

ABSTRACT

Menopause is part of the physiological process of aging in the female body. Several studies suggest that different variables, more or less exert apparent influence on menopause. But heredity is a major factor influencing the start of this stage. On behalf of the authentic religious books it has been quoted that women of *sayyid* attain menopause at later age. For this purpose, this study was carried out to check the age of menopause in women of *sayyid* and *non-sayyid* in Zahedan, in order to clarify this issue in similar deals. This descriptive analysis study was carried on statistical population intended for *sayyid* and *non-sayyid* women in Zahedan city with stratified sampling method. Out of 668 middle-aged women having menopause symptoms referred to clinics and health centers of Zahedan, 334 were *sayyid* and 334 were *non-sayyid* women. The onset of menopause in *Sayyid* women was at least 45 years and in *non-sayyid* it was 39 years and this difference was significant. The average age of menopause in *sayyid* women was 49.2 years and in *non-sayyid* women it was 46.8 years, that is $P = 0.00$, and this difference is completely significant. Studies on other nations have shown the age of menopause, earlier. Maternal inheritance patterns appear to be the major cause and the most determining factor on the menopause onset age. Different patterns of menopause onset have been seen between *sayyid* and *non-sayyid* women. This can inspire future researchers for discovering new chromosomal sequences.

KEYWORDS: Menopause, life style, Genetic factor, *sayyid* women

INTRODUCTION

Menopause according to WHO definition of menopause is the permanent end of menstruation resulting from a lack of activity in ovarian follicles and, the term is applied when a person undergoes amenorrhea for 12 consecutive months or more without pathological or physiological causes (World Health Organization Scientific Group.,1996). Menopause is part of the physiological process of aging in the female body. It is caused by depletion of ovarian follicular reserve and consequently results in the absence of ovulation, lack of estrogen and progesterone. At first menstrual cycles with intervals and without ovulation and finally complete cessation of menses and the end of a woman's reproductive activity occurs (Faddy & Gosden ,1996). The end of monthly hormonal cycle is similar to the beginning and it occurs gradually with interval .When the number of ovarian follicles reaches to about 50, changes begin and result in menopause.In most women, regardless of differences in the biological, social, genetic, and ethnical aspects, the changes occur commonly in the range of 40-60 years (Te Velde Pearson, 2002). Several studies suggest that different variables, including demographic factors (including age, race, ethnicity, education, marital status, economic status etc),and lifestyle (smoking, alcohol consumption, physical activity), and factors relating to the health characteristics (including heart disease, cancer and body mass), all more or less exert apparent influence on menopause. But heredity is a major factor influencing the start of this stage. Ellen B Gold, in a study involving 3302 women from 5 different races and ethnicity in America has reported factors, such as higher education, use of oral contraceptives, higher body weight, employment, not smoking, alcohol consumption and low physical activity significantly delaying the age of menopause (Ellen et al ,2013). Some studies show heavy smoking accelerating menopause, putting it 1-2 years forward (Cooper et al, 1995), and some studies suggest that low education levels and poor economic conditions cause early menopause (VanNoord *et al*, 1997). Widows experience menopause sooner than the women who live with spouses (Ellen et al. 2001). Women with cardiovascular heart disease also experience menopause earlier (Mondul *et al*, 2005; Atsma *et al*, 2006; Lisabeth *et al*, 2009). Osteoporosis causes premature menopause (Kritz-Silverstein and Barrett-Connor , 1993), also smoking and damage to the uterus and ovaries, and weight loss cause premature menopause, while other studies suggest that obesity, breast cancer, uterine cancer, and diabetes can lead to delayed menopause, and late menopause increases the risk of breast cancer (La Vecchia C *et al*, 1992). However many believe that women majorly follow the pattern of their motherhood in attaining their menopause (Torgerson *et al*, 1997). Several studies have been conducted (Torgerson et al , 1997; de Bruin et al ,2001; van Asselt et al ,2004 and Murabito et al , 2005) in order to discover the inheritance patterns and indicate the role of heredity in the age of menopause. These studies have shown the association between inheritance and menopause in the range of 31-87 percent. However, in this open field assessing the role of

heredity in determining the age of menopause appears to be difficult, because in addition to genetic factors, various environmental factors such as lifestyle, smoking, body mass index, and alcohol use, marital status, etc., more or less have influence (Ellen *et al*, 2001 ; Kok *et al*, 2005 ; Parente *et al*, 2008). On behalf of the authentic religious books of noteworthy persons on various topics, it has been quoted that woman of *sayyid* at the age of 60 and non-*sayyid* woman at the age of 50 reach post-menopausal stages. (All grand religious references of treatises). Existence of different inheritance patterns in *sayyid* and non-*sayyid* women seems necessary. For this purpose, this study was carried out to check the age of menopause in women of *sayyid* and non-*sayyid* in Zahedan, in order to clarify this issue in similar deals.

MATERIALS AND METHODS

This descriptive analysis study was carried on statistical population intended for *sayyid* and non-*sayyid* women in Zahedan city with stratified sampling method. Definition of *sayyid*: The *Sayyids* are a branch of the tribe derived from sons of Hashem, a clan related to the tribe of Quraish. (Tabatabaiy ,1980), also *sayyid* is an honorable name given to males that are descendants of the Islamic prophet Muhammad by his grandsons, Hassan ibn Ali and Husain ibn Ali sons of the prophet's daughter Fatima Zahra and his son-in-law Ali ibn Abi Talib (Khanam). In the present study 668 middle-aged women with menopause symptoms referred to clinics and health centers of Zahedan University of medical science in Zahedan city in 1386-87, were studied . Their ages and *sayyid* or non-*sayyid* details were recorded through oral interview. 334 out of 668 were *sayyid* and 334 were non-*sayyid* women. The cases included in this study were free from different types of uterine and breast cancers, diabetes and mal-nutrition and were healthy and gave no history of consumption of tobacco and alcohol and abdominal surgery or trauma. In this survey participants were identified for menopause during personal interview. Data analysis was done by using frequency tables, and T-student and ANOVA test and with 16-SPSS statistical software. The proposal of the study has been approved by the Review Board of our University (Zahedan University of Medical Sciences, Zahedan). Informed consent was obtained from patients participating in this study and the confidentiality of their personal information and medical records were kept.

RESULTS

After analyzing the data it became clear that

First: The results showed that the onset of menopause in *Sayyid* women is at least 45 years and in non-*sayyid* it is 39 years and this difference is significant (Fig1).

Second: The mode age of menopause for *sayyid* women was 49 years, whereas for non-*sayyid* women it was 45 years (Fig1).

Third: The average age of menopause in *Sayyid* women was 49.2 years and in non-*Sayyid* women was 46.8 years with $P = 0$ is completely significant (Table 1).

Fourth: Maximum age at which *sayyid* women had entered menopause was 52 years, as for non-*sayyid* women it was 51 years.

Fifth: The results indicate that the median age for *sayyid* women, was 49 years and for non-*sayyid* woman was 47 years.

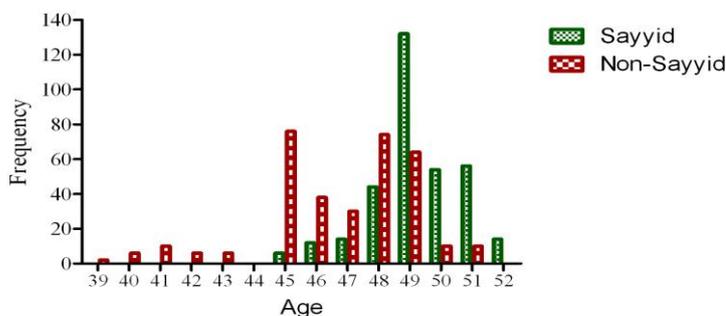


Fig 1: Distribution frequency of *Sayyid* & *Non-Sayyid* women

Table 1: Central parameters of two groups of Sayyid & Non-Sayyid women

Group	No.	Mean	Min	Max	(df)	t	P
sayyid	334	49.22±1.44	45	52	668	16.09	<0.0001
Non-sayyid	334	46.74±2.4	39	51			

DISCUSSION

Results of this study indicated that the average age of menopause in sayyid women was 49.2 years and in non-sayyid women it was 46.8 years, that is $P=0.00$, and this difference is completely significant. Results also indicated that the median age for sayyid women was 49 years and for non-sayyid women it was 47 years. The minimum starting age of menopause in sayyid women it was 45 years and in non-sayyid women it was 39 years, and this difference was also significant. Abdollahi et al (Abdollahi et al ,2013) studied on 804 patients in Gorgan and showed the average age of menopause to be 45.4 ± 6.47 with a median age of 48 years. He also concluded women without pregnancy experience menopause at the age of 46.26 ± 4.9 , which is significantly lower than others. Also in contrary to some researchers (VanNoord et al,1997) he suggested socioeconomic status of the participants not significantly associated with age of menopause. In an international study, with a population of 18,997 people which took place in eleven European countries the median age of menopause was 50 years (Morabia & Costanza ,1998). Studies on other nations, including South Africa and Ghana (Frere, 1971; Kwawukume et al,1993) and also a study on African-Americans (Bromberger et al , 1997) have shown the age of menopause, earlier. Median age of menopause for Japanese and Malaysia and Thai women were 50.4 and 50.7 and 49.7 years (Tamada & Iwasaki ,1995 ; Ismael , 1994 and Chompootweep et al ,1993), respectively. Maria Kaczmarek (kaczmark Maria,2007) reported that the median age of menopause in 7183 women in Poland was 51.25 years. In these women marital status, living environment, employment, BMI, feeding the kids, physical activity, alcohol consumption, and smoking had no effect on menopausal age. (Gold et al ,2001) in a study on 14,620 people in America in years 1995-97 showed the median age of menopause to be 51.4 years. Gold et al (5) in another study involving 3302 people from 5 different races and ethnicity in America in 2012, showed the median menopausal age to be 52.54 years and also expressed different ethnic groups do not differ from one another . Since it is accepted that the age of menopause onset is a multi-factorial matter, affected by multiple genetic and environmental factors, maternal inheritance pattern appears clearly be a major factor and the most determining factor on the onset age of menopause. According to this theory, this trait from mother to daughter based on the genetic patterns can be inherited. However, various studies suggest that the relationship between menopause and age is very complex. Health and social and economic status of the individual fairly reflect the health status. The importance of lifestyle should be pointed out since appropriate life style significantly delays the age of menopause, despite, native patterns of mothers. Proper lifestyle refers to good nutrition, non-smoking and proper and balanced physical activity. Other factors such as uterine and breast cancer and diabetes due to excessive estrogen production delay menopause. Age of menopause differ in different climatic conditions, and different ethnicities.

Currently, specific DNA sequences on different chromosomes have been presented with the assumption of being affective on the onset of menopause. Several studies have been conducted in this field until now; as a result, two groups of genes, including genes in the pathway of steroid synthesis and genes that are involved in vascular function have been identified. The first gene detected in relation with menopause, was the estrogen receptor gene in 1999 (Weel et al, 1999), Then additional genes linked with coagulation factors related with menopause were introduced (Tempfer et al, 2005). Eventually a minor allele (factor VII gene) that caused the apparent delay in menopause was introduced (van Disseldorp et al, 2008). Other genes have been thought to play roles in menopause too. For instance, Apolipoprotein E gene also affects lipoprotein metabolism associated with menopause (He LN et al ,2009 ; Kok HS et al , 2005). It has been identified that Factor V Leiden is related to menopause age and this relationship increases by smoking (Van Asselt et al, 2003). According to valid religious resources sayyid women experience a longer duration of fertility and a late onset menopause. This study, as a confirmation for this assert, showed that menopausal age in sayyid women is significantly higher than the age of menopause in non-Sayyid women in similar social situations. It is clear that the Mendelian pattern of inheritance of a particular trait is represented in sayyid women. And that a certain sequence of genes influencing menopause exists only in these women causing this unique pattern. However, because of

the passage of 1,400 years and mixing with other family's genotypes, the purity of *sayyid* has been reduced, and the difference has slightly faded. Based on the present human knowledge the explanation for this matter remains unclear, and the genomes responsible for this difference remain unknown. This study shall inspire future researchers to discover new chromosomal sequences affecting the age of menopause and find similar patterns in other ethnic groups.

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