Original Research Article

Early menarche and high parity contribute to better sexual-quality of life in perimenopausal women

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ABSTRACT

Background: It was well known that physiological, psychological, as well as sociocultural are the factors that contribute to female sexual dysfunction. This study aimed to find out whether sexual function of women at perimenopausal age correlated with their ontogenetic factors, such as the age at menarche and parity.

Methods: Women (n=80) from nine villages in district of Lampung Tengah, Lampung Province, Indonesia aged 40-50 years who meet inclusion criteria participated in the study. Predesigned questionnaire was used to assess sociodemographic characteristics, and the female sexual function index (FSFI) was used to score sexual function of the respondents.

Results: None of the 80 respondents smoke, consumes alcohol, and has medical records. Based on the FSFI scores, except for one participant, all respondents suffered from sexual dysfunction with the average of total score 18.77. By using median score (18.52) the respondents were dichotomized into two categories, high and low sexual dysfunction. The results of Chi-square analysis and logistic regression showed that respondents with the characteristics of age at menarche <15 years and parity >4 children have better sexual-quality in comparison to those with the age at menarche >15 years and the parity <4 children.

Conclusions: It can be concluded that early menarche and high parity might contributed to better sexual-quality of life in perimenopausal women.

Keywords: Female sexual dysfunction, Menarche, Parity, Perimenopause, Menopause

INTRODUCTION

Perimenopause, that so-called menopausal transition, is defined as the period (2-8 years) preceding menopause and the one-year period after final menses, resulting from the loss of ovarian follicular activity.¹ [The loss of ovarian follicular activity causing some biological changes including the decrease in circulating estrogen levels. Estrogen deficiency accounts for irregular menstruation, diminished vaginal lubrication, changes in the vascular, muscular, and urogenital systems, and also alterations in mood, sleep, and cognitive functioning, influencing sexual function both directly and indirectly.² Among postmenopausal women both physiological and psychological changes above significantly associated with changes in sexual desire that lead to decreased sexual satisfaction.³ There are at least six types of menopausal symptoms that usually associated with the decrease in women’s quality of life including vasomotor symptoms (hot flashes), sleep disturbances, psychological symptoms (depressive symptoms, anxiety, and mood disturbances) urogenital problems (urinary incontinence and vaginal atrophy), sexual function effects (dyspareunia and decreased libido), and muscular and joint problems.⁴

The prevalence of female’s sexual function disorder, in fact, vary between countries because of many factors that influence. Nevertheless the prevalence of female’s sexual dysfunction (FSD) increased significantly with age³ and
usually high in peri- and postmenopausal women. In women with Kurdish culture from western Iran, for example, the prevalence of FSD up to 75.7% in perimenopausal women aged 40-50 years.\(^6\) Due to high prevalence and lead to detrimental effects on women’s quality of life, female sexual dysfunction is a significant public health problem that need serious attention from multidisciplinary expertise and practitioners including psychosexual counselor, sexologist, therapist and the physician.\(^7\)

There are many factors known to be associated with FSD that may lead to menopausal symptoms worse including physical and metabolic diseases, habits and life style.\(^8\) Diabetes is one among the metabolic syndromes that affect FSD. Prevalence of sexual function disorders among women with type-2 diabetes was significantly higher in menopausal women (63.9%) as compared with nonmenopausal women (41.0%).\(^9\) Another metabolic syndrome that was suggested to increase the prevalence of FSD is the high levels of triglycerides.\(^10\) Smoking, alcohol consumption, and physical activities are three among examples of habits and life style that allegedly influence prevalence of FSD in menopausal women. Smoke for example may cause early onset of menopause and high incidence of osteoporosis.\(^11\) The onset of perimenopause and the degree of the symptoms among women are varied (between 40-60 years) depended on biological, psychological, and socio-cultural back ground of the women.\(^12,13\)

In spite of the metabolism, habits and lifestyle factors, there are other questions that are not less interesting to be asked: whether the FSD in menopausal women is influenced by their ontogenetic factors, such as the age at menarche and parity? The phenomenon of a shift in age at menarche has long been studied, but its impact on the prevalence of FSD has not been known.\(^14\) Sexual-quality of life among women after childbirth has also been studied, but what influence the frequency of births on the prevalence of sexual disorders is still need in-depth study.\(^15\)

**METHODS**

*Research design*

The study was carried out in the district of Lampung Tengah, Lampung Province, Indonesia lasted three months (August-October 2015). The study area included nine villages situated at the coordinates of 5° 0’ 39.2” S, 105° 17’ 4.1” E. At the time of survey done the targeted villages were inhabited by 35,976 people. Inclusion criteria of the study were women aged 40–50 years, having spouse, settled resident, and willing to be respondent. Based on the criteria, there were 5,358 women included as the study population.

Sample size was determined using absolute precision formula from Lemeshow et al as follows.\(^16\)

\[
n' = \frac{NZ^2P(1-P)}{d^2(N-1) + Z^2P(1-P)}
\]

Where

- \(n'\) = sample size with finite population correction,
- \(N\) = population size,
- \(Z\) = \(Z\) statistic for a level of confidence,
- \(P\) = expected prevalence or proportion (in proportion of one), and
- \(d\) = precision (in proportion of one).

Given the study population (\(N\)) was 5358 women, the \(Z\)-value was set at 1.96, the expected prevalence (\(P\)) was set at 0.594, and precision (\(d\)) was at 0.1 so that the sample size (\(n'\)) is 79.66, or rounded to 80.

**Data collection**

To assess sexual dysfunction of the respondent a multidimensional self-report measure of sexual functioning, the FSFI (female sexual function index) that has been modified into Indonesian version, was used. The FSFI consists of 6 basic domains in female sexual dysfunction such as desire, subjective arousal, lubrication, orgasm, satisfaction and pain. Each domain consists two to four items so that the total items is 19. A predesigned questionnaire was used to collect basic demographic data of the participant. Factors associated with perimenopause include age at menarche, child-bearing age, number of children, workload, smoking, consuming alcohol, contraceptive use, medical history were asked. Along with the FSFI and demographical data questionnaires mentioned above, the clear definitions of terms and instructions for self-completion, as well as informed consent were also given to the participants. All respondent were informed that the participation is voluntary and any kind of refusal will not result in any consequence and all the data regarding the respondent private information will kept secret.

**Data analysis**

Both descriptive and inferential statistics used in data analysis and the significance level was set at \(p<0.05\) for all test. For univariate analysis, results were expressed as counts and proportions (%) for categorical variables, and mean for continuous variables. Whereas chi-square test were performed for bivariate categorical comparisons. The strength of relationship between each of the dependent variables and the independent variables that were statistically significant in the bivariate analysis was evaluated using logistic regression analysis. The multivariate analysis results were expressed in terms of odds ratio (OR) together with its 95% CI.

**RESULTS**

**Socio-demographic characteristics**

In order to meet the statistical sample size (\(n = 80\)) a number of 157 women in the study area have been visited. The socio-demographic characteristics of the
participants resulted from descriptive analysis were presented in Table 1.

**FSD situation of the respondents**

The depiction of sexual dysfunction among respondents based on the FSFI scores was presented in Table 2. Referring to the FSFI scores tabulated in the table, important aspects that can be described are as follows. Types and levels of sexual disorders experienced by study participants is very diverse, ranging from the most severe (Min=11.58) to normal (Max=27.08). However, of the 80 respondent’s only one participant who is actually normal, that is the respondent with the maximum score. The remaining 79 respondents included in the category of suffering from sexual disorders (Mean=18.77).

As suggested by Wiegel et al the optimal cut-off score for differentiating women with and without sexual dysfunction is 26.55. Women with a total score ≥26.55 categorized as normal, and those with a total score ≤26.55 categorized as sexual dysfunction. Considering that this study sample consisted of women who are in perimenopausal age, and it is evident from Table 2 that only one of 80 participants without sexual dysfunction, using the Wiegel's cut-off score (26.55) is not relevant. Instead, the median score of total FSFI (Med=18.52) was used as the cut-off score.

By using the median value (18.52) as the cut-off score, respondents of the study can be divided into two categories: perimenopausal women with high FSD and premenopausal women with low FSD. The prevalence of FSD in participants belong to high FSD and low FSD is shown in Table 3.

### Table 1: Socio-demographic characteristics of the respondents.

| Variables                  | Respondent (n=80) |
|----------------------------|-------------------|
|                            | n   | %     |
| Age at Menarche            |     |       |
| < 15 years                 | 44  | 55    |
| ≥ 15 years                 | 36  | 45    |
| Workload                   |     |       |
| Unemployed                 | 44  | 55    |
| Employed                   | 36  | 45    |
| Parity                     |     |       |
| ≤ 4 children               | 61  | 76.2  |
| > 4 children               | 19  | 23.8  |
| Child-bearing Age          |     |       |
| >40 years                  | 15  | 18.8  |
| ≤40 years                  | 65  | 81.2  |
| Use Contraceptives         |     |       |
| Yes                        | 56  | 70    |
| No                         | 24  | 30    |
| Alcohol Consumption        |     |       |
| Yes                        | 0   | 0     |
| No                         | 80  | 100   |
| Smoking                    |     |       |
| Yes                        | 0   | 0     |
| No                         | 80  | 100   |
| Medical History            |     |       |
| Yes                        | 0   | 0     |
| No                         | 80  | 100   |

### Table 2: Description of respondent sexual dysfunction based on the total FSFI scores and its domains.

| Statistical parameters | FSFI Scores |
|------------------------|-------------|
|                        | Desire disorder | Arousal disorder | Lubrication disorder | Orgasm disorder | Sexual Dissatisfaction | Pain disorder | Total |
| Min                    | 1.50          | 0.00            | 1.75                | 1.33            | 2.00                   | 2.00         | 11.58 |
| Max                    | 5.00          | 5.00            | 5.00                | 4.67            | 5.00                   | 5.00         | 27.08 |
| Median                 | 3.00          | 3.00            | 3.00                | 3.00            | 3.33                   | 3.67         | 18.52*|
| Mean                   | 2.84          | 2.96            | 3.09                | 3.03            | 3.33                   | 3.53         | 18.77 |
| Mode                   | 3.00          | 3.00            | 2.50                | 2.67            | 3.00                   | 3.00         | 15.75 |

* FSFI scores set as cut-off score for categorizing respondent into high and low FSD.
Table 3: Prevalence of FSD in respondent categorized as high and low FSD using median (18.52) as the cut-off score.

| FSD categories | FSFI scores | Prevalence (n=80) |
|----------------|-------------|------------------|
| High FSD       | ≤18.52      | 41               |
| Low FSD        | >18.52      | 39               |

Table 4: Prevalence of FSD by socio-demographic characteristics

| Variables               | FSD (n=80) | χ² | p-value |
|-------------------------|------------|----|---------|
|                        | High n (%) | Low n (%) |    |
| Age at Menarche         |            |            |    |
| < 15 years              | 10 (22.7)  | 34 (77.3)  |    |
| ≥ 15 years              | 31 (86.1)  | 5 (13.9)   |    |
| Workload                |            |            |    |
| ≤ 4 children            | 39 (63.9)  | 22 (36.1)  |    |
| > 4 children            | 2 (10.5)   | 17 (89.5)  |    |
| Parity                  |            |            |    |
| ≤ 4 children            | 39 (63.9)  | 22 (36.1)  |    |
| > 4 children            | 2 (10.5)   | 17 (89.5)  |    |
| Child-bearing Age       |            |            |    |
| ≤40 years               | 9 (60)     | 6 (40)      |    |
| >40 years               | 32 (49.2)  | 33 (50.8)   |    |
| Use Contraceptives      |            |            |    |
| Yes                     | 27 (48.2)  | 29 (51.8)   |    |
| No                      | 14 (58.3)  | 10 (41.7)   |    |

Table 5: Logistic regression for FSD by selected variables from bivariate analysis.

| Variable               | β     | S.E.  | p value | Adjusted OR | 95% CI for Adjusted OR |
|------------------------|-------|-------|---------|-------------|------------------------|
|                        |       |       |         |             | Lower                  | Upper                  |
| Age at menarche        |       |       |         |             |                        |                       |
| ≤15 years              | 3.270 | 0.681 | 0.000   | 26.309      | 6.924                  | 99.969                 |
| ≥15 years              |       |       |         |             |                        |                       |
| Parity                 |       |       |         |             |                        |                       |
| ≤ 4 children           | -2.925| 0.922 | 0.002   | 0.054       | 0.009                  | 0.327                  |
| > 4 children           |       |       |         |             |                        |                       |

Association of FSD with socio-demographic characteristics

Among the eight demographic variables tabulated in Table 1, three of them (alcohol consumption, smoking and medical history) were excluded from further analysis because all respondents (100%) showed the same characteristics. The Chi-square test was then used to evaluate the association between the five remaining variables (age at menarche, workload, parity, child-bearing age, and contraceptive) and prevalence of FSD. The results of bivariate (Chi-square test) analysis are presented in Table 4.

Based on the results of Chi-square test it was found that only two variables of socio-demographic characteristics showing a significant association with the prevalence of FSD, that is age at menarche and parity. The results of logistic regression analysis for FSD by selected variables from bivariate analysis (age at menarche and parity) are presented in Table 5.

DISCUSSION

The first significant finding of the study is none of the respondents who have a habit of smoking, consuming alcohol, or records of ill health. The absence of the respondents who smoke and consume alcohol is a typical phenomenon of women in developing countries including Southeast Asia, particularly Indonesia, that the habit of smoking and drinking alcohol relatively rare among women.\textsuperscript{18,19} Next, the phenomenon of zero number of respondent who have certain medical history, it may be a coincidence because the results of epidemiological studies of the diseases related to women sexual function (hypertension, obesity and diabetes) in Indonesia showed a different trend. Soewondo and Pramono, for example,
reported that predictors of pre-diabetes are male, old-age, high socio-economic status, low education level, hypertension, obesity, central obesity, and smoking. Mihardja et al, in contrast, suggested that diabetes mellitus affected more women than men which increased with age and body mass index. The occurrence of the diabetes was highly correlated with hypertension. Whereas, Widjaja et al, reported that within sex groups, the prevalence of prehypertension was higher in females.

Regarding the FSD situation of the respondents, except for only one of the 80 participants, 79 of the rest are suffered from sexual disorders (Table 2). These findings actually confirmed the previous assumption that the women who are in perimenopausal age generally decreased sexual function. There are many circumstances that cause perimenopausal women experience sexual dysfunction including physiological changes and the decreased physical activity. Among the physiological changes that are often associated with changes in sexual function in perimenopausal women is hormonal changes. The relationship between the decline in sexual function as a result of reduced physical activity in perimenopausal women has also been studied. In women whose average age of 49.8 years, Cabral et al found that physically active women obtained higher score in all FSFI domains (desire, arousal, lubrication, orgasm, satisfaction and pain) and total FSFI score (20.9), indicating better sexual function than their moderately active (18.8) and sedentary (15.6) counterparts.

The next important finding of this study is respondents who menstruate at the age <15 years tend to show quality of sexual function better than those who menstruate at age ≥15 years. Seemingly, this phenomenon related to the main estrogenic hormone conditions, 17β-estradiol. As reported by Emaus et al, in perimenopausal women, early age at menarche result in high levels of 17β-estradiol throughout the menstrual cycle. Estrogenic hormone, as has been widely suggested, is most important hormone related to women sexual function in all age levels. In peri- and postmenopausal women, estrogenic hormones therapy proved to alleviate climacteric symptoms and improve well-being. Estrogen therapy, even proven to improve sexual function in postmenopausal women with vulvovaginal atrophy.

The last, as indicated in Table 4, respondents with parity ≥4 tend to have better sexual function at their perimenopausal age. This phenomenon, although it still needs to be tested through more in-depth study, can also be associated with the female hormonal circumstances.

Women who gave birth reported to have somewhat higher average age of menopause occurrence in comparison to women who did not give birth. It seems give-birth associated with the function of ovary. As indicated by Barret et al that the ovarian function between nulliparous and parous women was clearly different. Parity has positive effect on bone mineral density (BMD) in postmenopausal women, whereas the mechanism of bone formation formation itself is maintaining at the cellular level by estrogen.

In summary, early menarche and high parity contributed to better sexual-quality of life in perimenopausal women. It seems that the low age at menarche and high parity depict the high activity of ovary so that the estrogenic hormones can be maintained.

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Conflict of interest: None declared

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