Khulna University Studies Volume 19(1): 155-163 : 2022

ORIGINAL ARTICLE

SOCIAL SCIENCE

FACTORS ASSOCIATED WITH AGE AT MENOPAUSE: A CROSS-SECTIONAL STUDY IN KHULNA DISTRICT, BANGLADESH

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KUS: 21/45: 301121

Manuscript submitted: November 30, 2021 Accepted: March 20, 2022

Abstract

Menopause is a significant milestone in women's lives that marks the end of their reproductive capability. This study aimed to explain the factors associated with age at menopause among women at Khulna district of Bangladesh. Survey method was followed to carry out the study. A total of 186 postmenopausal women aged 45 years and above were purposively selected for data collection. Following a semi-structured interview schedule, data were collected between February and March, 2019. In multivariate analysis, residence, number of pregnancy, experience of breast feeding, and having gynecological problem were found to be significantly associated (p<0.05) with age at menopause of the respondents. Women living in rural areas, having higher number of pregnancy, having breastfeeding experience, and not having any gynecological problem were more likely to experience delayed menopause. Programs and campaigns motivating women for family planning, breastfeeding and proper monitoring of gynecological problems in rural areas could be helpful for safe and delayed menopause.

Keywords: Menopause, age, women, Khulna, Bangladesh

Introduction

Age at natural menopause has been attributed by different genetic and environmental factors which has become one of the most commonly explored areas in menopause-related research in recent decades due to various health risks associated with it. It is an inevitable stage of life for women as their reproductive capability is terminated by this process. All the women living beyond the age of 45 to 50 years experienced this period of transition from reproductive to non-reproductive level of life (Avin Alva & Chethan, 2016). In reference to the natural menopausal age range between 45 to 55 years worldwide, the maximum range for menopause is up to 55 years in Bangladesh (World Health Organization, 1996; Rahman et al., 2011). Menopause before the age of 45 is considered as early menopause and experiencing menopause after 50 years is known as late (Panay, 2008). Early menopause has been reported to be associated with different health issues including higher risk of cardiovascular disease and osteoporosis (Gong et al., 2016; Muka et al., 2016; Cauley et al., 2012; Thulkar & Singh, 2015). On the contrary, delayed menopause has been associated with a higher risk of breast cancer (Li et al., 2017), endometrial (Ali, 2014), and ovarian cancer (Tsilidis et al., 2011; Wellons et al., 2017).

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DOI: https://doi.org/10.53808/KUS.2022.19.01.2145-s

Menopausal age is influenced by multifaceted factors including socioeconomic, demographic, environmental, genetic and reproductive health related factors. Among the environmental factors, it is evident that smoking is significantly associated with the menopausal age (Schoenaker et al., 2014; Sun et al., 2012). Of the genetic factors, mother's age at menopause has been reported to have an influence on women's early or late menopause (Ceylan & Özerdoğan, 2015). Socioeconomic factors including religion, residence, age at marriage, BMI (Awal et al., 2019), education (Ali et al., 2020; Awal et al., 2019), occupation (Ahuja, 2016), and lower socioeconomic status (Canavez et al., 2011; Li et al., 2012) in general has been reported as the significant determinants of age at menopause in some previous studies. Women with lower education (Li et al., 2012; Pérez- Alcalá et al., 2013; Wang et al., 2018), separated, divorced and widowed (Ahmed et al., 2016), and underweight (Szegda et al., 2017; Tao et al., 2015; Wang et al., 2018) are more likely to experience early menopause.

Previous studies have shown that among reproductive factors, age at menarche, regularity of menstrual cycle, use of oral contraceptives, and number of pregnancies were the significant determinants of menopausal age (Bjelland et al., 2014; Eum et al., 2014; Sapre & Thakur, 2014). In addition, use of contraceptive pills (Ahuja, 2016; Ali et al., 2020), and earlier menarche (Wang et al., 2018) was also reported to be linked with early menopause. Some believe that an increase in duration of breastfeeding might have prolonged the period of lactating amenorrhea resulting in a probable delay in reaching menopause (Sharma & Mahajan, 2015).

A large number of the women in Bangladesh have low level of education, and therefore are not conscious about menopause, its symptoms, side effects and the influencing factors (Rahman et al., 2011). At present, research on menopause is getting attention due to the increased life expectancy of women (Natarajan et al., 2013). However, majority of the study so far has been carried out in the western world, and very little is known in the context of Bangladesh. Therefore, the present study attempts to explore the association of socioeconomic, demographic and reproductive health related factors with age at menopause among women in Khulna district of Bangladesh. The study will help government and NGOs to implement or improvise policies and programs as necessary.

Materials and Methods

Setting and design

The study was cross-sectional in nature as it focused on identifying the factors associated with age at menopause among women in Khulna district of Bangladesh. Data were collected from women who belonged to the age group of 45 years and above with an experience of menopause. We used survey method in two areas: Sonadanga Thana (Ward 16) under Khulna City Corporation and Pankhali village of Dacope Upazila under the same district.

Sampling

The study areas were purposively selected in order to show rural-urban differences in age at menopause among women. A total of 186 women were purposively selected from two areas of Khulna District during February and March, 2019.

Study instrument and measures

A semi-structured interview schedule comprising open-ended and close-ended questions was used for data collection. The main outcome variable of this study was the age at menopause dichotomized into ≤45 (early menopause) and≥46 years (delayed menopause). Several socioeconomic, demographic and reproductive health related factors were considered as independent variables which include religion, residence, education,

occupation, income, Body Mass Index (BMI), age at marriage, age at menarche, menstrual regularity, number of pregnancy, experience of breast feeding, use of oral contraceptive pills and gynecological problem. Women's BMI was measured from the ratio of weight (kg) to height (m) square. Digital weighing machine and vertical scale were used to measure these parameters.

The BMI was classified into three categories i.e. underweight (<18.5 kg/m^2), normal weight (18.5-23.9 kg/m^2), and overweight (≥24 kg/m^2) (World Health Organization, 2020). Age at marriage was classified into <18 and≥18 years, and age at menarche in two categories: ≤12 and ≥13 years. In line with a previous study (Sarkar et al., 2010), monthly household income was categorized into lower-middle income (BDT 5001-10000), upper-middle income (BDT 10001-15000), and high income (BDT >15000) categories. Apart from that menstrual regularity (regular/irregular), number of pregnancy (≤2 and ≥3 times), history of bre astfeeding (yes and no), use of oral contraceptive pills (yes and no), and gynecological problem (yes and no) were considered for categorization. All these variables were considered for the bivariate analysis, and further for the regression analysis. The selected variables were chosen for the current study as these were found to be significantly associated with menopausal age in previous studies (Ali et al., 2020; Awal et al., 2019; Ceylan & Özerdoğan, 2015; Li et al., 2012; Wang et al., 2018).

Ethical issues

Data were collected by seeking verbal consent from the respondents participated in this study. It has been assured that anonymity will be maintained and the provided information will be kept confidential. Besides, they were free to opt out from the survey at any time without prior justification. Data were collected by the female researcher considering the gender sensitivity so that the participants can express their views without any hesitation as the study focuses on reproductive health issues.

Data analysis

For bivariate analysis we used Pearson's chi-square test followed by binary logistic regression for the multivariate analysis. At first, chi-square test was conducted to find out the significant factors of age at menopause considering 5 percent significance level. Binary logistic regression model was then employed to detect the significant predictors of age at menopause and results were presented by using Adjusted Odds Ratios (AOR) with 95 percent confidence intervals (CI). Data were analyzed by using Statistical Package for the Social Sciences (SPSS) version 20.0.

Results

Factors associated with age at menopause

Different socioeconomic and demographic variables were considered to conduct the bivariate analysis to predict the factors associated with age at menopause (Table 1). Residence, education and occupation of the women, BMI, age at marriage, menstrual regularity, number of pregnancy, experience of breast feeding, use of oral contraceptive pills, and gynecological problem have significant association (p<0.05) with age at menopause of the women.

Table 1. Age at menopause and its determinants

Variables	Age at menopause		Chi-square value	*p* value
	≤ 45 years	≥ 46 years		
Religion				
Muslim	50 (59.5)	66 (64.7)	0.527	0.468
Non-Muslim	34 (40.5)	36 (35.3)		
Residence				
Urban	71 (84.5)	36 (35.3)	45.692	<0.001*
Rural	13 (15.5)	66 (64.7)		
Education				
Non-literate (0)	6 (24.0)	19 (76.0)	15.716	0.001*
Primary (1-5)	13 (30.2)	30 (69.8)		
Secondary (6-10)	32 (48.5)	34 (51.5)		
Higher education (≥11)	33 (63.5)	19 (36.5)		
Occupation				
Working	33 (39.3)	23 (22.5)	6.132	0.013*
Non-working	51 (60.7)	79 (77.5)		
Monthly household income (in BDT)				
Lower-middle income (5001-10000)	9 (33.3)	18 (66.7)	3.297	0.192
Upper-middle income (10001-15000)	12 (37.5)	20 (62.5)		
High income (>15000)	63 (49.6)	64 (50.4)		
BMI				
Underweight	42 (61.8)	26 (38.2)	12.691	0.002*
Normal	19 (31.7)	41 (68.3)		
Overweight	23 (39.7)	35 (60.3)		
Age at marriage				
<18	21 (31.3)	46 (68.7)	8.074	0.004*
≥18	63 (52.9)	56 (47.1)		
Age at menarche				
≤12	39 (54.2)	33 (45.8)	3.847	0.050
≥13	45 (39.5)	69 (60.5)		
Menstrual regularity				
Regular	31 (28.2)	79 (71.8)	29.684	<0.001*
Irregular	53 (69.7)	23 (30.3)		
Number of pregnancy				
≤2	63 (65.6)	33 (34.4)	33.547	<0.001*
≥3	21 (23.3)	69 (76.7)		
History of breast feeding				
Yes	26 (23.6)	84 (76.4)	48.260	<0.001*
No	58 (76.3)	18 (23.7)		
Use of oral contraceptive pills				
Yes	52 (65.8)	27 (34.2)	22.244	<0.001*
No	32 (29.9)	75 (70.1)		
Gynecological problem				
Yes	62 (67.4)	30 (32.6	34.570	<0.001*
No	22 (23.4)	72 (76.6)		

**Significant at 5%*

Predictors of age at menopause

Binary logistic regression was executed including the ten statistically significant (p<0.05) variables extracted from the thirteen variables considered in our bivariate analysis. Overall, four variables including residence, number of pregnancy, history of breast feeding, and having gynecological problem were significantly associated with age at menopause among married women in our regression analysis. Women residing in rural area were 6.371 times more likely to have menopause in a later age compared to those who live in urban area (CI: 2.454-16.537; p<0.001). Similarly, women who had three or more pregnancies had 3.368 times greater chances of late menopause compared to their counterparts (CI: 1.234-9.191; p=0.018). Besides, women who did not experience breastfeeding were 0.201 times more likely to have menopause at an early age (CI: 0.075-0.542; p=0.002), and women who did not have any gynecological problem had around five times higher probability of getting menopause in later age (CI:1.922-12.561; p=0.001) compared to those with gynecological problems.

Table 2. Age at menopause and its predictors

Factors	Coefficient (β)	*p* value	AOR	CI (95%)
Residence				
Urban(ref)				
Rural	1.852	<0.001*	6.371	2.454-16.537
Education				
Non-literate (0) (ref)				
Primary (1-5)	0.876	0.241	2.401	0.555-10.389
Secondary (6-10)	0.330	0.654	1.390	0.329-5.874
Higher education (≥11)	0.658	0.477	1.930	0.315-11.833
Occupation				
Working(ref)				
Non-working	-0.230	0.694	0.794	0.252-2.501
BMI				
Underweight(ref)				
Normal	-0.088	0.869	0.915	0.320-2.616
Overweight	0.378	0.464	1.459	0.531-4.005
Age at marriage				
<18(ref)				
≥18	0.339	0.523	1.401	0.496-3.970
Menstrual regularity				
Regular(ref)				
Irregular	0.743	0.176	2.103	0.717-6.169
Number of pregnancy				
≤2(ref)				
≥3	1.214	0.018*	3.368	1.234-9.191
History of breast feeding				
Yes(ref)				
No	-1.602	0.002*	0.201	0.075-0.542
Use of oral contraceptive pills				
Yes(ref)				
No	0.663	0.130	1.942	0.823-4.579
Gynecological problem				
Yes				
No	1.592	0.001*	4.913	1.922-12.561

**Significant at 5%; AOR = Adjusted Odds Ratio*

Discussion

The current study aimed to examine the factors associated with age at menopause among women in Khulna district of Bangladesh through a cross-sectional survey. Results of our regression analysis indicate that residence, number of pregnancy, history of breast feeding, and experience of gynecological problem were significantly associated with age at menopause among the participants. Findings of this study revealed that women residing in countryside area were more likely to face menopause in later age compared to those who live in urban area which corresponds with some previous studies (Awal et al., 2019; Avin Alva & Chethan, 2016). The possible reason might be the lower level of education among rural women (Akter et al., 2018) and lack of consciousness about reproductive health as well as the dearth of healthcare facilities in those areas.

We observed that women who had three or more pregnancies had greater chances to experience delayed menopause compared to the others, and this finding is consistent with other study (Ceylan & Özerdoğan, 2015). Another study reported that women who had a greater number of pregnancies experienced late menopause compared to those with smaller number of pregnancies (Lee et al., 2012).

We found that the duration of breastfeeding was significantly associated with menopausal age among the participants. Our results indicate that women without a record of breastfeeding were more likely to have menopause at an early age. This is consistent with another study which confirms that an increase in the duration of breastfeeding might have prolonged the period of lactating amenorrhea resulting in a probable delay in reaching menopause (Dasgupta & Ray, 2009). We argue that since many of the urban women are working mothers, they had less breastfeeding opportunities and experiences compared to rural women who are housewives in most cases. In addition, urban women are more conscious about beauty (body shape) and fitness issues which might have demotivated them to practice breastfeeding.

In our analyses, we also recorded that women who do not have any gynecological problem had higher probability of getting late menopause compared to their counterparts. This finding is aligned with the results of a prior study which revealed that there is a significant relation between gynecological problem and hormone affecting the age at menopause (Lawton et al., 2012). One possible reason of this might be the side effects of taking medicine during a longer period due to chronic health problems.

One of the strengths of the present study is that it has taken into account a wide range of factors related to the age at natural menopause among women living in south-western region of Bangladesh. We used established models of predicting the factors associated with menopause using empirical field data. However, we acknowledge that there are several limitations of this study. First, the sample size is small, so it is difficult to generalize implications across the country although such specification is always helpful for region-specific interventions. Secondly, purposive sampling technique was used which might raise questions of bias. Lastly, the information was collected mostly based on recalls, but it is evident that menopausal age studies through recall is reasonably dependable (Cairns et al., 2011).

Conclusion

The menopausal experience encompasses a multidimensional interaction among socio-cultural, psychological, and environmental factors along with biological changes relating to altered ovarian hormone status or deficiency. Our study was designed to explain the factors associated with age at menopause among women in Khulna district of Bangladesh. Findings of the study revealed that residence, number of pregnancy, history of breast feeding, and having gynecological problem were significantly associated with age at menopause amongst women in the study area. Strategies and interventions to promote awareness and encourage birth control programs could be effective in addressing menopausal adversities. Longer breastfeeding and proper monitoring of gynecological problems in rural settings are equally important for safe and sound menopause

experience. We encourage further nationwide research involving mixed-methods for a more comprehensive idea on this matter in post-pandemic era.

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