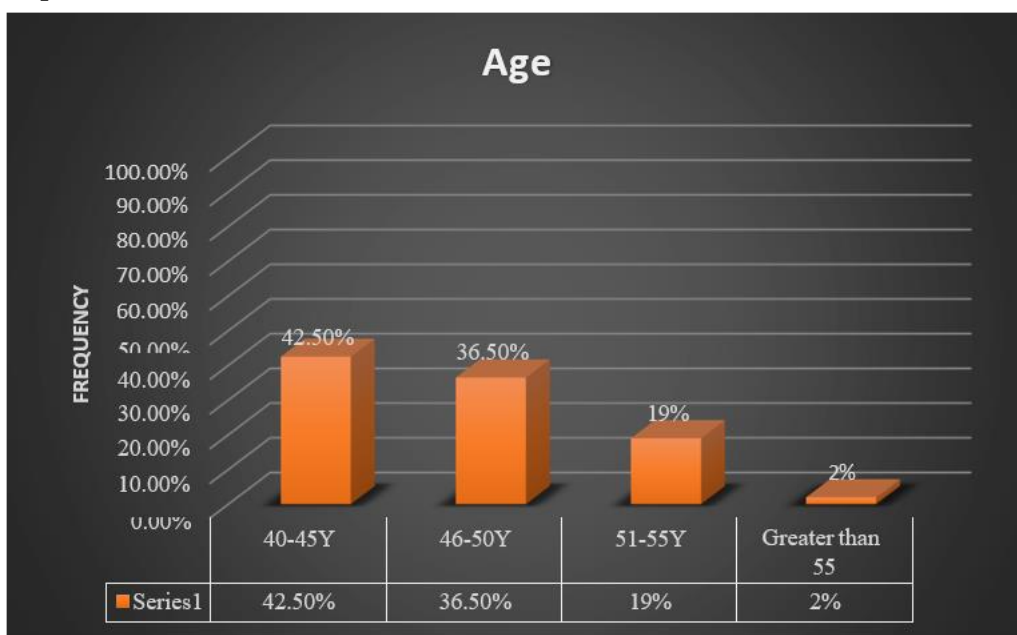


Figure No. 10

42.50% of the respondents reported that their approximate age at the termination of their periods was between 40-45 years, 36.50% respondents reported their age to be 46-50 years and the termination of their cycle. While, 19% and 2% of the respondents at the termination of their cycles had their age lying between 51-55 years and greater than 55 respectively as illustrated in the figure.

Question No.11 What is your marital status?

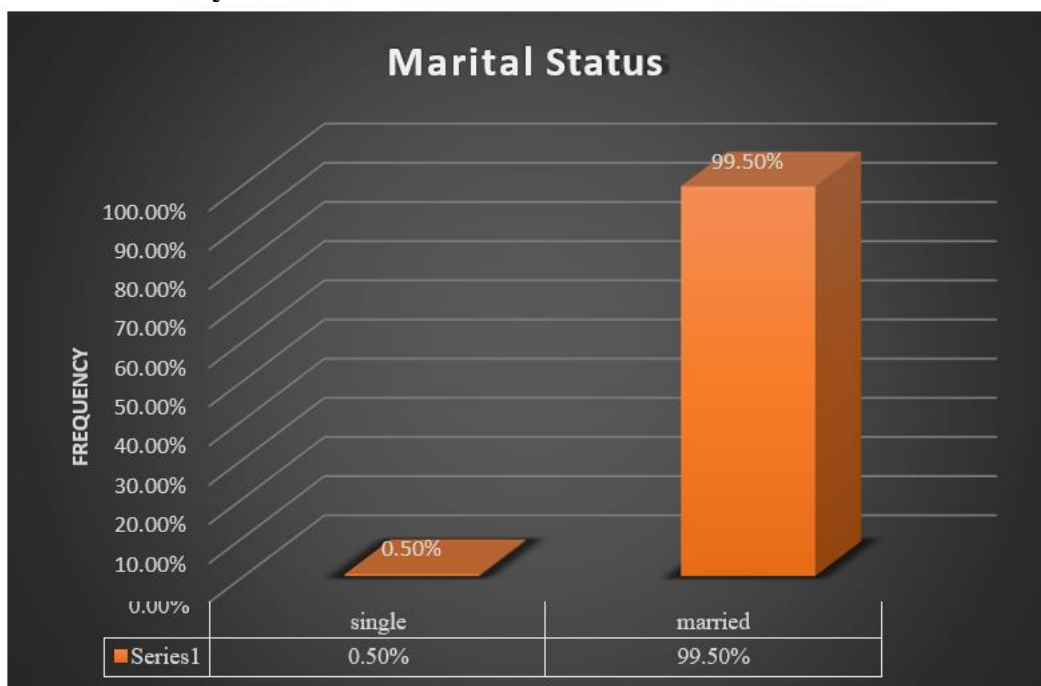


Figure No. 11

0.50% of the women were single whereas 99.50% of them were married.

Question No.12 If married, then how many children do you have?

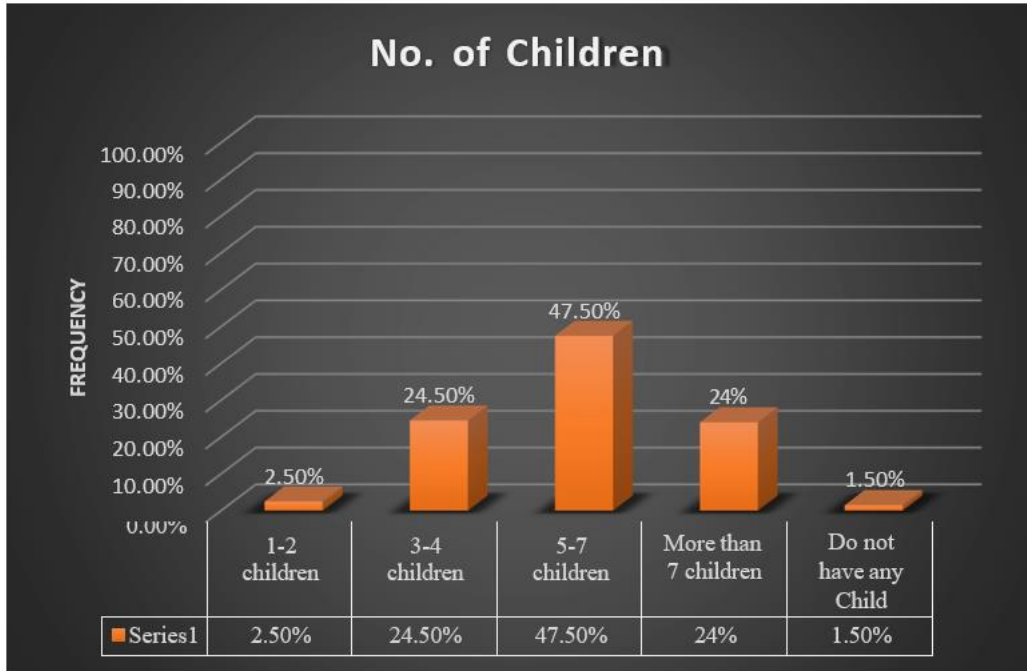


Figure No.12

2.50% of the married respondents had 1-2 children, 24.50% had 3-4 children, and majority [47.50%] had 5-7 children. 24% of the women had more than 7 children whereas 1.50% did not bear any child.

Question No.13 Did you experience any complications during conceiving?

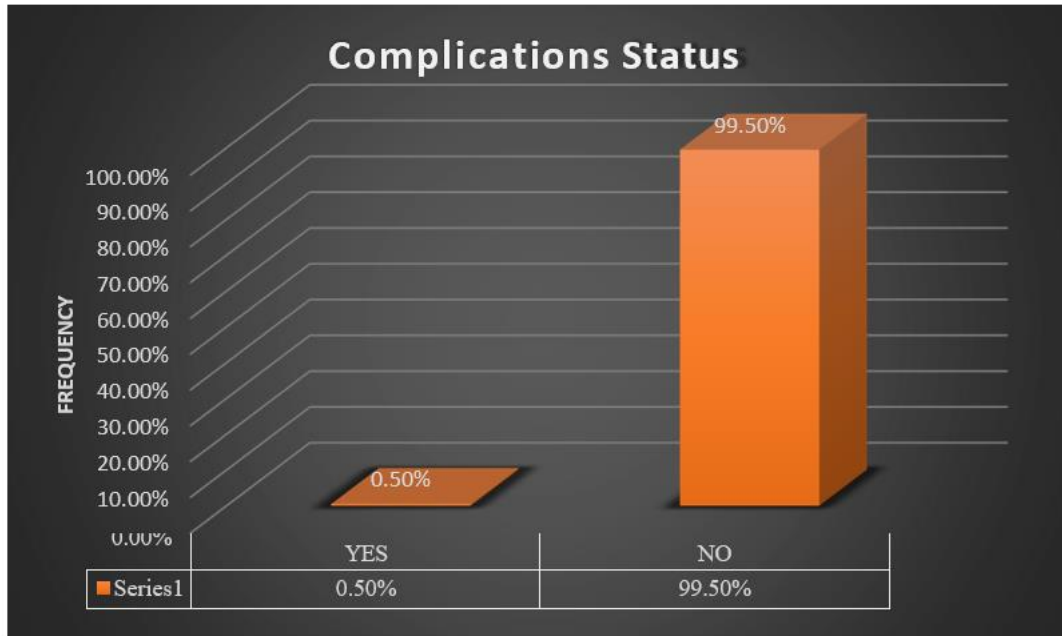


Figure No. 13

0.50% of the respondents experienced complications during conceiving while 99.50% did not have any complications during conceiving their children as shown in the figure.

Question No.14 Did you experience any complications during your pregnancy?

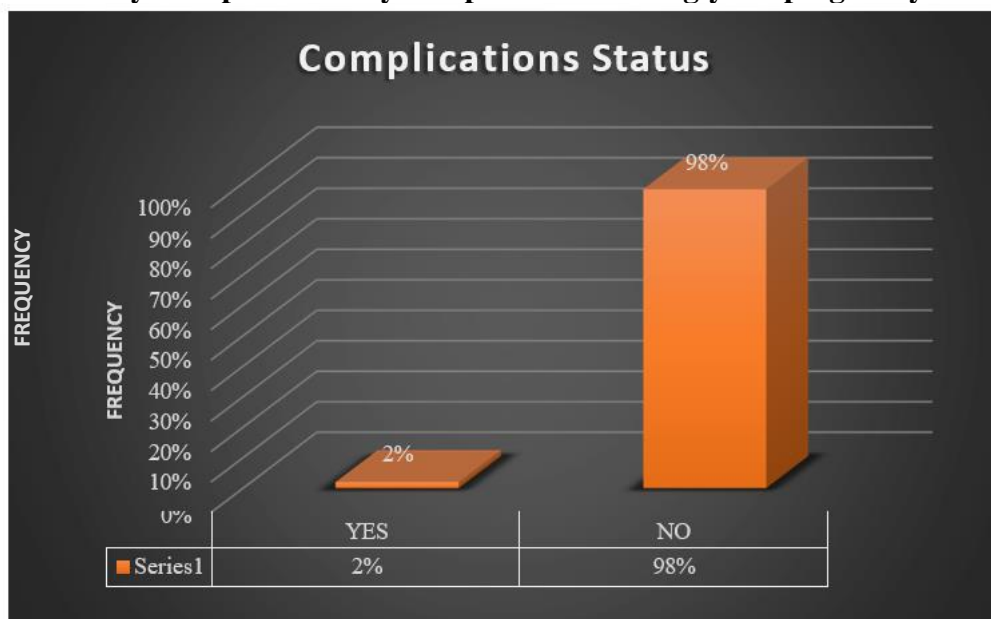


Figure No.14

2% of the respondents experienced complications during their pregnancy, while 98% had an uncomplicated pregnancy.

Question No.15 Are you a Hypertension Patient?

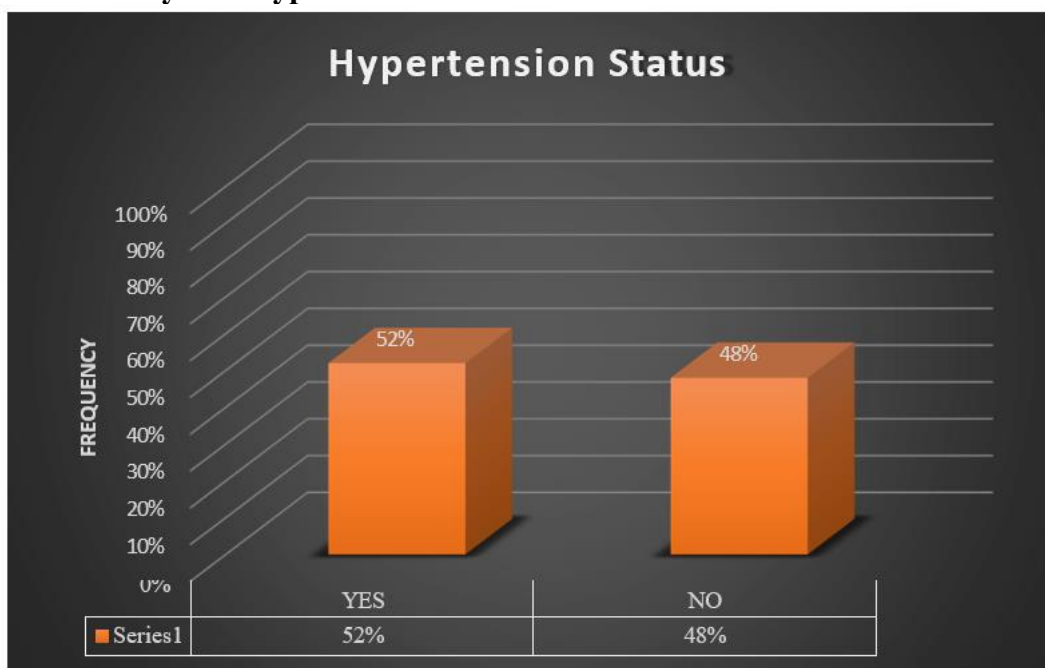


Figure No. 15

Majority [52%] of the women were hypertensive. 48% of the women did not have hypertension.

Question No.16 If yes, then was hypertension diagnosed after menopause?

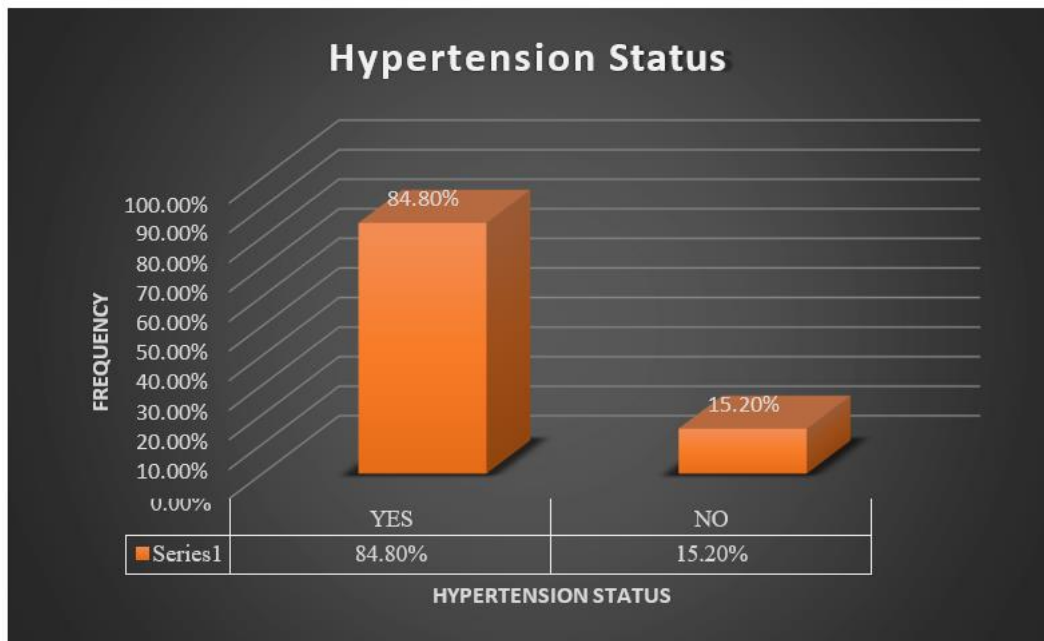


Figure No. 16

Maximum number [84.80%] of the hypertensive women were diagnosed with it after menopause, and 15.20% were diagnosed with hypertension before their menopause.

Question No.17 If you are not a hypertensive patient, then do you experience increased heart beat even at rest?

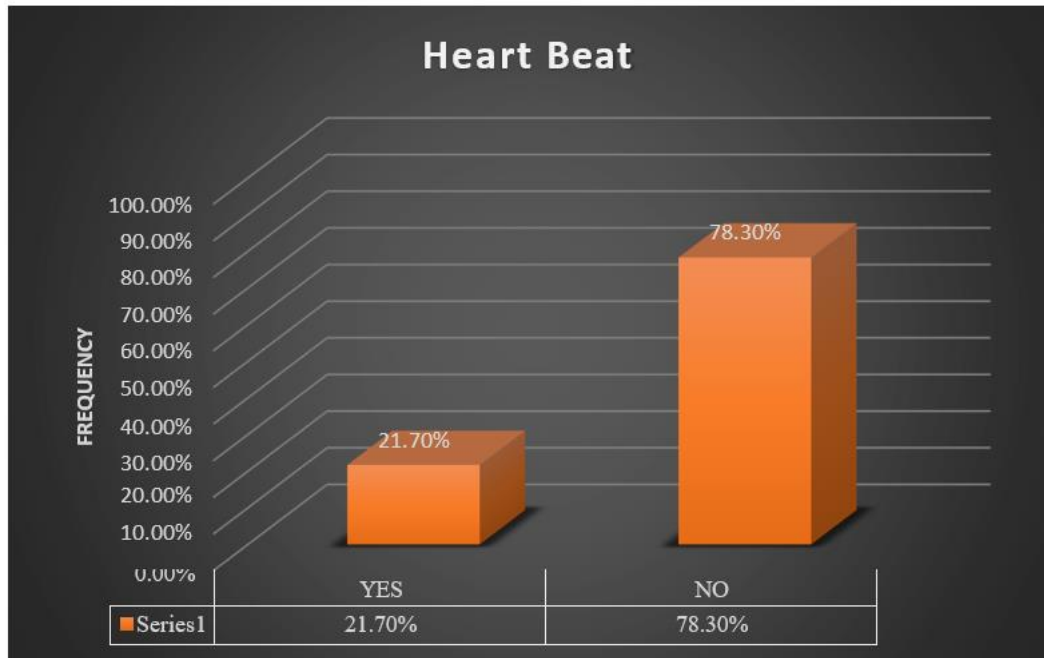


Figure No. 17

78.30% of the non-hypertensive respondents experienced increase in their hear beat even at rest. Whereas, % of the respondents did not report any such symptom.

Question No.18 If you are not a hypertensive patient, then do you monitor your blood pressure regularly?

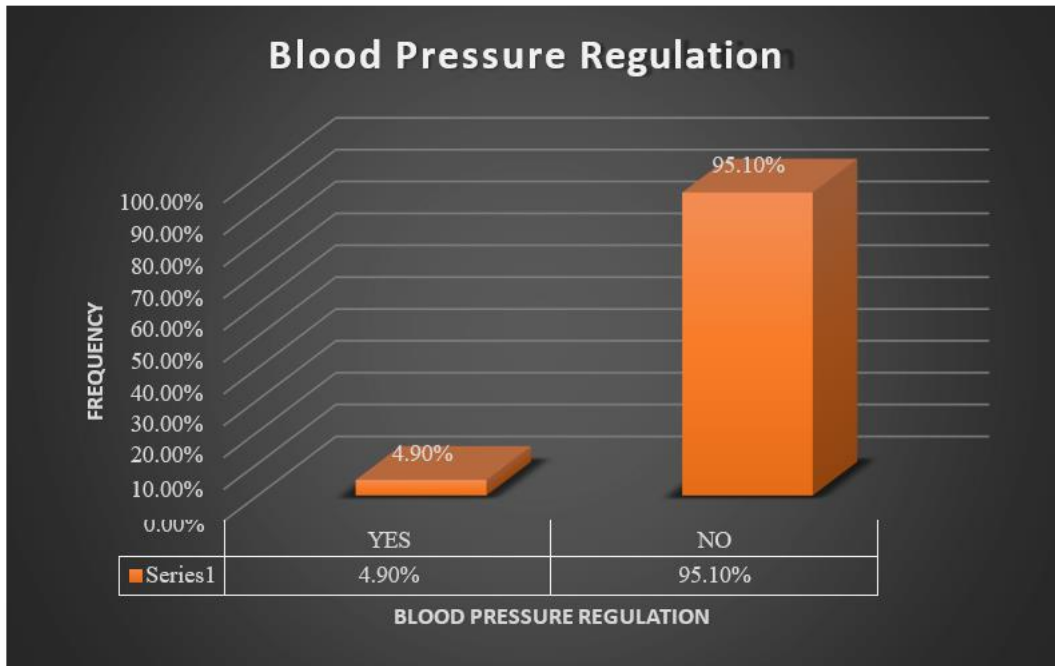


Figure No. 18

4.90% of the non-hypertensive respondents reported to monitor their blood pressure regularly whereas, 95.10% of the respondents did not monitor their B.P regularly.

Question No.19 Do you have any other heart related problem[s]?

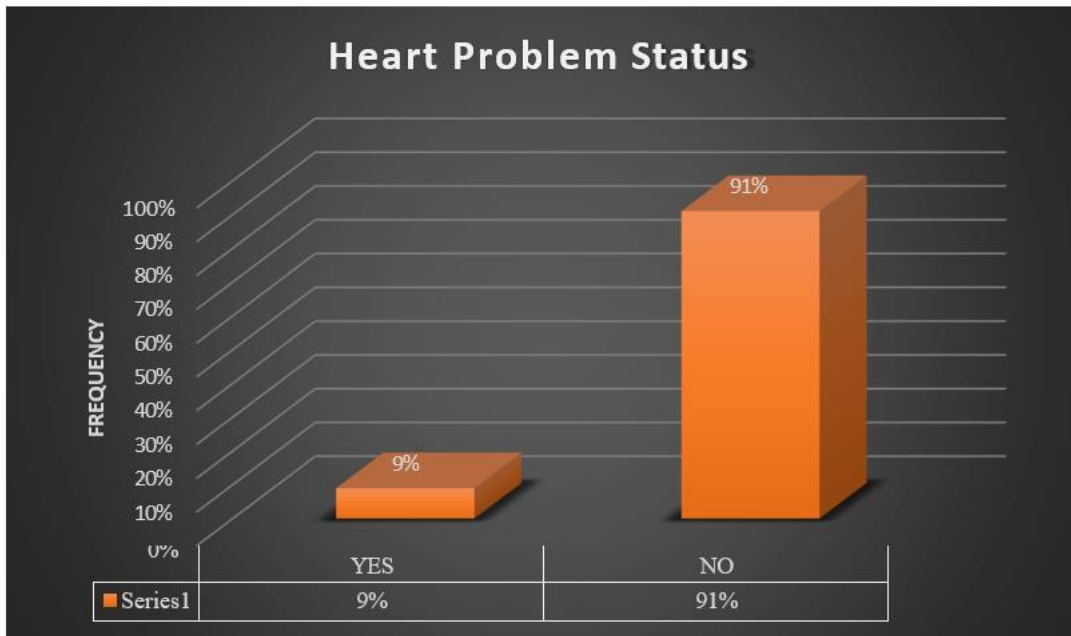


Figure No. 19

9% of the women had heart related problems other than hypertension. 91% of them did not have any other heart related issues.

Question No.20 Do you have abnormal Lipid Profile [increased cholesterol levels]?

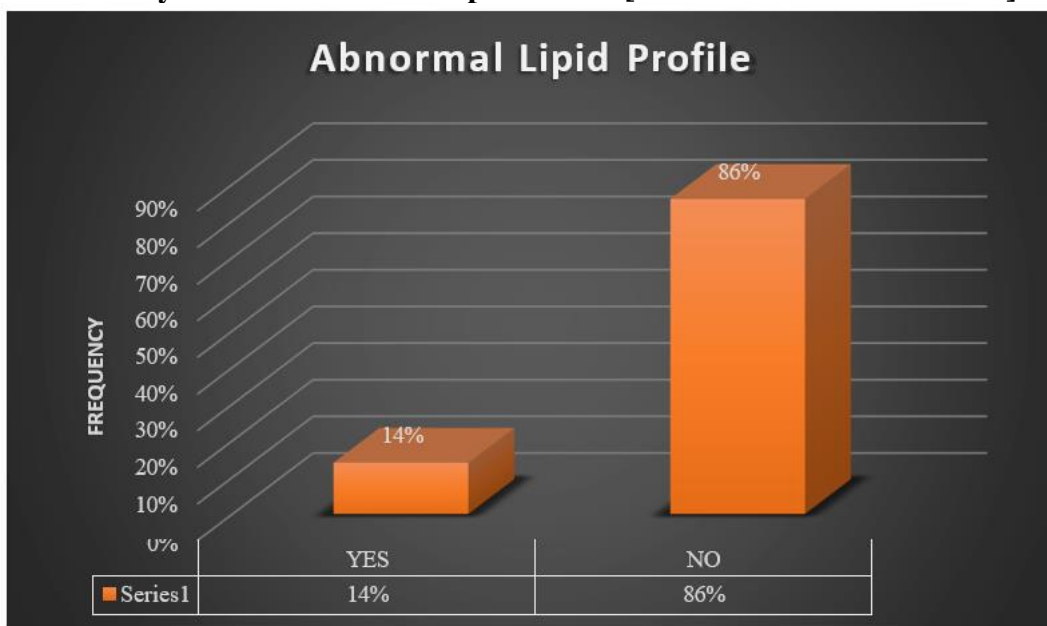


Figure No. 20

14% of the respondents reported to have abnormal lipid profiles while 86% of them had normal lipid profiles.

Question No.21 If no, then have you ever undergone for Lipid Profile Test?

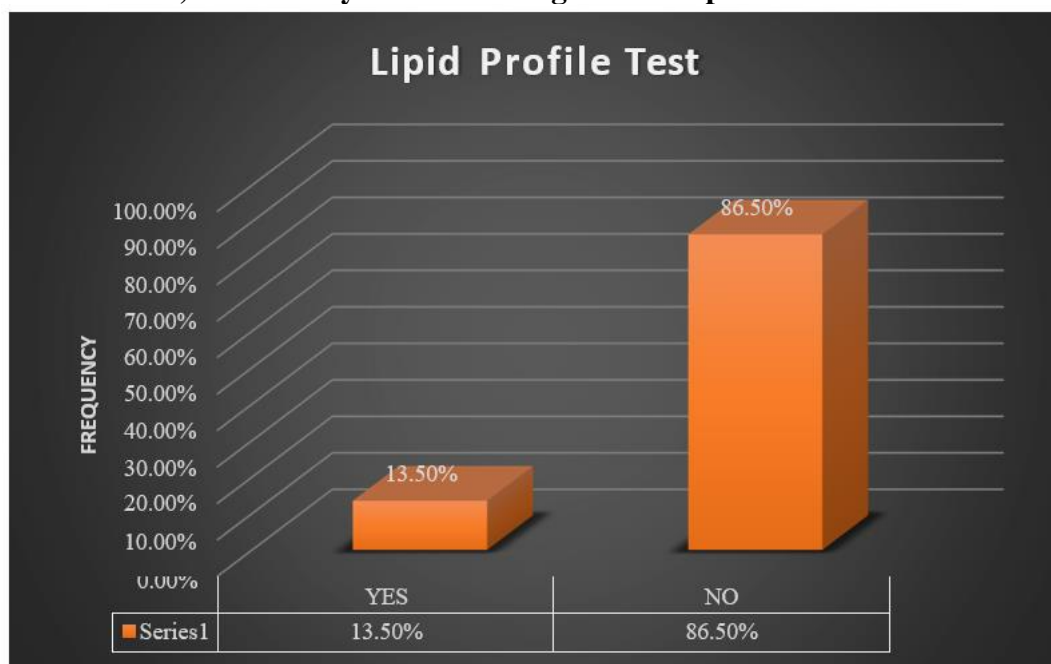


Figure No. 21

13.50% of the respondents having normal lipid profiles had undergone for Lipid Profile Test and 86.50% of them had never taken a LPT.

Question No.22 Do you often experience sharp burning sensation during urination?

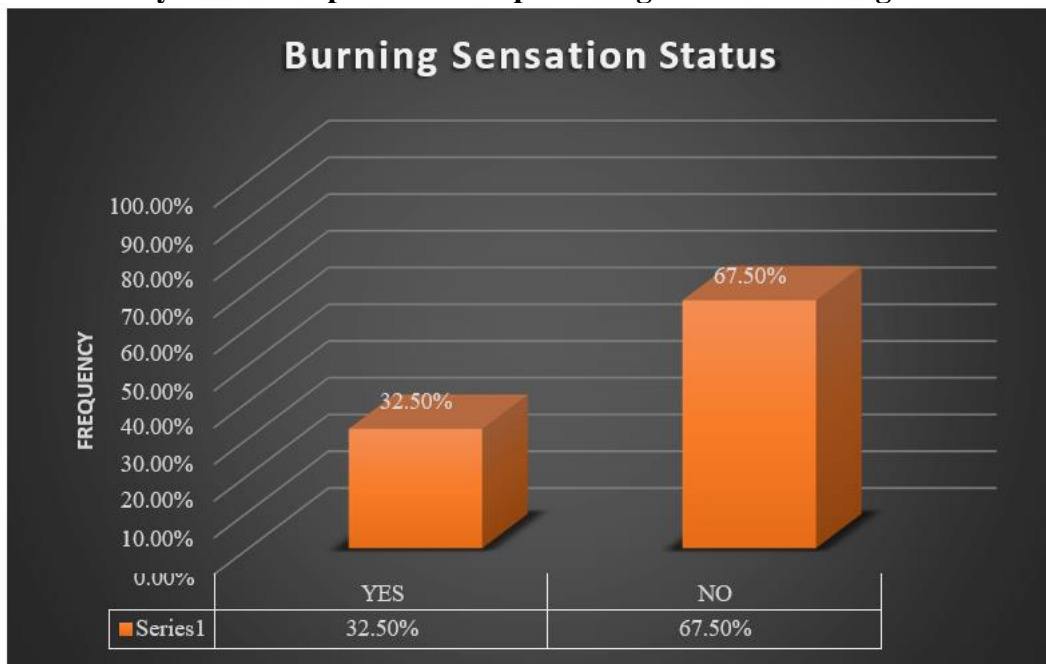


Figure No. 22

32.50% of the respondents experienced sharp burning sensation while urination whereas 67.50% reported no such discomfort.

Question No.23 Do you often get an urge to urinate?

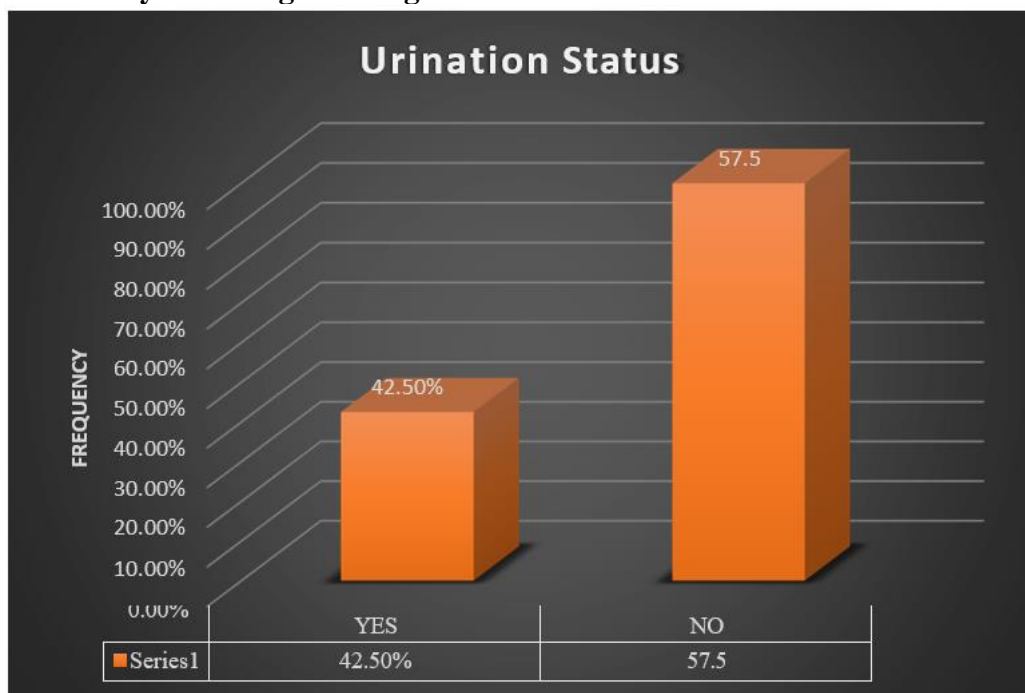


Figure No. 23

42.5% of the women reported to have an urgency to urinate while the other 57.5% did not experience any such urgency.

Question No.24 If yes, then did you start experiencing urination-related complications after menopause?

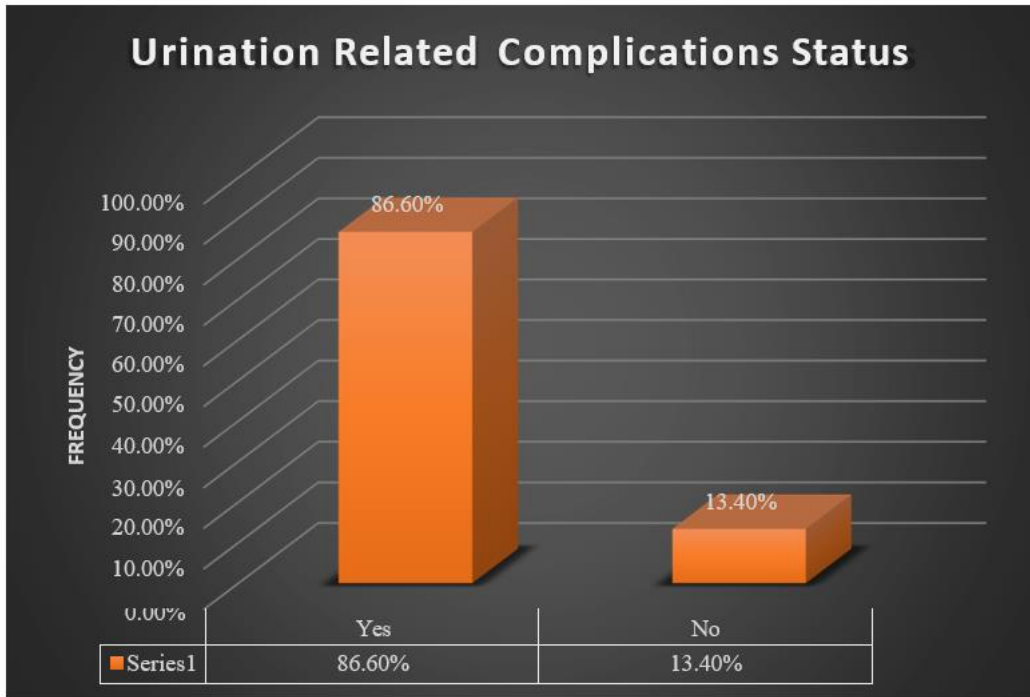


Figure No. 24

86.6% women having Urination related problems reported to have started to experience these symptoms post menopause. 13.4% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question no.25 Do you often experience vaginal dryness/ itchy vagina?

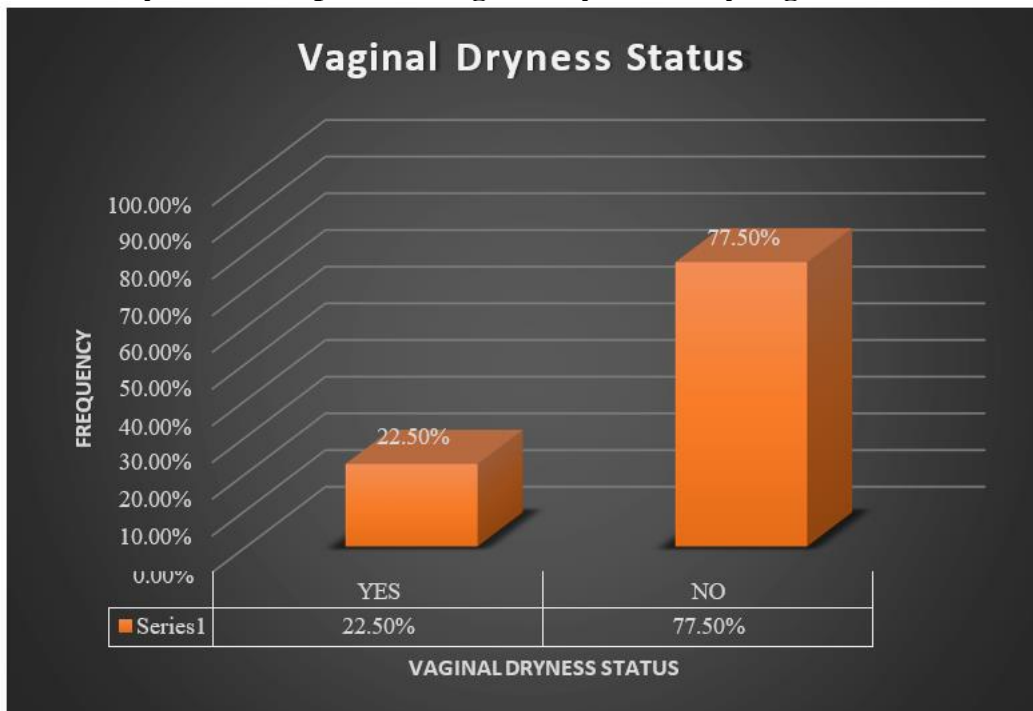


Figure No. 25

22.50% women experienced itchy vagina. 77.50% of them reported no such issue.

Question No.26 If yes, then did you start experiencing Urogenital complication after menopause?

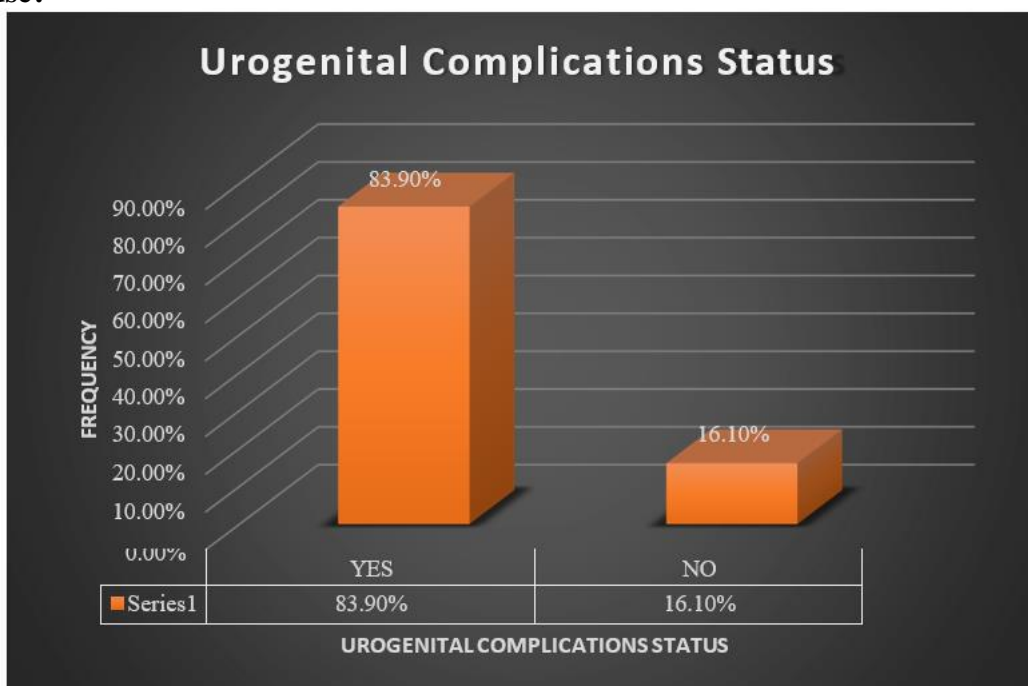


Figure No. 26

83.9% women having Urogenital complications reported to have started to experience these symptoms post their menopause whereas 16.10% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No.27 Have you noticed thinning of your skin?

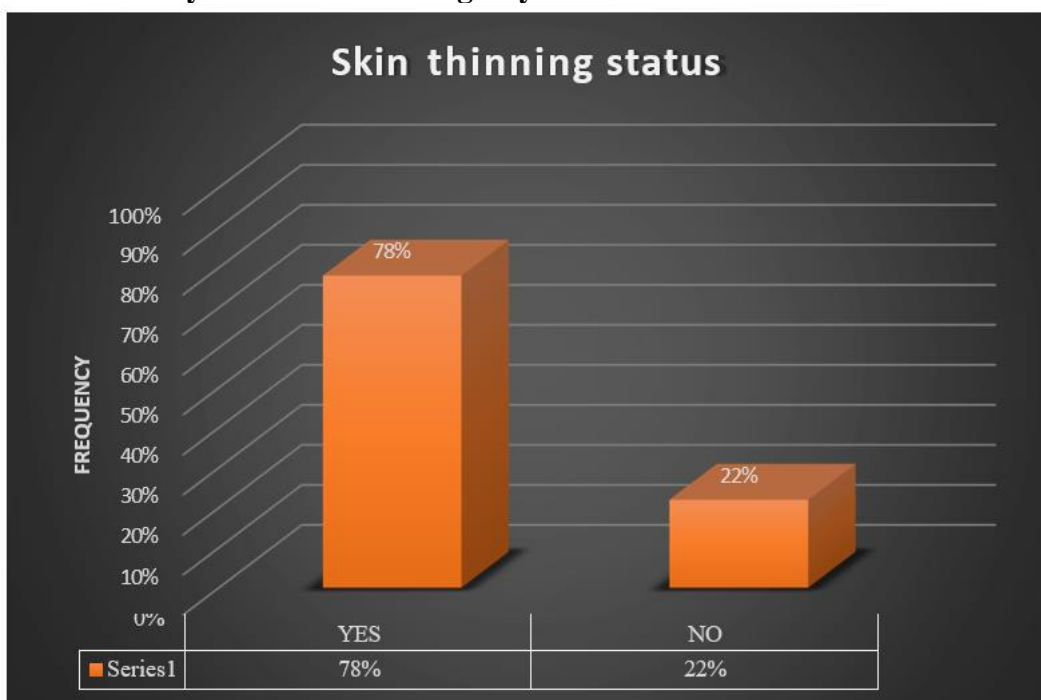


Figure No. 27

78% of the participants showed to have thinning of skin while 22% did not experience such a thing.

Question No.28 Do you often experience skin dryness?

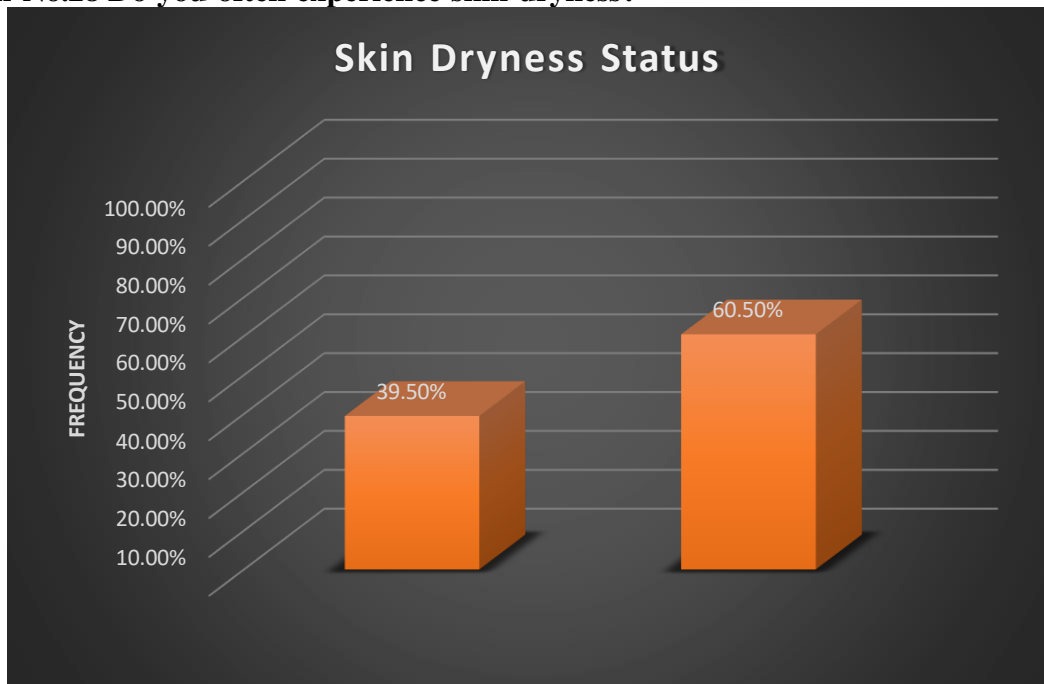


Figure No. 28

39.50% of women experienced dry skin whereas the vast majority [66.50%] did not report skin dryness.

Question No.29 Do you often deal with itchy skin?

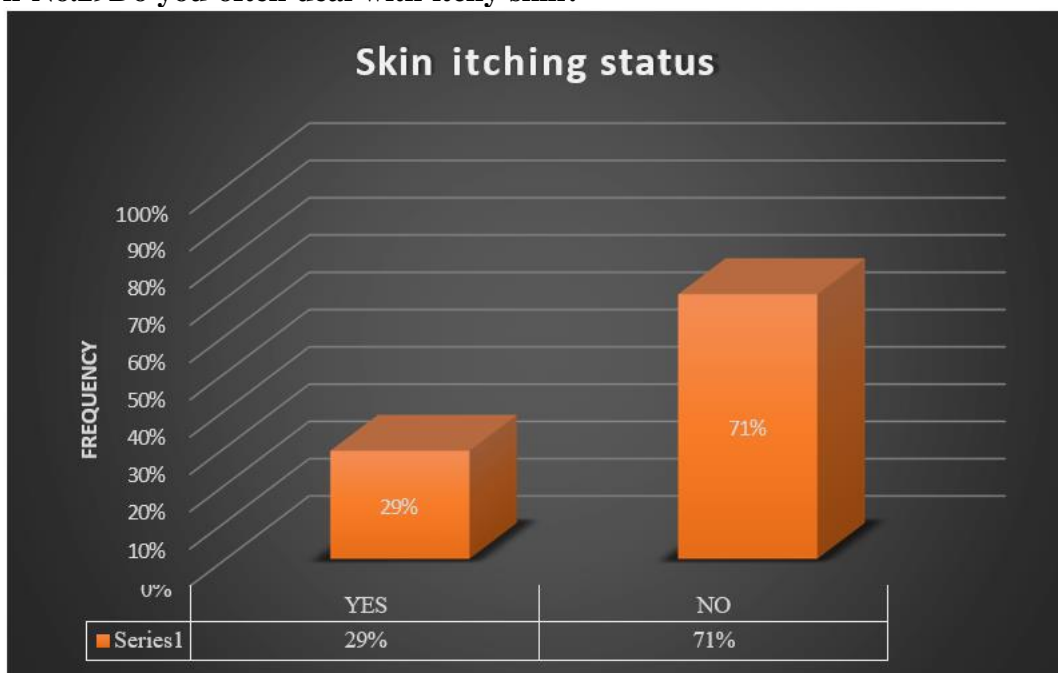


Figure No. 29

29% of the respondents tend to deal with itchy skin often while the other 71% did not counter any itchininess.

Question No.30 Do you often have acne flareups?

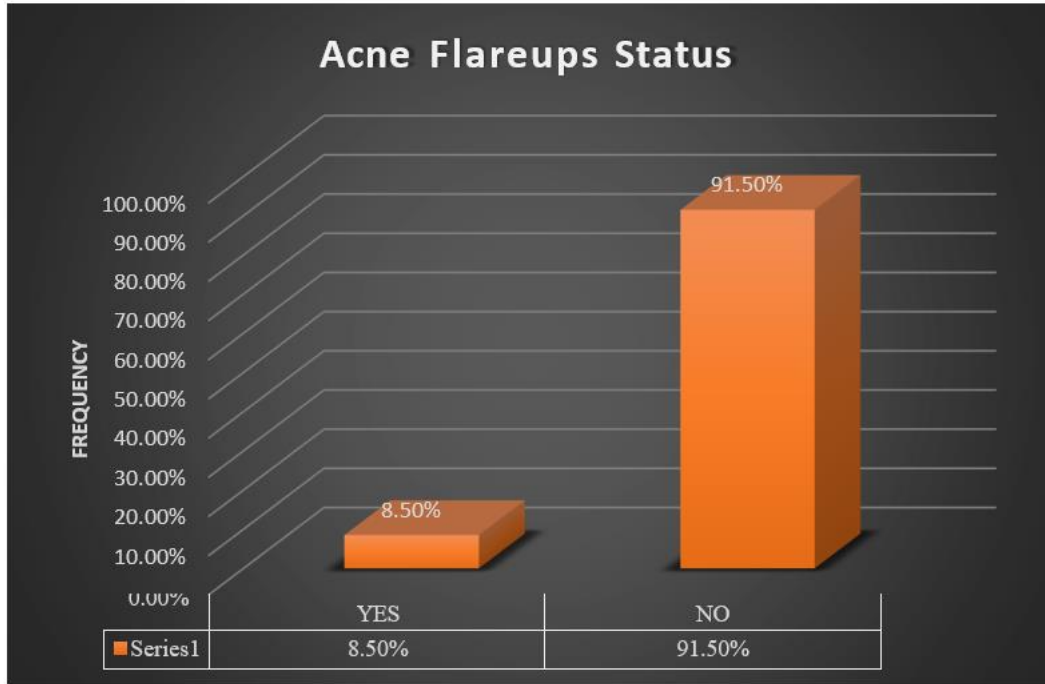


Figure No. 30

8.50% participants showed to have acne. The vast majority [91.50%] did not report acne issues.

Question No.31 Have you experienced any abnormal hair growth on face [Hirsutism]?

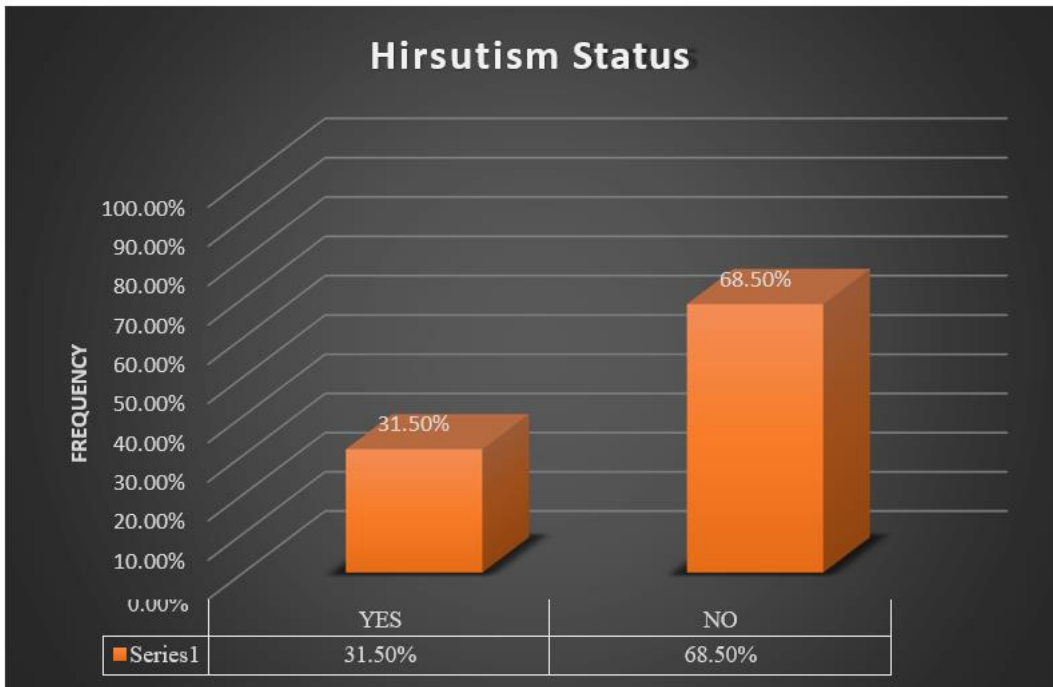


Figure No. 31

31.50% respondents reported to have experience abnormal hair growth on their face and 68.50% had not shown hirsutism as illustrated in the figure.

Question No.32 If yes, then did you start experiencing these skin-related complications after menopause?

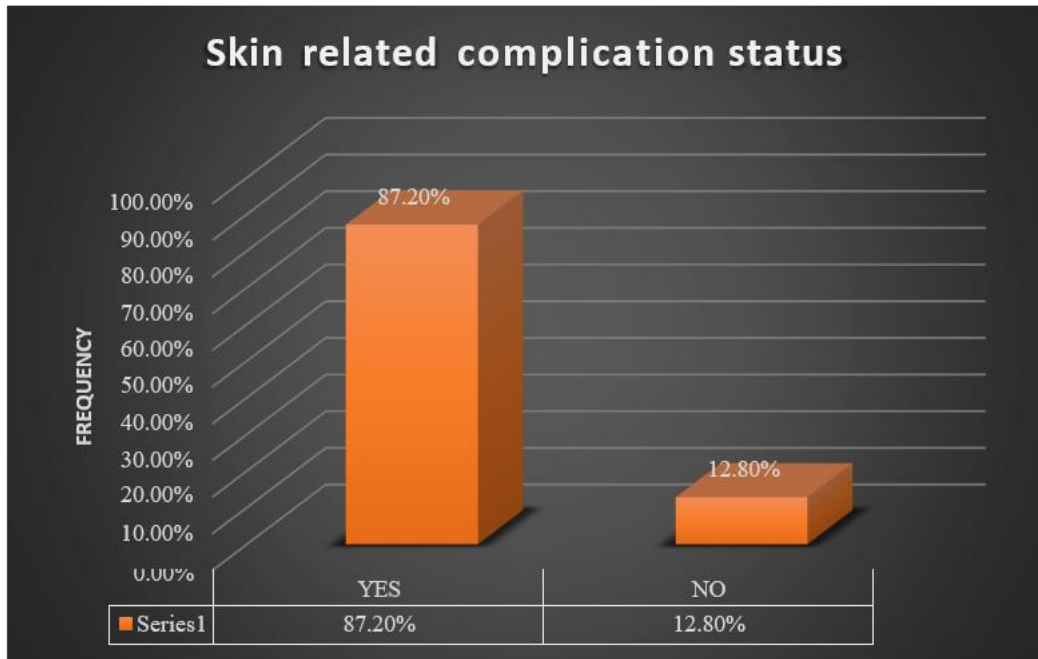


Figure No. 32

87.20% women having Skin related complications reported to have started to experience these symptoms post their menopause whereas 12.80% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No.33 Do you often experience pain or discomfort while chewing?

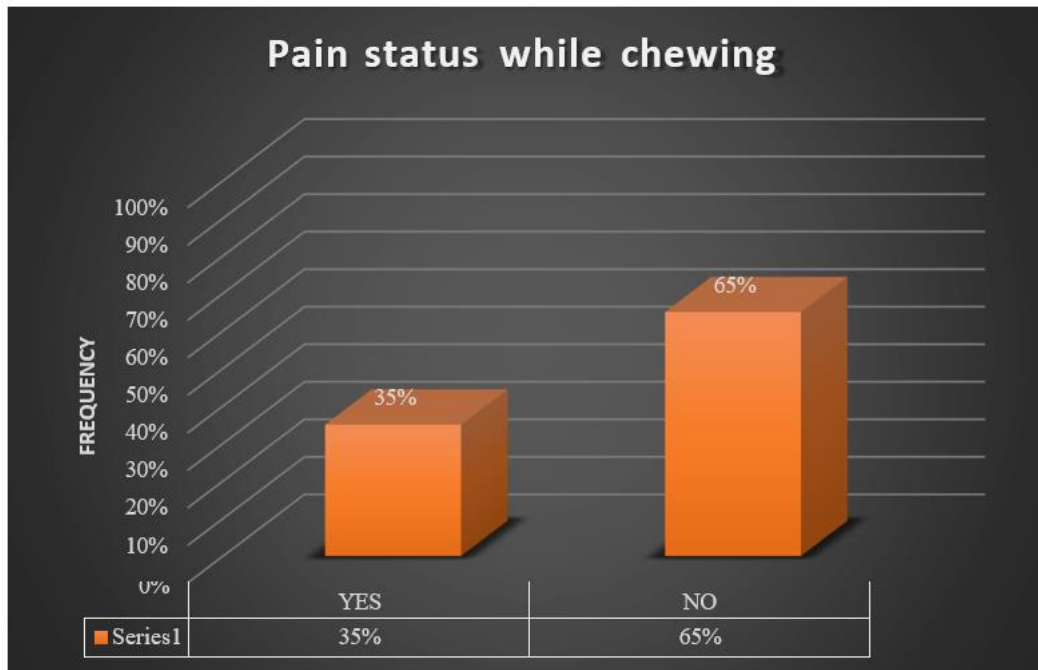
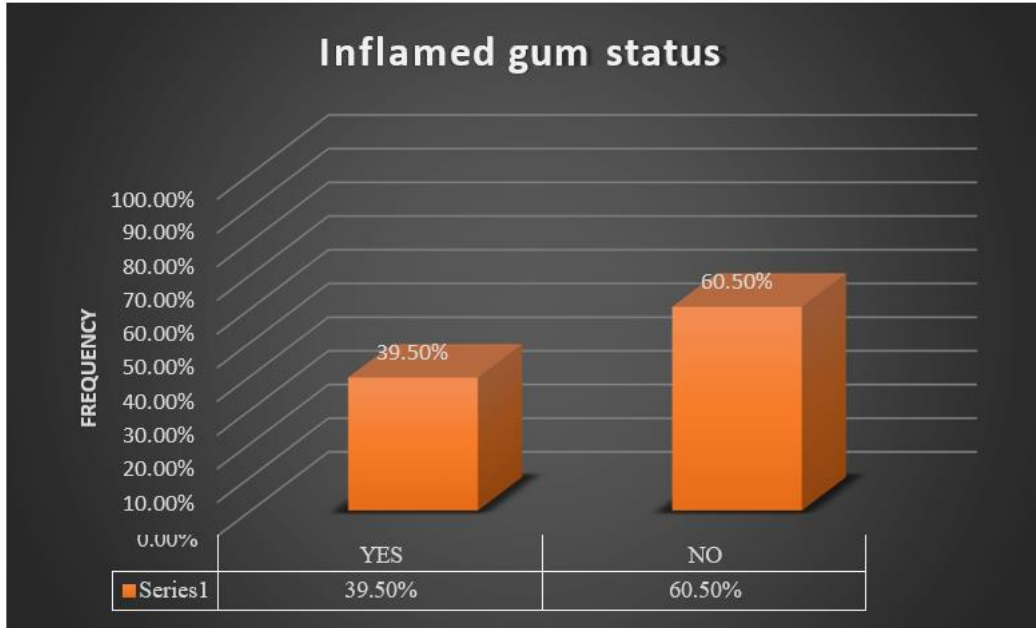


Figure No. 33

35% of the respondents reported to experience pain while chewing. Whereas, 65% of them did not experience any discomfort while eating.

Question No. 34 Do you often experience inflamed or bleeding gum?



39.50% women showed to have inflamed gums. 60.50% had not shown to have inflamed or bleeding gums.

Question No.35 Do you often experience sensitivity issues while having anything cold or hot?

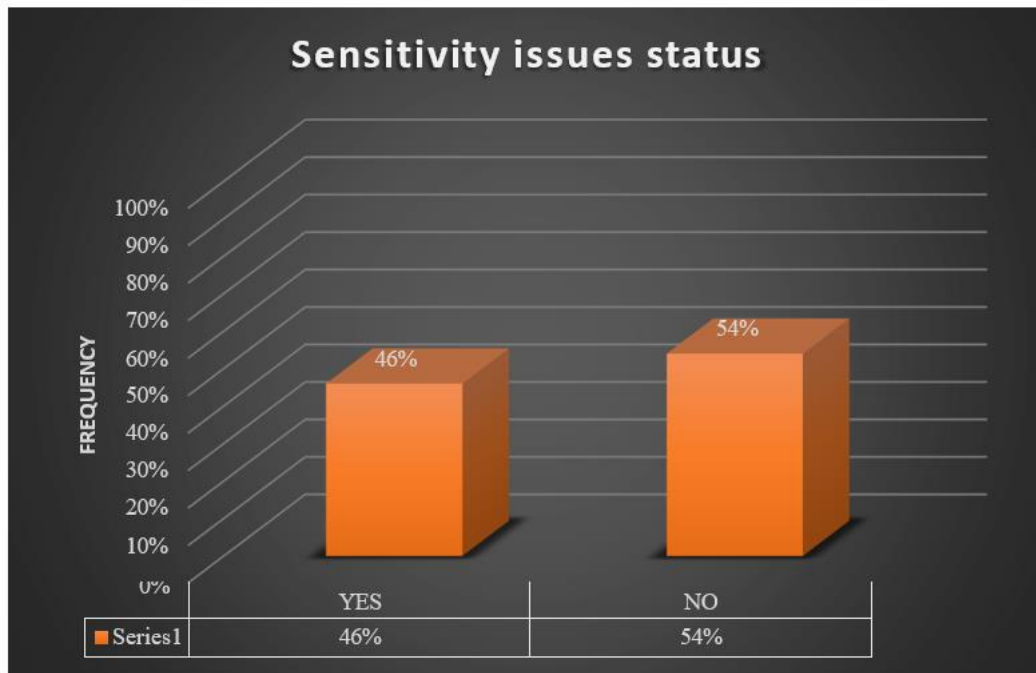


Figure No. 35

46% of the participants often experienced sensitivity issues while having anything cold or hot. Whereas, 54% did not experience any discomfort as shown in the figure.

Question No.36 Do you often experience dry mouth?

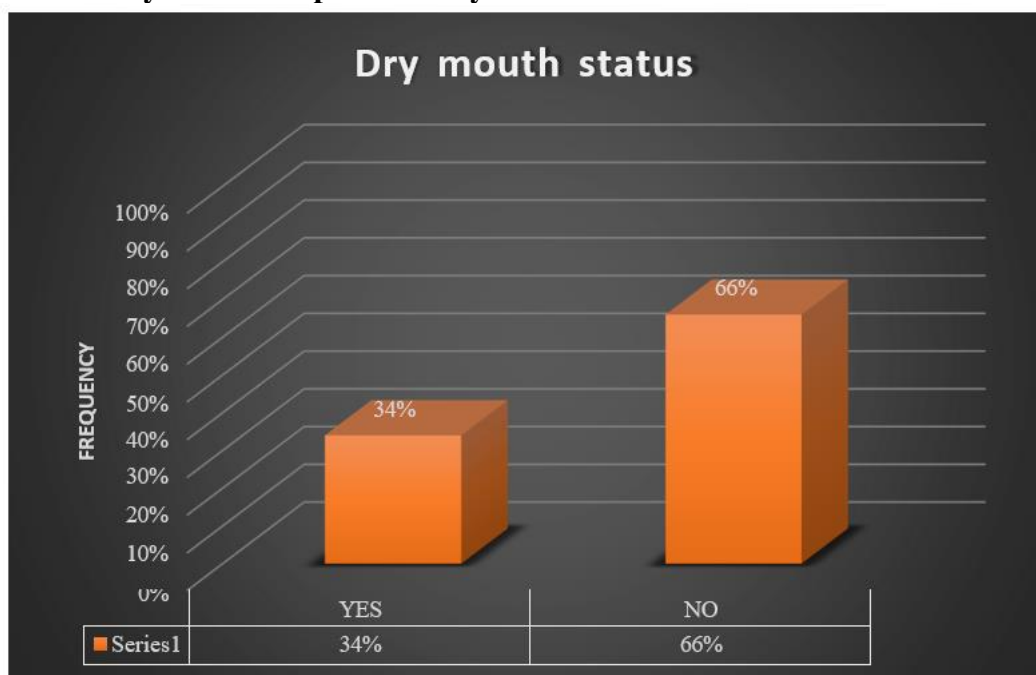


Figure No. 36

34% respondents had dry mouth while 66% showed no such symptom.

Question No. 37 If yes, then did you start experiencing these oral complications after menopause?



Figure No. 37

86.50% women having oral complications reported to have started to experience these symptoms post their menopause whereas 13.50% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No.38 Do you experience stiffness/ tenderness/ pain in your joints?

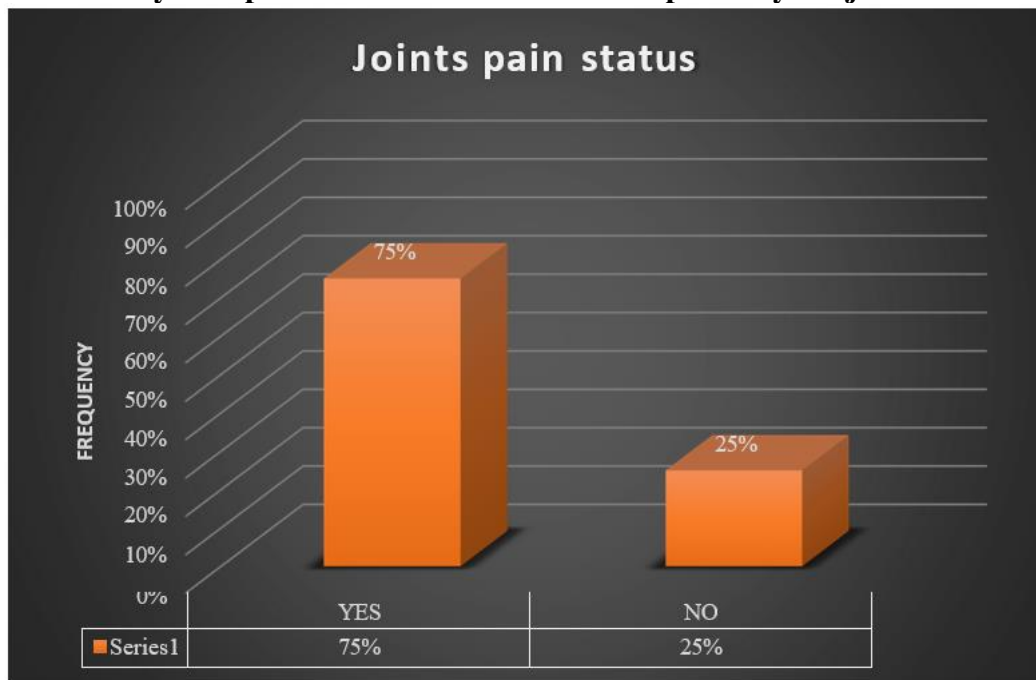


Figure No. 38

Majority women [75%] reported to experience stiffness of joints whereas, 25% did not report such symptoms.

Question No.39 If yes, then what is the frequency of experiencing stiffness/ tenderness /pain?

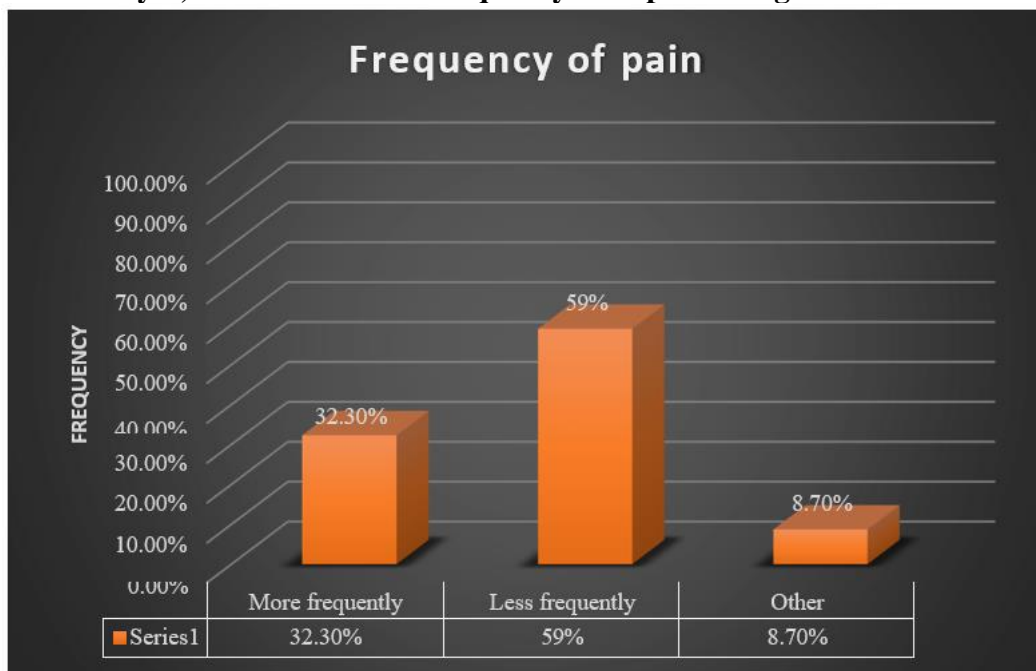


Figure No. 39

33.50% of the participants reported to have very frequent joint pain, and 59% had less frequent pain.

Question No.40 Do you often get fractured bones?

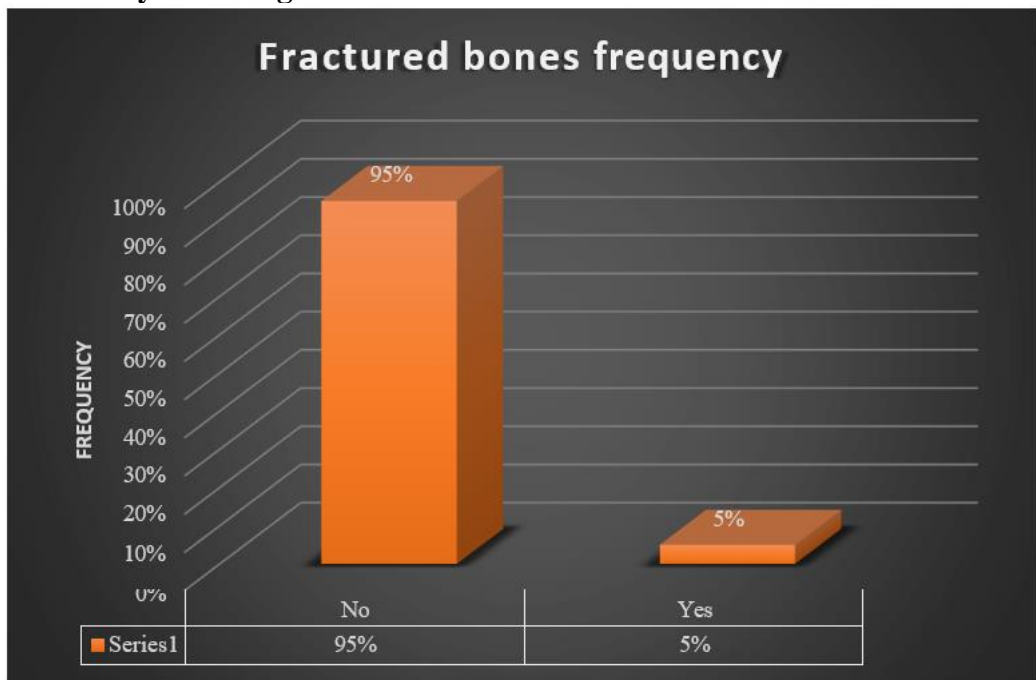


Figure No. 40

95% respondents reported no fractures while 5% respondents had fractured bones.

Question No. 41 Have you undergone for Bone Mineral Density Test [BMD]?

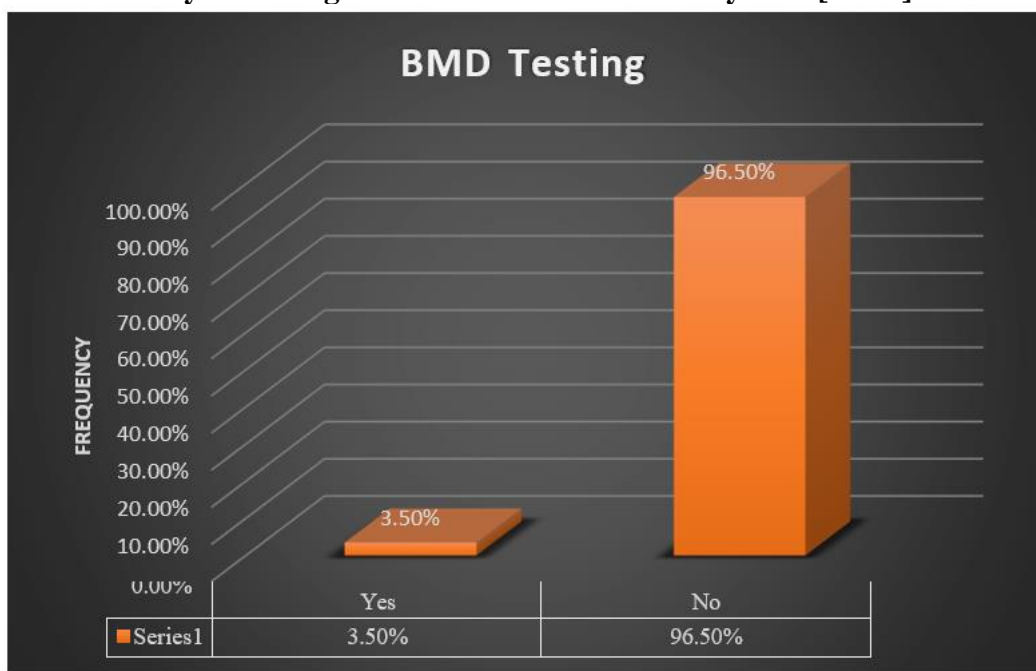


Figure No. 41

Majority[96.5%] of women were reported to have no BMD test, whereas, 3.50% women had undergone BMD test.

Question No.42 If yes, then what is the T score?



Figure No. 42

Majority [71.40%] had normal T-score, 14.3% had low bone mass and 14.3% had osteoporosis as illustrated in the figure.

Question No.43 Did you start experiencing these Bone related complications after menopause?

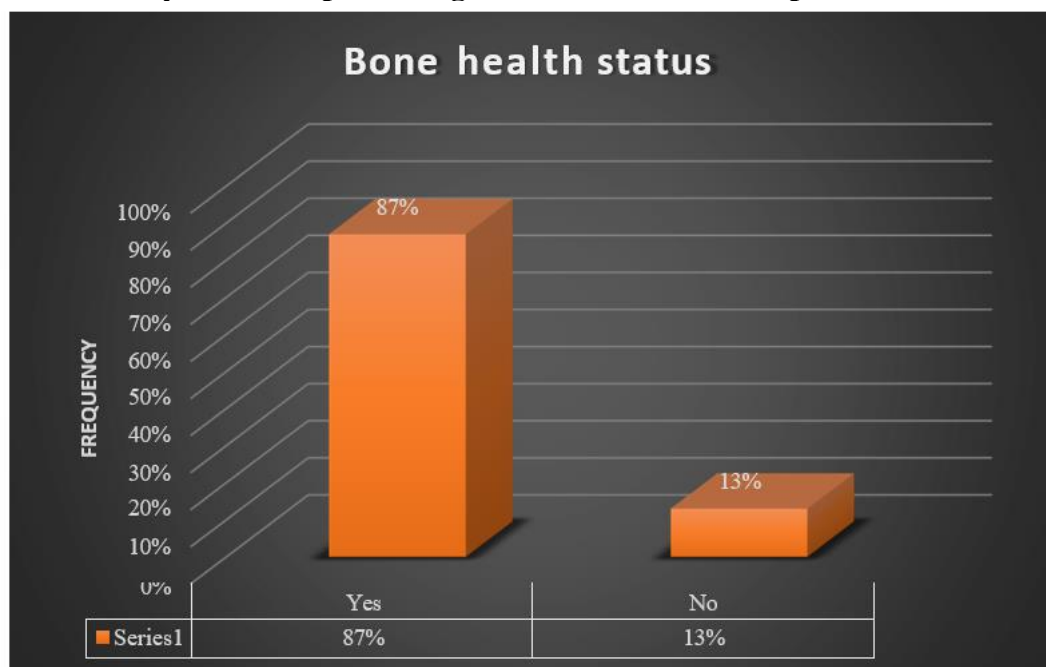


Figure No. 43

87% women having bone related complications reported to experience these symptoms after their menopause whereas 13% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No.44 Do you experience a sudden feel of warmth in your upper body during the day or at night [hot flashes]?

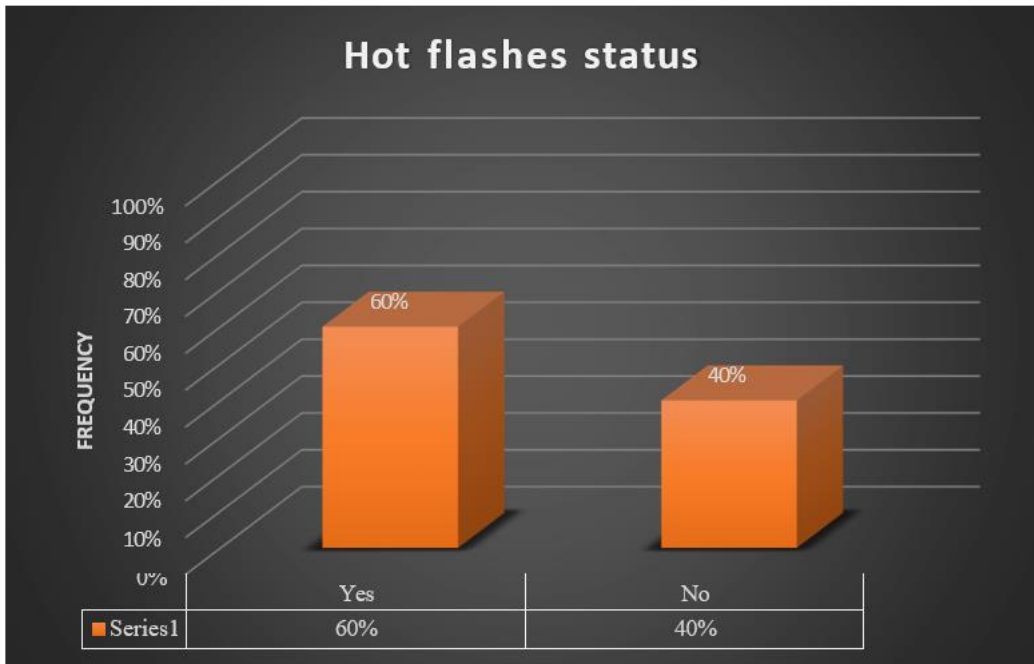


Figure No. 44

60% of respondents had experienced hot flashes, whereas 40% respondents had no such symptoms.

Question No.45 Do you experience heavy sweating at night [night sweats]?

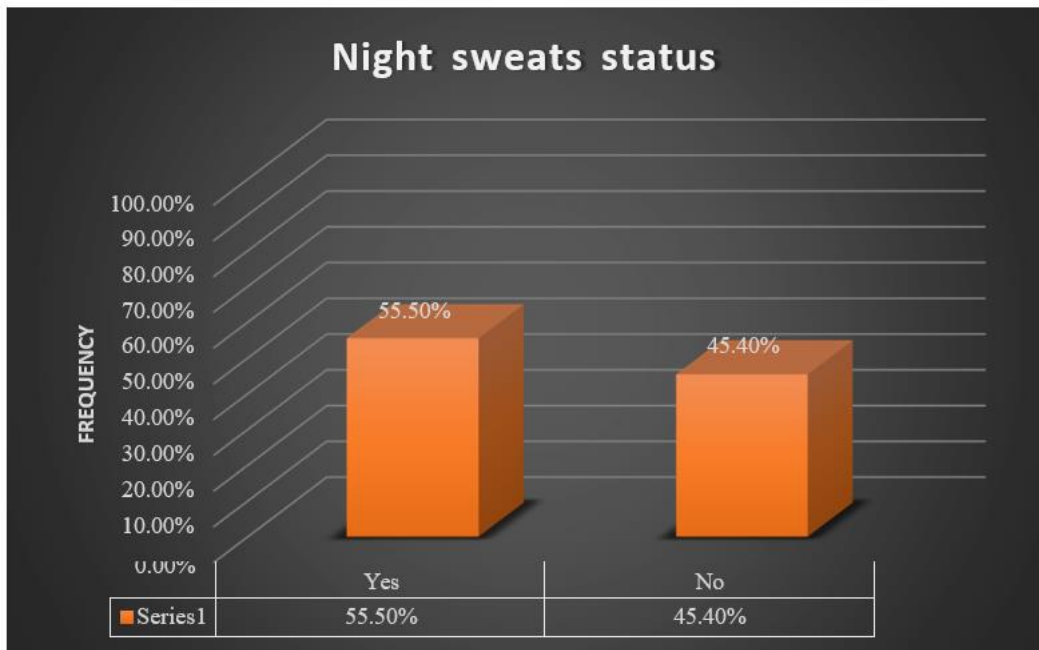


Figure No. 45

55.5% women were reported to have night sweats, whereas 45.40% responded to have no such symptoms.

Question No.46 If yes, then did you start experiencing these complications after menopause?

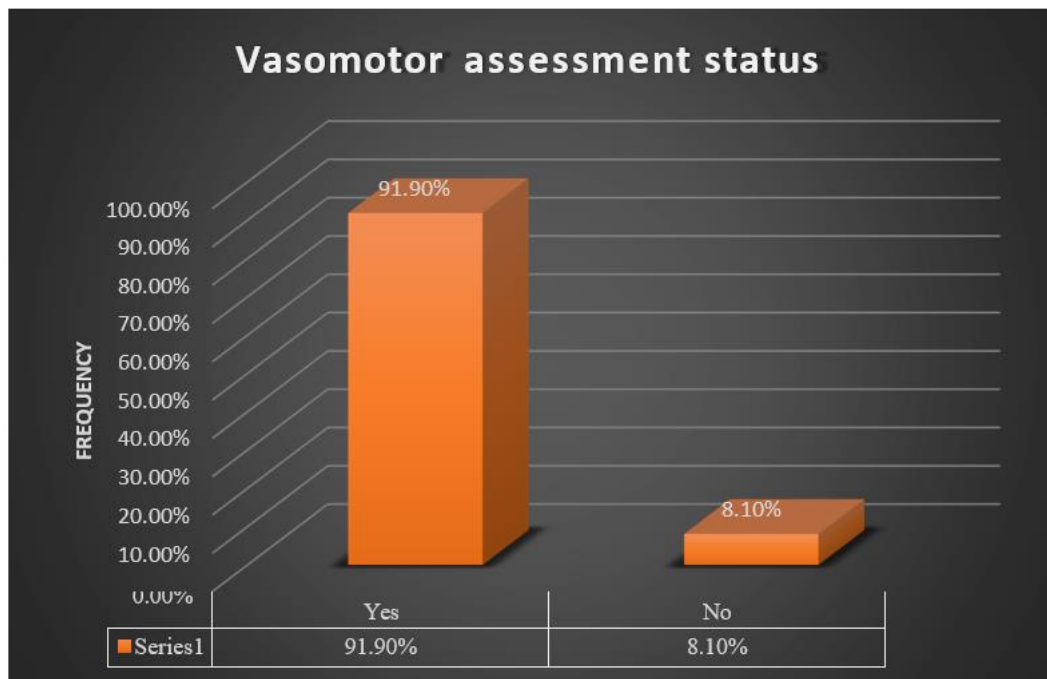


Figure No. 46

91.90% women having reported to have started to experience these symptoms post their menopause whereas 8.10% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No. 47 Have you often experienced nervousness/anxiety over the last two weeks?

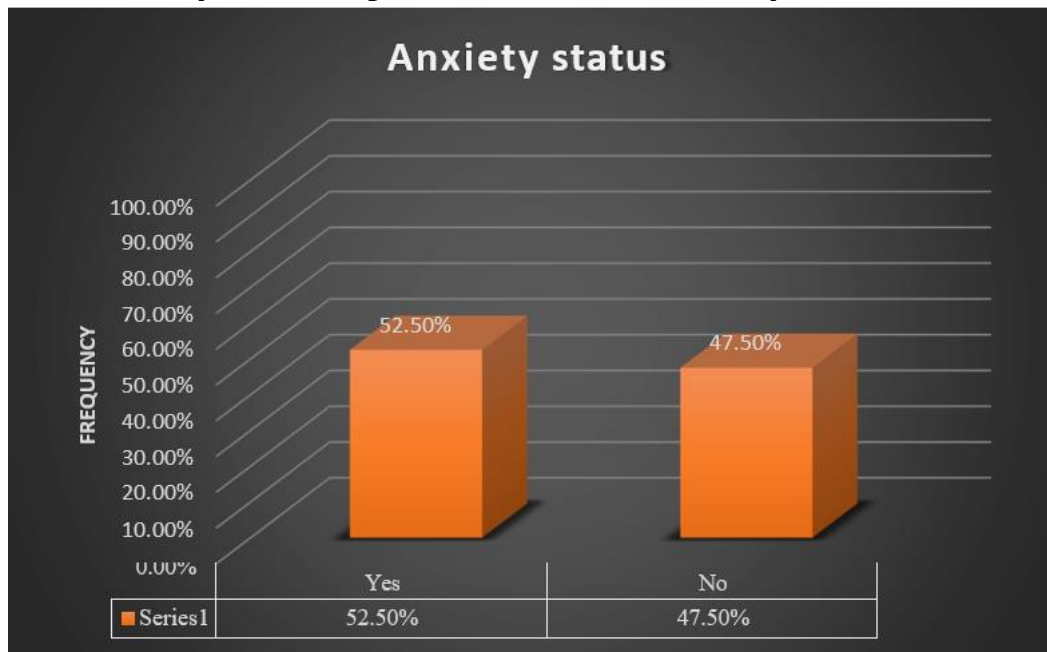


Figure No. 47

52.50% of women reported to have anxiety symptoms while 47.50% had no anxiety symptoms.

Question No.48 Have you experienced difficulty in sleep/sleep apnea over the last two weeks?

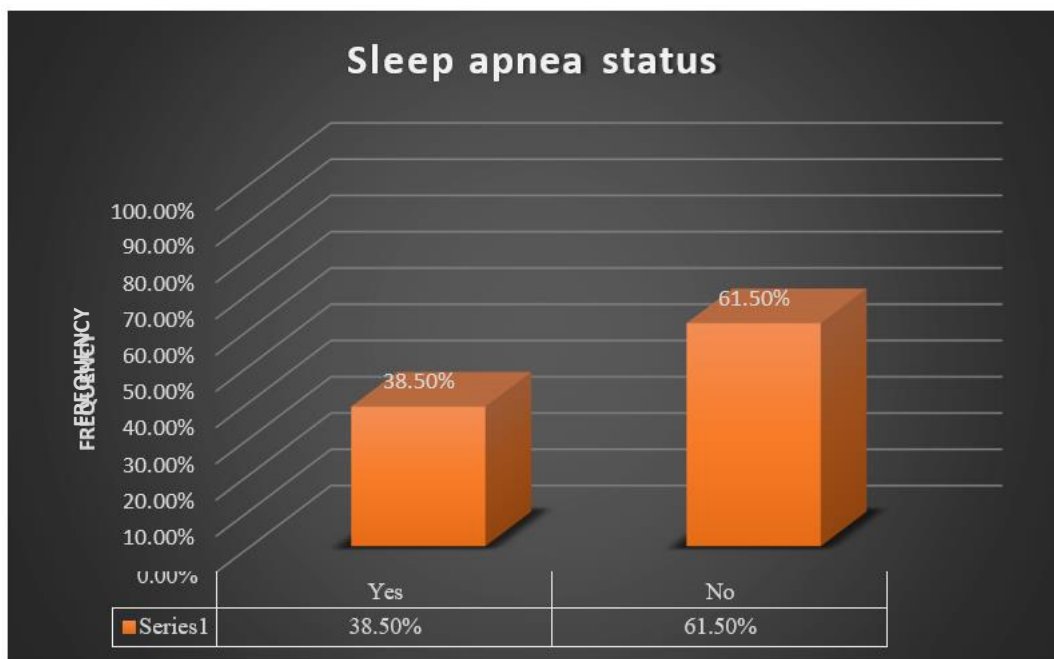


Figure No. 48

61.50% respondents had no difficulty in sleep, whereas 38.50% respondents reported difficulty in sleep.

Question No. 49 Do you deal with confusion, poor judgement, slow performance or memory problems?

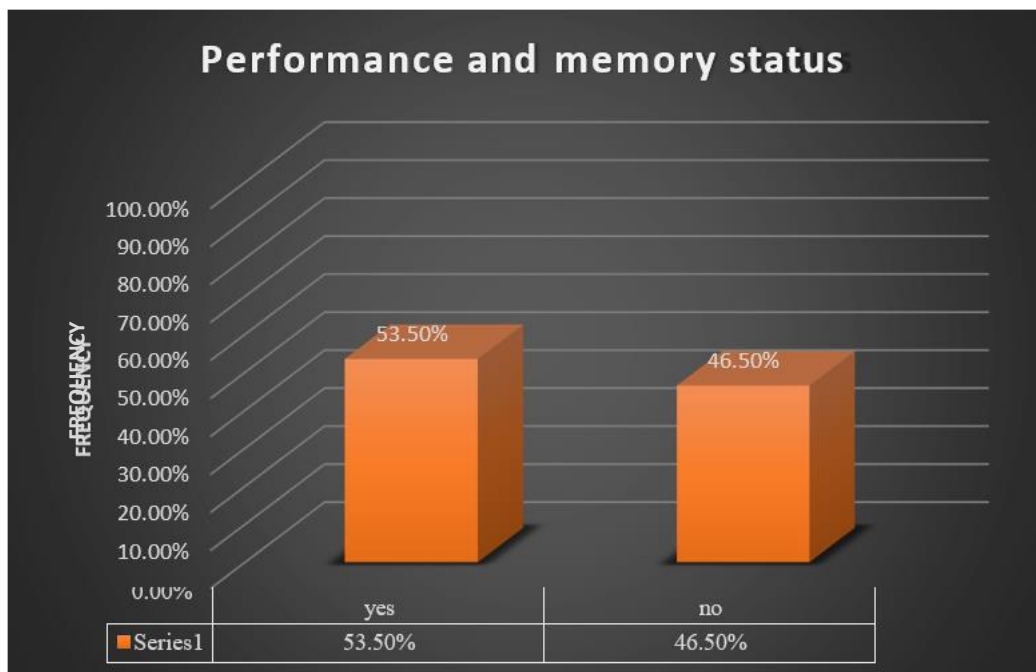


Figure No. 49

53.50% of the respondents reported to experience memory problems. Whereas, 46.50% of them did not experience any memory problems.

Question No.50 If yes, then did you start experiencing these psychiatric-related complications after menopause?

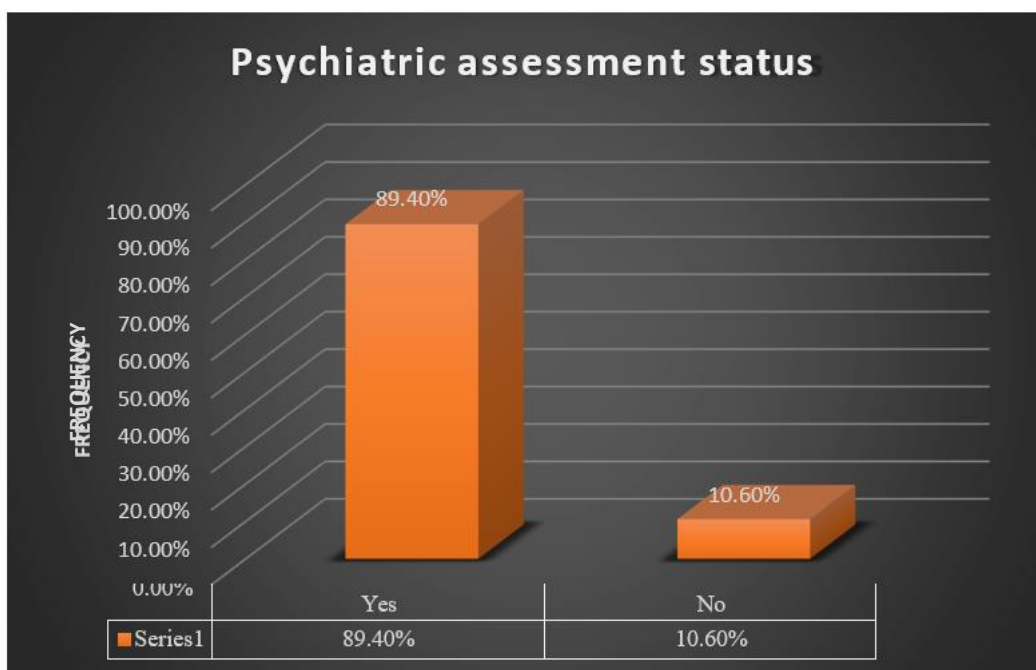


Figure No. 50

89.40% women having reported to have started to experience these psychiatric-related symptoms post their menopause, whereas 10.60% did not begin to experience these symptoms after their menopause as illustrated in the figure.

Question No. 51 What is your BMI [Body mass index]?

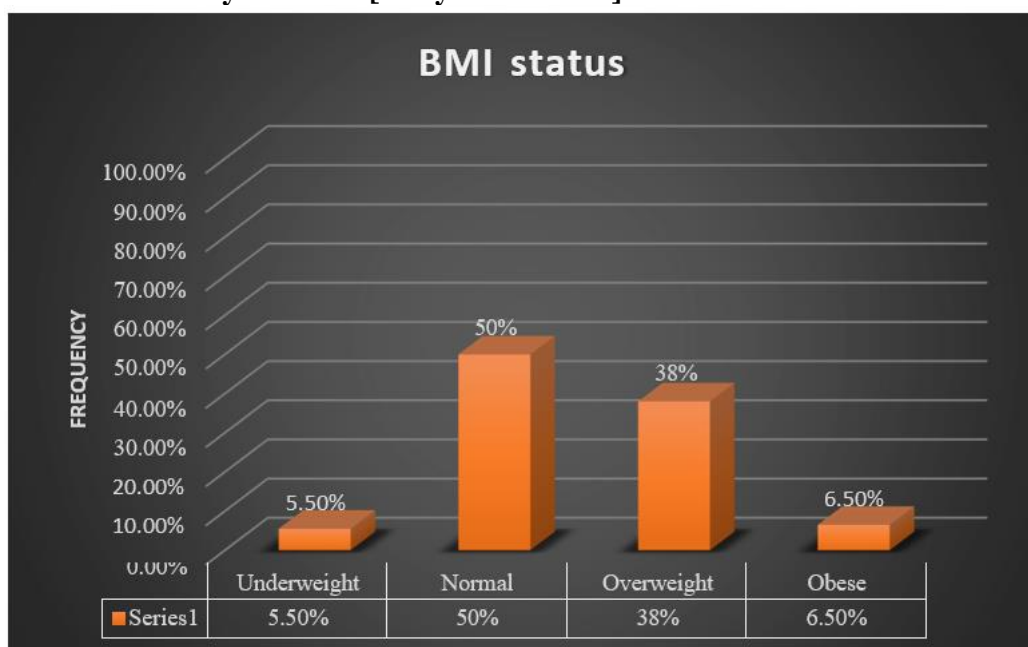
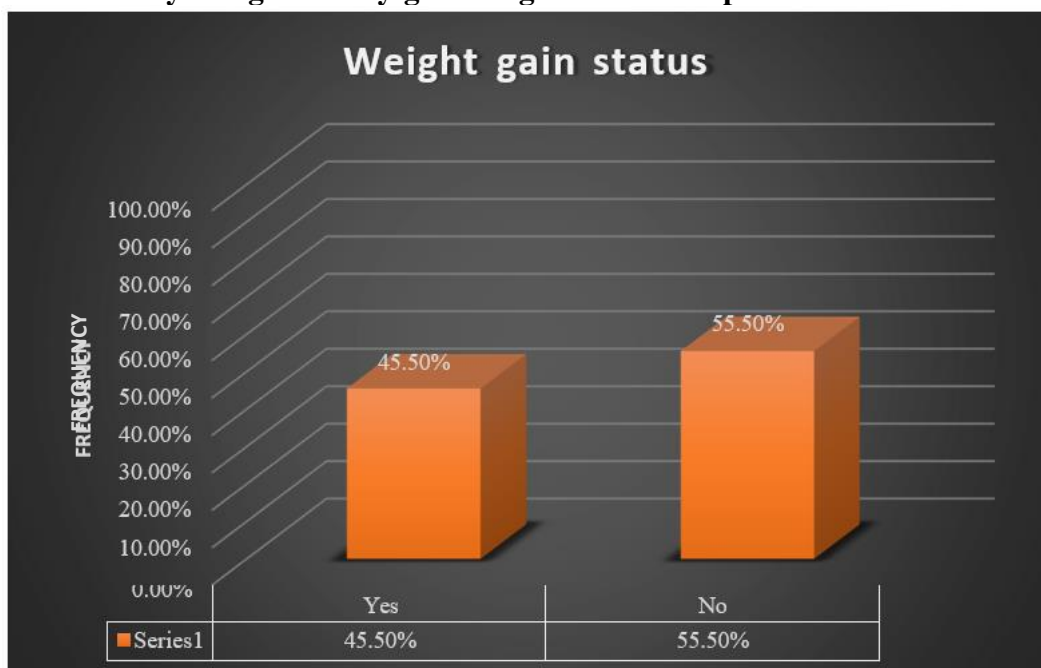


Figure No. 51

5.50% were underweight, 50% were normal weight, 38% were overweight and 6.50% were obese.

Question No.52 Did you significantly gain weight after menopause?**Figure No. 52**

45.50% respondents reported a significant weight gain after menopause. Whereas, 55.50% respondents did not experience weight gain after menopause as shown in figure.

Discussion

Menopause is the final stage of ovarian physiology in women and represents a time when reproductive function is lost due to complete depletion of the finite ovarian follicle supply [182]. The transition from reproductive to post reproductive life in women is called the menopausal transition and marks a significant milestone in the female life cycle. While the fundamental process of menopause is related directly to ovarian aging, all aspects of the hypothalamic-pituitary ovarian-uterine axis are altered with time. Chronological and ovarian aging are 2 intertwined, concurrent processes that influence the pace of the process and its duration [183]. This study has identified frequency of various complications occurring in women due to menopause in different areas of Lahore, Punjab.

This study noted that mean age of postmenopausal women was 56.99 ± 10.797 with a range of 40-90 years. Other contemporary studies have documented that mean age of postmenopausal women ranges from 40.32 to 48.84 years [184] and in developed countries from 48.29 to 57 years [185]. Almost half of the women in the current study were between the age of 51-60 years. Wide majority of the participants in the study were housewives belonging to rural areas.

Only 2.5% women reported that their cycles were irregular. Irregular cycles are common in adolescents as the initial cycles are anovulatory resulting in abnormal uterine bleeding that may be associated with varying amount of blood loss including menorrhagia [76 of PCOS] In the present study the mean duration of menstrual flow was 5-7 days, a study was conducted in Turkey which indicated that menstrual flow lasting more than 8 days [77 of PCOS]. 42.50% of the respondents in the current study reported that their approximate age at the termination of their periods was between 40-45 years.

This study focused on symptoms that occur during the menopausal transition. Specifically, this study address CVS symptoms, urogenital disorders, skin complications, bone health disorders, oral symptoms, vasomotor symptoms, mood changes, sleep problems and changes in weight.

Prevalence of hypertension among postmenopausal women is slightly high as seen in this study 52%. Other studies suggest that the apparent relationship between menopause and hypertension is explained by other factors including age. Longitudinal cohort studies also demonstrated a

relationship between menopause and hypertension. In a study of 315 women and age- and BMI-matched men followed for 5 years, PMW had higher systolic BP at baseline and systolic BP increased by approximately 5 mm Hg over 5 years of follow-up only in the peri- and PMW. The rise exclusively involved systolic pressure suggesting underlying decreased arterial compliance [187]

An average of 57.75% of the respondents in the current study were encountering vasomotor symptoms including night sweats and hot flushes. Our study is line with Adhi *et al.*, [188] Chuni and Sreeramareddy, [189] Jacob *et al.*, [190] and Nisar and Sohoo [191] on hot flushes.

Negative attitudes such as irritability, anxiety, fatigue, lack of concentration, sleep disturbance and forgetfulness were also reported in the current study but at a lesser frequency compared to other studies. Another study found that postmenopausal women are at greater risk of psychological symptoms with higher scores on the depression scale [186].

In our study, 32.50% of the postmenopausal women reported sharp burning sensation while urinating, 42.5% experienced urine urgency while only 22.5% suffered from itchy vagina or vaginal dryness. A study conducted in Thailand [193] showed a higher rate of vasomotor [72.3%] as well as psychological [93.7%] and urological symptoms [80.7%].

Prevalance of skin related complications was 87.2% in this study. The most common skin related symptoms during post-menopause phase were thinning of skin along with skin dryness. Menopausal women in China similarly reported physical symptoms such as, dry skin [69%].

This study reported that less than half of the postmenopausal women suffered from oral complications. An average of 38.6% of the respondents suffered from oral issues such as dry mouth, sensitivity, and bleeding gums. In another study, Wardrop *et al.* assessed the relationship between oral discomfort and menopause in 149 women. The prevalence of oral discomfort was found to be significantly higher in perimenopausal and postmenopausal women [43%] than in premenopausal women [6%] [194].

Current study reported that around 75% of the postmenopausal women suffered from stiffness of joints. 59% of which experienced it less frequently than others. Our findings were in concordance with a cross sectional study done among women of Tehran, Iran [192].

In this study, 48.5% of the women significantly gained weight post menopause. Half of the participants in the study had a healthy weight, while 38% were overweight.

Conclusion

According to the results of this study, it was concluded that Urinary related, skin related, oral complications are the most common menopausal complications in women along with vasomotor and Psychiatric complications being the prime concern.

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