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Website:
http://jurnalobgin.fk.unand.ac.id/index.php/JOE
eISSN : 2579-8324 pISSN : 2579-8323

RESEARCH ARTICLE

Correlation between Menopause and Changes in Women's Sexual Function at Lubuk Buaya Public Health Center

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Abstract

Background: Sexuality is a fundamental need, as is eating and sleeping. Post-menopausal women experience many psychological changes and have feelings about their negative reactions to menopausal transformations. Decreased sexual function is considered one of the important complications of this period that plays a negative effect on sexual function. This study aims to determine the relationship of menopause stage with sexual function of women in Lubuk Buaya Public Health Center (PHC).
Method: This research method is observational analytic with a cross-sectional method. This study was conducted starting in March 2021 until the number of samples was reached. The study was conducted in the working area of Lubuk Buaya PHC. The minimum number of samples studied in this study was determined 140 samples. The sampling technique is stratified random sampling. Univariate analysis of data in the form of tables and bivariate analysis using normality test using Kolmogorov-Smirnov test, if the data is normally distributed Anova test or Kruskal Wallis test. If the p-value <0.05 is significant.
Results: The average age of respondents was 48 years This study found the frequency of premenopausal stage found the most (43.6%), followed by postmenopausal stage (21.4%), perimenopause (17.9%), and menopause stage (17.1%). The domain of desire (2.7±1.0) and arousal (2.7±1.3) achieved the lowest score, indicating major sexual problems, while the domain of pain was the domain where women obtained the highest score (3.6±1.5) indicating minor sexual problems. In this study, it was found that the menopause stage affects five domains of sexual function changes in the FSFI, namely desire, arousal, lubrication, orgasm, and satisfaction, while in the pain domain, there was no significant relationship.
Conclusion: Menopausal status is significantly related to the domains of lust, lust, lubrication, orgasm, and satisfaction. There is a significant relationship between the stage of menopause with FSFI domain scores.
Keywords: *Menopause, women's sexual function, elderly*

INTRODUCTION

Menopause is the cessation of the menstrual cycle once and for all for women who previously menstruated every month, which is because the number of follicles subjected to atresia continues to increase, until there are no more follicles available, as well as in the last 12 months amenorrhea, and is not caused by pathological circumstances. [1] The World Health

eISSN : 2579-8324 pISSN : 2579-8323
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Organization (WHO) says the menopause boom in the coming years will be hard to stem and estimates that by 2030 there will be around 1.2 billion women over the age of 50. Most of them (about 80%) live in developing countries and every year the population of menopausal women increases by about three percent. This means that women's health, in particular, deserves attention, so that it will increase life expectancy and achieve happiness and psychological well-being.[2] WHO Data in Asian countries, by 2025 the number of menopausal women will increase from 107 million to 373 million.[1]

Jones ' study in the United States showed that 7 out of every 10 couples studied were sexually active after age 60, many of whom continued until their 70s or 80s. According to a 2008 Nachtigall report, the decline in sexual activity after age 35 is due to fatigue or disinterest in men. The majority of women who experience natural menopause do not report a decrease in sexual desire, erotic pleasure, or orgasm and a decrease in sexual potential compared to men during the aging process. In Jones ' study, regarding sexuality in the United States, that arousal and sex drive do not change in 60% of women and 20% have decreased sex drive, the other 70% have increased sexual desire. [3]

The number of menopausal women in 2010 reached 15.5 million people or about 7.6% of the total population in Indonesia and this number is expected to increase from year to year, although reproductive health services that are needed at the age of menopause are not sufficient. [3] research conducted by Gorga, et al in 2016 in a study conducted on women in Bandar Buat village, Padang city reported the average age of menopause respondents was 50.65 years old with the youngest age 46 years and the oldest 58 years. There is a significant relationship between the amount of parity and the age of menopause in Kelurahan Bandar Buat. [4]

Many myths surround sexuality in menopause, the most common being that parents must be asexual and not practice or want sex. On the contrary, the majority of people aged 60 and over continue to have sexual intercourse and, above all, enjoy sexual activity. In addition to the false myth that it is believed that older people (especially older women) are unattractive where sex in older age is repulsive, risky, or "wrong," aging affects sexual dysfunction, so it should be avoided in old age. [5]

Available Data show that older men and women consider sexuality an important part of their lives, continue to have sexual desire, and want to engage in intimate relationships and sexual activities (kissing, hugging, foreplay, intercourse, oral sex, and masturbation) in the same frequency as younger adults (18-59 years), despite sexual problems. The sexual life of women continues until the menopausal years and beyond. [6]

Sexuality is a fundamental need, as is eating and sleeping. Human needs certainly change with age, both mentally and physically, but sexuality does not disappear at a certain age. The opportunity to live one's sexuality can be seen as the realization of one's human potential. Sexuality is closely linked to love and connectedness. Being able to give and receive love is an individual ability that has nothing to do with age. As doctors, we are responsible for providing care that guarantees a good quality of life, which is not surprising if sexuality plays an important role. [5,6]

Interest in female sexual and reproductive behavior is likely as old as our species. One of the oldest known medical texts, the Kahun Papyrus, discovered near the pyramids in El-

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Lahoun, Egypt, in 1800 BC, is a gynecological text outlining causes and treatments for women's reproductive health problems, including fertility, contraception, and pregnancy problems. [7]

Female sexuality in middle age is explored relatively well in medical conditions and menopause-related problems. In a review of the literature on menopausal sexuality, it was attributed that lower estrogen levels reduce sexual response and sexual desire. Other studies report that most aspects of female sexuality are not affected by age, menopausal function, or hormone levels. Factors attributed to influence midlife sexuality are current health and treatment status, social status, cultural attitudes, and dissatisfaction with partner relationships. [6]

In Indonesia, sexual dysfunction is quite common. Sexual dysfunction means impaired sexual function, which can be experienced by both women and men. By the existing components of sexual function. Data reported by Pangkahila (2005) states that 55.7% of married women never experience orgasm, and 12.7% rarely experience orgasm. Female sexual dysfunction is getting more and more attention, even from a country known for putting women aside when it comes to sexuality. The report of Ibrahim et al (2013) states that the prevalence of sexual dysfunction in Egypt is high. In women aged an average of 39.5 years, 52.8% experienced sexual dysfunction. Most of those women experience premenopausal complaints. [8]

The results of a study conducted by Hartati et al in 2018 showed that the sexual function of menopausal women is related to desire, and the desire for sexual intercourse is different in menopausal women. Some women who have gone through menopause may feel pain and lose the desire to have sex after menopause. Menopausal women openly show reluctance to have sexual intercourse with their partner, implying the behavior of turning their backs on their husband while he is sleeping. [9]

In a survey conducted by Guthrie et al. Studies, [10] of which lasted 9 years, showed the results of a review of studies that overall sexual function decreased from 88% in the first year after menopause to 34% after 8 years. [11] However, Blumel et al. [12] reported that improved sexual function after five years of menopause was associated with a reduction in symptom severity and a shift from acute menopausal conditions. The reason for this contradiction may be the positive attitude that women have acquired in some societies towards menopause after menstruation. Another review showed that low sexual function is positively associated with the number of pregnancies, childbirth, and abortions. [13]

Post-menopausal women experience many psychological changes and have feelings about their negative reactions to menopausal transformations. These changes can affect their interpersonal, social, family, and overall quality of life. [14] The decline in sexual function is considered one of the important complications of this period that plays a negative effect on sexual function. [15] Some studies show that post-menopausal women experience aging, changes in the mental image of their appearance, and the final feeling of femininity, disability, disappointment, depression, and anxiety that can affect sexual function. [14] Borissova et al. [16] reported that decreased libido in post-menopausal women may be related to some psychological factors such as depression. Danaci et al. [17] showed that anxiety and depression have a profound effect on sexual intercourse. Some experiments emphasize the relationship between age and sexual function. [18]

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Increasing age leads to a decrease in sexual response and sexual desire, as well as the frequency of sexual intercourse during menopause. As a result, sexual function faces disorders that can be an important factor in reducing sexual function in postmenopausal women. [19] Malacara et al., [20] in a study in Mexican women, found that libido is affected by aging. so that postmenopausal women tend to experience a decrease in sexual desire more than women before menopause. Dennerstein et al. [21] showed that women's sexual response during middle age is influenced by two age factors, while Gott and Hinchliff [22] reported that aging and long-term relationships with partners are necessary to counteract the decline in partner sexual desire. [13]

Furthermore, there is a general lack of in-depth research on the subject of sexuality in menopausal women, worldwide and even more so in Indonesia, due to difficulties such as interviewer and respondent bias, poor response rates, and hesitancy to conduct detailed research into highly personal areas that are taboo. [5]

Therefore, the discussion about sexuality in menopause becomes interesting to study. It is hoped that this study can serve as learning material about menopause and its problems. As well as delving deeper into related sexual dysfunction in menopausal women concerning aspects of life such as interpersonal, social, family, and quality of life.

METHOD

This research method is observational analytic with a cross-sectional method. This study was conducted starting in March 2021 until the number of samples was met, the samples taken met the inclusion criteria and were willing to participate in the study after being explained and signing informed consent. The study was conducted in the working area of Lubuk Buaya PHC.

The minimum number of samples studied in this study was determined 140 samples. The sampling technique is stratified random sampling. The sample used was part of the population that met the inclusion and exclusion criteria of the study, as follows:

A. Inclusion Criteria
1. Living with your husband and being able to have sexual intercourse for at least the last four weeks
2. Willing to participate in this study by signing informed consent

B. Exclusion Criteria
1. Postmenopausal women with a history of sexual dysfunction before postmenopausal age (impaired desire, arousal, lubrication, orgasm, and sexual pain)
2. Medium in the treatment of diseases:
   a. Suffering from diabetes mellitus from anamnesis
   b. Suffering from heart disease from anamnesis
   c. Suffering from liver disease from anamnesis
   d. Suffering from kidney disease from anamnesis
   e. Suffering from neurological disorders (disorders of the nerves) of the anamnesis
3. Presence of gynecological abnormalities such as infection or trauma that can be from anamnesis
4. Consuming alcohol (at least 1 drink a day regularly) and drugs such as SSRIs (Anti-anxiety and depression) obtained from anamnesis.
5. Still taking hormonal contraceptives or hormone replacement therapy.

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Univariate analysis of data in the form of tables and bivariate analysis using normality test using Kolmogorov-Smirnov test, if the data is normally distributed Anova Test or Kruskal Wallis Test. If the p-value <0.05 is significant.

RESULTS

Based on **Table 1**, the average age of the respondents was 48.25±6.07 years. The most recent level of education of respondens was Junior High School, which amounted to 64 people (45.7%). This indicates a fairly low average educational status in this study sample. In the analysis of the duration of marriage, most of the respondens have been married >10 years, namely as many as 125 people (89.3%).

Table 1. Characteristics of Respondens

Characteristics	f	%	(Mean±SD)
Age			48,25 ± 6,07
Education			
Elementary School	42	30	
Junior High School	64	45,7	
Senior High School	30	21,4	
College	4	2,9	
Duration of Married			
0 - 5 years	0	0	
6 – 10 years	15	10,7	
>10 years	125	89,3	
Total	**140**	**100**	

In this study, the average age of respondents was 48.25 years. If associated with the operational definition of this study, the age of 48 years belongs to the perimenopausal stage with an age range of 46-50 years. This is in line with research by Tong et al with an average of 50-year-old respondents. From 45 to 64 years of age is the main stage of menopausal transition status, and 50 years of age is the average age of menopausal status; 50% of women switch to menopause by the age of 50. After 60 years, almost 100% of women are in postmenopausal status.[23] This is in stark contrast to a study by Magdalena Galas, et al of 294 Polish women aged 40-65. Obtained the average age of respondents is 52 years old ± 5,3.[24]

Sexual problems increase with age: 27.2% (ages 18-44), 44.6% (ages 45-64), and 80.1% (ages 65 and over). The prevalence of sexual activity decreases with age, and women report a lower frequency of sexual activity than men at all ages. (SIMON 2018) sexual problems increase with age, decreased estrogen levels, and the natural menopausal transition.

Thus, increasing age and natural menopause have a significant negative impact on sexuality, especially libido, arousal, orgasm, desire, and sexual activity, while physical activity positively affects sexual function.[24]

However, it is widely recognized that sexual function deteriorates with increasing menopausal status, regardless of age.[25] Some studies have reported that there is a close relationship between low sexual function and menopause, but age is not an independent factor, which means the relationship with age may be the result of the influence of one or more other factors. The research by Lett et al showed no association between age at menopause and sexual dysfunction.[26]

In this study, it was found that most respondents had the last education of elementary and junior high school where which reflects the lack of knowledge related to sexual health in respondents which resulted in a low FSFI score (total mean 18.04) in this study. Education plays an important role in the perception of sexuality in menopause.[27] Research Zhang et al mention education and urbanity are usually associated with liberal values and better knowledge.[28] Improving sexual awareness during the menopausal period helps the individual not to consider abnormal sexual dysfunction due to menopausal symptoms and changes in sexual behavior due to aging, but to seek to adapt, resolve or alleviate these problems. Therefore, the role of sexual awareness in preventing and treating sexual disorders in women is quite clear.[29] studies by Nateri et al, the frequency of sexual dysfunction in menopausal women is 67.42%, this condition causes stress for sufferers so they look for various coping strategies. Based on the analysis of the Study, Problem-Oriented coping strategies such as social support, problem-solving, and target replacement are the best strategies for reducing sexual dysfunction or also increasing sexual satisfaction.[30]

Most of the respondents in this study had a duration of marriage >10 years. This is similar to the findings of Ahmadi et al who found the average length of marriage respondents was 21.3 years. This study also found rate of sexual dysfunction that much is 65.4%.[31]

In **Table 2**, found that from the menopausal status of the respondents, the frequency of premenopausal stages was found to be the most (43.6%), followed by postmenopausal stages (21.4%), perimenopausal (17.9%) and menopausal stages (17.1%).

Table 2. Menopause Status in Lubuk Buaya PHC

Menopausal Status	f	%
Pramenopause Stage	61	43,6
Perimenopause Stage	25	17,9
Menopause Stage	24	17,1
Pascamenopause Stage	30	21,4

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eISSN : 2579-8324 pISSN : 2579-8323

Total	140	100

This study found the frequency of the premenopausal stage found the most (43.6%), followed by the postmenopausal stage (21.4%), perimenopause (17.9%), and menopause stage (17.1%). This is possible because the average age of respondents was 48.25 years. According to the classification, the age of 48 years is classified as pre-menopausal.

Research by Magdalena Galas, et al there are 51.7% of women with the perimenopausal stage and 48.3% in the postmenopausal stage. The difference in the average age is reasonable, possibly due to the data of these respondents having an average age of 52 years, which is classified as perimenopausal stage.[24]

Menopause is one of the evolutionary stages that all women go through as they age. The most significant causes of sexual disorders in this period are physiological changes in the body, psychological problems, and lack of sexual knowledge. The study by Yazdanpanhi explained there is a significant association between stress, anxiety, and sexual dysfunction in menopausal women.[32]

Estrogen plays an important role in the awareness and acceptance of sexual activity. A decrease in estrogen levels in middle-aged women can lead to a decrease in sexual activity, as well as vaginal dryness associated with pain during sexual intercourse.[24] According to Lett et al in addition to estrogen, androgens also modulate sexual function which testosterone increases desire and arousal. Estrogen and testosterone act centrally through their effects on dopamine and also cause peripheral responses through their effects on nitric oxide. Signs and symptoms of estrogen deficiency include vaginal thinning, dryness, loss of elasticity, sexual pain, and difficulty with sexual arousal and interest.[26]

In **Table 3** based on the analysis of the data of this study, the pain domain was the domain where women obtained the highest score (3.60±1.59) indicating minor sexual problems, while the desire domain (2.7±1.0) and arousal (2.78 ±1.30) achieved the lowest score, indicating major sexual problems.

Table 3. Mean Sexual Dysfunction Domain based on FSFI Scores in Respondents

	Mean	**Std. Deviation**
Desire	2,78	1,00
Arousal	2,73	1,30
Lubrication	3,09	1,61
Orgasme	2,92	1,64

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Satisfication	2,90	1,31
Pain	3,60	1,59

Based on the analysis of the data of this study, the domain of desire (2.7±1.0) and arousal (2.7±1.3) achieved the lowest score, indicating major sexual problems, while the domain of pain/ pain was the domain where women obtained the highest score (3.6±1.5) indicating minor sexual problems. These results are in line with a study by Magdalena Galas et al, the lowest score, was observed in the domain of "sexual desire" (2.91±1.49) while there are differences in the domain that obtained the highest score, the satisfaction domain.[24] also Zhang et al's large-scale study of women in China, the potential sexual problems of menopausal women were found in all domains except sexual pain. Similar to the results of this study, pain as the domain of sexual dysfunction problems is the mildest.[28]

According to Tong et al's study, 36,000 respondents by assessing sexual function using the Female Sexual Function Index questionnaire containing 19 questions items Chinese version. Tong et al analyzed six domains and the prevalence of female sexual dysfunction. Results regardless of age, desire, and arousal dysfunction were the primary sexual dysfunction domain in postmenopausal women compared to premenopausal women (42.5% vs. 37.1%, p 0.019; 40.8% vs. 33.2%, p 0.001).[23]

In a Review by Scavello et al., of sexual dysfunction in menopausal women, the most commonly reported domains were low sexual desire (40-55%), poor lubrication (25-30%) and dyspareunia (12-45%).54 research by Franklin Jose of 492 respondents also showed the main sexual disorders are difficulty sexual arousal (78.65%) and pain/dyspareunia (66.46%).[33]

Based on **Table 4** there are no normally distributed data variables. Obtained that P <0.05 then concluded that the data is not normally distributed then the numerical transformation.

Table 4. Normality Test

		Tran desire	Trans arousal	Trans lubrication	Trans orgasme	Trans satisfaction	Trans pain
N		140	140	140	140	140	140
Normal Parameter	Mean	1,638	1,569	1,609	1,526	1,655	1,778
	Std. Deviation	.3201	.5163	.7111	.7733	.4080	.6708
Most Extreme	Absolute	.237	.266	.314	.326	.181	.371
	Positive	.145	.170	.192	.166	.181	.158

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Difference	Negative	.237	.266	.314	.326	.176	.371

Status Menopause	Perubahan Fungsi Seksual (Mean±SD)

Test Statistic	.237	.266	.314	.326	.181	.371
Asymp. Sig. (2-tailed)	.000c	.000c	.000c	.000c	.000c	.000c

In **Table 5** of data transformation test, the results obtained in the form of P < 0.05, this indicates that the data is not normally distributed so that non-paramteric test is performed with Kruskal wallis test.

Table 5. Transformation Test

		Tran desire	Trans arousal	Trans lubrication	Trans orgasme	Trans satisfaction	Trans pain
N		140	140	140	140	140	140
Normal Parameter	Mean	1,638	1,569	1,609	1,526	1,655	1,778
	Std. Deviation	.3201	.5163	.7111	.7733	.4080	.6708
Most Extreme Difference	Absolute	.237	.266	.314	.326	.181	.371
	Positive	.145	.170	.192	.166	.181	.158
	Negative	.237	.266	.314	.326	.176	.371
Test Statistic		.237	.266	.314	.326	.181	.371
Asymp. Sig. (2-tailed)		.000c	.000c	.000c	.000c	.000c	.000c

Based on **Table 6**, using Kruskal Wallis Test, there is a relationship between the stage of menopause with the domain desire, arousal, lubrication, orgasm, and satisfaction with the P-value of the Fifth domain is 0.000 while in the pain domain is not found a relationship with the status of menopause with a p value of 0.104

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Status Menopause	Changes of Sexual Function (Mean±SD)					
	Desire	*Arousal*	*Lubrication*	*Orgasm*	*Satisfaction*	*Pain*
Pre Menopause	3,37±0,67	3,54±0,63	4,12±0,47	4,02±0,64	3,50±1,24	3,77±0,75
Peri Menopause	2,97±0,94	2,88±1,29	3,33±1,46	3,04±1,40	2,94±1,32	4,28±1,28
Menopause	2,25±0,83	2,13±1,23	2,36±1,49	1,98±1,56	2,48±1,16	3,11±2,12
Post-Menopause	1,86±0,83	1,41±1,10	1,38±1,63	1,33±1,63	1,98±0,84	3,09±2,27
**P-Value*	0,000	0,000	0,000	0,000	0,000	0,104

	Desire	*Arousal*	*Lubrication*	*Orgasm*	*Satisfaction*	*Pain*
Pra Menopause	3,37±0,67	3,54±0,63	4,12±0,47	4,02±0,64	3,50±1,24	3,77±0,75
Peri Menopause	2,97±0,94	2,88±1,29	3,33±1,46	3,04±1,40	2,94±1,32	4,28±1,28
Menopause	2,25±0,83	2,13±1,23	2,36±1,49	1,98±1,56	2,48±1,16	3,11±2,12
Pasca Menopause	1,86±0,83	1,41±1,10	1,38±1,63	1,33±1,63	1,98±0,84	3,09±2,27
**P-Value*	0,000	0,000	0,000	0,000	0,000	0,104

Table 6. Correlation of Menopausal Status with Changes in Sexual Function in Respondents

Sexual dysfunction manifests as chronic sexual symptoms associated with sexual pain and the 3 phases of the sexual response cycle are desire, arousal, and orgasm. The female sexual response cycle occurs in 2 distinguishable patterns. In the traditional linear model, spontaneous desire for sex motivates the initiation of sexual activity, which then leads to arousal and orgasm.[34]

In this study, significant differences were obtained from the domain that influenced the stage of menopause. In this study, it was found that the menopause stage affects five domains of sexual function changes in the FSFI, namely desire, arousal, lubrication, orgasm, and satisfaction, while in the pain domain, there was no significant relationship.

In the desired domain, there was a decrease in the mean score as the development of menopausal status with the highest mean in premenopause and the lowest in late menopausal status, namely post-menopause. Research by Woods et al in 2010 in which women experienced a significant decrease in sexual desire during the menopausal transition.[35] Scavello et al in 2019 also found that sexual function worsened with increasing menopausal status. The most commonly reported symptoms include low desire (40-55%), poor lubrication (25-30%), and dyspareunia (12-45%).54-year-old El Khoudary et al also said that there was a decrease in sexual function due to a decrease in desire which was more driven by the transition to menopausal status.[36]

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The Arousal domain also decreased with the development of menopause. In a systematic review by Scavello et al in 2019 it was also stated that peri and post-menopausal women reported lower arousal function than when they were in their 40s. This study describes the more advanced the stage of menopause, the more decreased arousal function by this study with significant differences in menopausal status.[25]

In the lubrication domain, there is a significant difference in each stage of menopause with the average score decreasing as the menopause stage continues. This is to a study by Waetjen et al in 2018 in 2435 women in a prospective cohort study in which increased menopausal status was positively associated with the development of vaginal dryness (poor lubrication), regardless of the sexual activity of the partner. When they first arrived, the study participants were interviewed about vaginal dryness, and found that 19.4% of women experienced this problem. Annual visits were conducted and at the 13th visit, vaginal dryness increased in study participants to 34%.[37] The worsening of lubrication status is influenced by estrogen levels whereby higher estradiol (E2) levels from premenopause change to highly variable levels in perimenopause and to lower, more consistent levels in postmenopause. [37,38]

In the domain of orgasm, a significant relationship between menopausal status and orgasm was found where the higher the menopausal status, the more difficult it was for patients to experience orgasm. The worsening of the orgasmic domain in post-menopause is due to changes in nerve function because the hypoestrogenic state of menopause can delay the reaction time of the clitoris and produce a slow or absent orgasmic response.[39] The study by Smith et al in 2017, different results were obtained where no significant relationship was found between the menopausal transition stage and the orgasm domain on the FSFI score. This study mentioned insignificant results may be caused by factors of depression, fatigue, irritability, and health status.[40]

This study also found a decrease in satisfaction with increased menopausal status with a statistically significant difference. Similar results were found by Khalesi in 2020 where in menopausal women satisfaction disorders most often occur and mentioned the decrease in hormone levels then this disorder gets worse.[41] However, further research by Deeks et al States sexual satisfaction is more influenced by age than menopausal status based on multiple regression tests associated with degeneration of organ function where the relationship of age to sexual function was not tested in this study.[42]

In the premenopausal stage, changes in sexual function were more commonly seen in the desire variable (3.37±0.67). In the perimenopausal stage, changes were more frequent in the arousal variable with a mean of 2.88±1.29. At the menopause stage, changes are more common in the orgasm variable with the lowest mean of 1.98±1.56 and the last in the postmenopausal stage, the variable that is often disturbed is the same as the menopause stage, namely the orgasm variable.

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eISSN : 2579-8324 pISSN : 2579-8323

In the premenopausal stage, changes in sexual function are more commonly seen in the desire variable. Kingsberg et al explain the cause of the decline in this domain in the pre-menopausal phase. Androgen levels are at their highest when a woman is in her 20s and then gradually decline over time so that when a woman is in her 40s, these levels are only left about half circulating. After this age, there does not appear to be any further significant decline after menopause because ovarian production of androgen precursors remains relatively constant.[43] This is likely to cause in the pre-menopausal stage (age 40s) patients more often problems in the desire domain because this domain is the first disorder felt by women who will experience menopause and this disorder with age will get worse which can be seen in this study where desire decreases as the menopause stage develops. In the more advanced stages of menopause more functions decrease so that at other stages, desire is no longer the most numerous complaint.

It should be highlighted that low desire is the most common sexual problem in women in middle age, it is necessary to evaluate the presence of sexually related distress to diagnose hypoactive sexual desire disorder (HSDD), which is characterized by a persistently low or absent desire that causes significant suffering. In this regard, a community-based cross-sectional study of Australian women aged 40-65 year found that the prevalence of low desire was 69.3%, while HSDD was 32.2%. Some modifiable factors associated with HSDD in middle-aged women are vaginal dryness, dyspareunia, moderate to severe depressive symptoms, and the use of psychotropic drugs.[25]

In this study, in the perimenopausal stage, the most frequently disturbed domain was arousal with a mean of 2.88±1.29. Sex steroid hormones play a major role in the positive modulation of female sexual behavior, mood, emotions, and cognition. A decrease in hormone levels occurs from before menopause with very low levels detected in post-menopause being associated with adverse consequences on overall health. About the central nervous system, low levels of sex steroids due to menopause can result in changes in the activation of certain areas of the brain, representing a neurobiological correlation of decreased sexual arousal during perimenopause as occurred in this study. As already explained, arousal is influenced by desire. In this group, the desire is lower than pre-menopause but the decline in hormones at this stage not only affects the desire/desire but begins to affect the function of organs such as the start of dryness in the vagina that causes arousal or arousal to be more down and often complained of at this stage.[25,27] This study obtained at the stage of menopause and postmenopausal disorders that most often occur is orgasm. This is by the Harder et al 2019 study that conducted a qualitative analysis of 4,418 postmenopausal women where at this stage the respondents complained of vaginal dryness and spasm, decreased physical (but not mental) desire, and changes and large reductions in reaching orgasm and orgasm intensity.[44] In the postmenopausal period is a more common urogenital menopausal syndrome. The menopausal genitourinary syndrome affects at least 50% of postmenopausal women. Many women experience dyspareunia and may not realize that decreased libido or difficulty orgasmic may be secondary causes of vulvovaginal atrophy.[34] As mentioned earlier, steroid sex hormones will decrease until the lowest levels

occur after menopause. The postmenopausal loss of estrogen usually causes vulvovaginal atrophy and dryness, as well as changes in genital function through decreased clitoral blood flow and decreased sensory perception. This is following what was mentioned in the 2021 Siregar et al study, namely that the most important physiological changes during menopause are a 5-10-fold decrease in the amount of estradiol circulating in the blood vessels and atrophy in the vaginal walls can be observed several weeks to several months after the decrease in estrogen concentration since pre-menopause. A common cause of sexual dysfunction in postmenopausal women is loss of vaginal lubrication during sexual activity. The lack of estrogen in the vagina and surrounding tissues also leads to reduced vascularity, contributing to a decrease in postmenopausal vaginal perfusion. At this stage, there is also a decrease in muscle tension in the pelvic floor after menopause and a decrease in uterine contractions, which can decrease the intensity of orgasms and also cause discomfort during uterine contractions. For this reason, some patients after menopause will find it more difficult to reach the orgasm stage in sexual intercourse.[43,45]

CONCLUSION

In the pre-menopausal stage, desire disorders are more common. In the perimenopausal stage, disorders are more common in the domain of arousal. Meanwhile, in the menopause and post-menopause stages, changes occur in orgasm variables. A significant association between menopause stages and fsfi domain scores.

Further research needs to be done regarding the relationship of menopause stages with the domain of sexual function in the fsfi score so that it can be proven correct. In addition, this study is also carried out to understand the causes of menopausal disorders in each stage of menopause so that the choice is not considered to be sexually dysfunctional by the patient is better to know.

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