



Associated factors to Dyspareunia in North Africa: study among Moroccan women

¹Sana El adlani, ²Abdelhafid Benksim, ³Mohamed Cherkaoui

^{1,3}Pharmacology, Neurobiology, Anthropobiology and Environment, Faculty of Sciences Semlalia, Marrakesh, Morocco

²High Institute of Nursing Professions and Health Techniques, Marrakesh, Morocco

Abstract: Dyspareunia is common health problem that affect negatively quality of women's life. Our objective is to prove the importance to diagnose it at every opportunity. 300 women aged 18-60 years were selected by a simple random sampling method, was conducted between 2022 and 2023, in Morocco. The questionnaire was about socio-demographic and associated risks factors related to Dyspareunia. Statistical analyses were performed using Statistical Package for Social Sciences version 25. Dyspareunia was reported by 40, 33% of active sexual Moroccan women. Dyspareunia was associated to vaginal dryness (OR=3,426; 1,636 - 7,175); vaginismus (OR=3,621; 1,617 - 8,110); body mass index (OR=1,086; 1,008 - 1,169); menopause (OR=1,112; 0,549 - 2,254); gynecological disease (OR=1,128; 0,952 - 1,336), mode of delivery (OR=1,052); complication of postpartum period (OR=1,205) and Sexual transmitted infection (OR=1,137). Results identified that the risk factor was related to combined oral contraception (p=0,005). Dyspareunia is sexual problem that causes distress for women. It is why; health professionals should take into consideration socio-economic context, religion and culture of women especially in developing countries.

Keywords: Dyspareunia, Women, sexual problem, Africa, Morocco.

I. INTRODUCTION

The frequency of dyspareunia worldwide can vary depending on various factors such as population demographics, cultural factors, access to healthcare, and reporting practices. The studies conducted in different regions have provided insights into its prevalence. Additionally, the prevalence rates can vary depending on the specific population studied and the criteria used to define and diagnose dyspareunia [1].

The World Health Organization (WHO) does not have a specific definition or classification for dyspareunia in its International Classification of Diseases (ICD). A many studies indicated that dyspareunia is a medical term used to describe persistent or recurrent pain during or after sexual intercourse [2]. Dyspareunia can affect both men and women, although it is more frequently reported by women [2, 3]. It's neglected female health problem with a significant financial burden on women and the health care system [3]. Moreover, it's genital pain disorder that has negative influence on women's quality of life [4].

The criteria for diagnosing dyspareunia or the genito-pelvic pain/penetration disorder include for at least six months resulting in significant distress: (a) vaginal penetration during intercourse; (b) marked vulvovaginal or pelvic pain during vaginal intercourse or penetration attempts; (c) marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of vaginal penetration; and (d) marked tensing or tightening of the pelvic floor muscles during attempted vaginal penetration [5, 6].

A systematic review included studies from various countries reported that prevalence of dyspareunia among women ranged from 8% to 21% [7, 8]. In developed countries like United State, overall prevalence of self-reported dyspareunia was approximately 10.5% [8]. Besides, about dyspareunia in European women, the prevalence ranged from 7% to 60%, depending on the specific population studied and the methodology used [7].

Another study published focused on prevalence of dyspareunia in the general population of six European countries (Belgium, Germany, Italy, Netherlands, Sweden, and United Kingdom) found that the overall prevalence of dyspareunia was approximately 13% [8, 9, 10]. An Australian study found that 36% of women suffer from dyspareunia [11].

In developing countries, it can be challenging to determine prevalence of dyspareunia accurately due to various factors, including limited access to healthcare, cultural taboos, and underreporting of sexual health issues [12]. The prevalence of dyspareunia among Middle Eastern women is 21% [12]. A study conducted in Nigeria involving married women reported a prevalence of dyspareunia is 43.9% [13]. Another study in Egypt found a prevalence rate 13.5% among women attending a gynecology clinic [14].

The etiology of dyspareunia is considerate as acute genital infections, pelvic floor muscle dysfunction, and endometriosis (9). We found in the literature that dyspareunia is associated to chronic health like metabolic disease, urinary tract infections, depression and chronic fatigue syndrome [10, 15]. Also, the literature linking dyspareunia with delivery abortion, menopausal status, vaginal dryness, vaginismus, vulvar vestibular syndrome, oral contraceptive, sexual transmitted infection and surgical intervention especially surgery on uterus (hysterectomy, pelvic support surgery) [10, 15].

In Morocco, to our knowledge, no study was dedicated to determine the prevalence and associated risk factors for dyspareunia in Moroccan women. Therefore, the present paper aim is to estimate the population prevalence of dyspareunia in Moroccan women and to better understand the main dyspareunia associated factors in the same population.

II. RESEARCH METHODOLOGY

2.1 Participants and procedure

We conducted this cross-sectional study, with approval of the Ethic of the Moroccan health authorities in the region of Marrakech-Safi which is located in the middle of Morocco. This region is characterized with vary culture and ethnic origin. A sample of 300 women aged 18-60 years consulting different public and private health centers was selected by a simple random sampling method, between 1 July 2022 and 1 June 2023. The subjects were chosen without any previous appointments. This investigation is focused on sexual active women.

2.2 Data collection

The participants were interviewed at a private communication environment that respects privacy. Before the interview, we explained to participant the protocol of the study and obtained their consents. The questionnaire was the most appropriate data collection method to this study. The form included a semi-structured questionnaire with open and close questions in French and Arabic languages, about socio-demographic characteristics and questions about physical factors generally associated to dyspareunia like medical and surgical history, delivery, complication of postpartum period, mode of abortion, method of contraception, sexual transmitted infection, vaginal dryness, menopause, vaginismus, gynecological diseases.

2.3 Statistical analyses

We made a statistical quantitative descriptive analysis for questionnaire. First, we carried out the content analysis for open questions. Then, statistical analyses were performed using Statistical Package for Social Sciences (version 25). Descriptive statistics were calculated for all continuous variables. A Chi-square test and Fisher's exact test were used to study relationships between categorical variables. Associations were measured in odds ratio (OR) with 95% confidence intervals (CI). Wald χ^2 statistic is used to test the significance of individual coefficients for verifying the true values. For all analyses the differences were considered significant when $P < 0.05$.

III. RESULTS OF DATA ANALYSIS

This paper is focused on 300 sexually active women in the past six month, 121 (40, 33%) with dyspareunia (**groupe1**) and 179 (59, 66%) without dyspareunia (**groupe2**). The most important characteristics information distributed of the participants are summarized in **table 1**.

Table 1: Socio-economic and demographic characteristics of women with Dyspareunia and women without Dyspareunia

Variables and modalities	Women with Dyspareunia n (%) or Mean \pm SD N=121	Women without Dyspareunia n (%) or Mean \pm SD N=179	Pvalue
Age (Years)	32,05 \pm 8,60	32,20 \pm 8,23	0,568
Geographic origin			
Urban	90 (74,4)	116 (64,8)	0,079
rural	31 (25,6)	63 (35,2)	
Ethnicity			
Arabic	75 (62)	118 (65,9)	0,485
Amazigh	46 (38)	61 (34,1)	
Education status			
Illiterate	30 (24,8)	50 (27,9)	0,462
Primary	32 (26,4)	34 (19)	
Secondary	25 (20,7)	44 (24,6)	
Tertiary level	34 (28,1)	51 (28,5)	

Profession			
Housewife	72 (59,5)	116 (65,4)	
Day worker	11 (9,1)	12 (6,7)	0,350
Employee	24 (19,8)	40 (22,3)	
Official	13 (10,7)	9 (5)	
businesswomen	1 (0,8)	1 (0,6)	
Marital status			
Married/with partner	115 (95)	166 (92,7)	
Divorced	6 (5)	13 (7,3)	
Widow	0 (0)	0 (0)	0,422
Years of marriage/relationship	9,08 ± 7,19	8,69 ± 6,11	0,125
Household structure			
A lone	41 (33,9)	53 (29,6)	
Nuclear household	54 (44,6)	84 (46,9)	0,730
Extended family	26 (21,5)	42 (23,5)	
Fertility			
Fertile women	104 (86)	156 (87,2)	
Infertile women	17 (14)	23 (12,8)	0,764

Statistical significance at $p < 0,05$

The average of women's age in this study were $32,05 \pm 8,60$ years and $32,20 \pm 8,23$ years in women with and without dyspareunia, respectively. The most of women in both of **groupe1** and **groupe2** were citizen, whereas education status varies between illiterate, primary, secondary and tertiary level with approximately the same frequency. More than 50% were unemployed, 59,5% of **groupe1** and 65,4% of **groupe2** with low income. The most of them are married or with partner (95% **groupe1** and 92,7% **groupe2**). In addition, the average of marriage/relationship duration were $9,08 \pm 7,19$ years in **groupe1** and $8,69 \pm 6,11$ years in **groupe2**. The results showed that only 14% of women in **groupe1** and 12% of women in **groupe2** were infertile.

Table 2: Comparison of clinical characteristics of women with Dyspareunia and women without Dyspareunia

Variables and modalities	Women with Dyspareunia n (%) N=121	Women without Dyspareunia n (%) N=179	Pvalue
Medical history			
Cardiovascular Disease	2 (1,7)	4 (2,2)	
Metabolic Disease	17 (14)	30 (16,6)	
Bronchopulmonary Disease	2 (1,7)	1 (0,6)	0,849
Neuropsychiatric Disease	2 (1,7)	3 (1,7)	
Without medical Disease	98 (81)	141 (78,8)	
Surgical history			
Appendectomy	6 (5)	10 (5,6)	
Cholecystectomy	3 (2,5)	8 (4,5)	
Ectopic pregnancy	00 (00)	2 (1,1)	0,90
Umbilical Hernia	2 (1,7)	00 (00)	
Without Surgical history	107 (88,4)	159 (88,8)	
Mode of delivery			
Non-instrumental vaginal delivery without tearing	18 (14,9)	24 (13,4)	
Non-instrumental vaginal delivery with tearing	2 (1,7)	7 (3,9)	
Vaginal delivery with episiotomy	46 (38)	76 (42,5)	
Instrumental vaginal delivery	5 (4,1)	7 (3,9)	
Caesarean section	29 (24)	40 (22,3)	0,803
Nulliparous	21(17,4)	25 (14)	
Mode of delivering the placenta			
Natural delivery of placenta	41 (33,9)	70 (39,1)	
Uterine exploration	23 (19)	25 (14)	
Artificial delivery of placenta	36 (29,8)	59 (33)	0,484
Nulliparous	21(17,4)	25 (14)	
Complication of postpartum period			
Without complication	74 (61,2)	126 (70,4)	
Puerperal Psychosis	22 (18,2)	23 (12,8)	
Puerperal Sepsis	4 (3,3)	5 (2,8)	0,408
Nulliparous	21(17,4)	25 (14)	

Mode of abortion			
Spontaneous expulsion,	31 (25,6)	33 (18,4)	
Curettage	9 (7,4)	16 (8,9)	0,517
Vacuum-aspiration	2 (1,7)	3 (1,7)	
No abortion	79 (65,3)	127 (70,9)	
Method of contraception			
Natural method	26 (21,5)	31 (17,3)	
Combined oral contraception	32 (26,4)	34 (19)	
Progesterone only pills	10 (8,3)	52 (29,1)	
Injectable method	10 (8,3)	13 (7,3)	0,005
Female condom	1 (0,8)	00 (00)	
Male condom	9 (7,4)	11 (6,1)	
Intra-uterine device	14 (11,6)	17 (9,5)	
No method of contraception	19 (15,7)	21 (11,7)	
Sexual transmitted infection (STI)			
Yes	61 (50,4)	71 (39,7)	
No	60 (49,6)	108 (60,3)	0,066
Vaginal dryness			
Yes	32 (26,4)	15 (8,4)	
No	89 (73,6)	164 (91,6)	0,000
Stages of menopause			
Perimenopause	12 (9,9)	19 (10,6)	
Menopause	2 (1,7)	1 (0,6)	0,496
Postmenopause	1 (0,8)	00 (00)	
Any stage of menopause	106 (87,6)	159 (88,8)	
Vaginismus			
Yes	26 (21,5)	12 (6,7)	
No	95 (78,5)	167 (93,3)	0,000
Gynecological Disease			
Bartholinitis	2 (1,7)	2 (1,1)	
Dysmenorrhea	23 (19)	28 (15,6)	
Endometriosis	13 (10,7)	4 (2,2)	0,017
Hormonal disorder	18 (14,9)	25 (14)	
No gynecological disease	65 (53,7)	120 (67)	

Statistical significance at $p < 0,05$

Table 3: Variables independently associated with Dyspareunia (n=300), according to multiple logistic regression model

Variables and Modality	β	Wald	P value	OR	(95% CI)
Age	-0,030	2,460	0,117	0,970	(0,934 - 1,008)
Body mass index (BMI)	0,082	4,728	0,030	1,086	(1,008 - 1,169)
Medical history	-0,043	0,219	0,640	0,958	(0,801 - 1,146)
Surgical history	-0,003	0,001	0,977	0,998	(0,839 - 1,187)
Mode of delivery	0,051	0,192	0,661	1,052	(0,839 - 1,319)
Mode of delivering the placenta	-0,180	0,621	0,431	0,835	(0,533 - 1,308)
Complication of postpartum period	0,187	1,323	0,250	1,205	(0,877 - 1,657)
Mode of abortion	-0,178	2,853	0,091	0,837	(0,681 - 1,029)
Method of contraception	-0,048	0,647	0,421	0,953	(0,847 - 1,072)
Sexual transmitted infection (STI)	0,129	0,230	0,631	1,137	(0,672 - 1,924)
Vaginal dryness	1,231	10,657	0,001	3,426	(1,636 - 7,175)
Menopause	0,106	0,087	0,769	1,112	(0,549 - 2,254)
Vaginismus	1,287	9,784	0,002	3,621	(1,617 - 8,110)
Gynecological Disease	0,120	1,941	0,164	1,128	(0,952 - 1,336)

OR: Odds ratio and CI: Confidence intervals

The clinical characteristics between the two groups of women suffering or not from dyspareunia are presented in **table 2**. The results identified the risk factors related to sexual pain, including method of contraception ($p=0,005$) especially combined oral

contraception; vaginal dryness ($p=0,000$); vaginismus ($p=0,000$) and gynecological diseases ($p=0,017$) especially Bartholinitis, dysmenorrhea, endometriosis, hormonal disorder.

According to multiple logistic regression models, variables independently associated with dyspareunia are presented in **table 3**. In this model, strong association appeared between reporting dyspareunia and vaginal dryness ($OR=3,426$; $1,636 - 7,175$); vaginismus ($OR=3,621$; $1,617 - 8,110$); body mass index ($OR=1,086$; $1,008 - 1,169$); menopause ($OR=1,112$; $0,549 - 2,254$); gynecological diseases ($OR=1,128$; $0,952 - 1,336$). However, mode of delivery ($OR=1,052$); complication of postpartum period ($OR=1,205$) and sexual transmitted infection ($OR=1,137$) were independent predictive variables relatively associated to dyspareunia.

IV.DISCUSSION

This study is the first investigation able to identify prevalence of dyspareunia and their associated factors in Morocco. All female sexual dysfunctions including dyspareunia affect negatively quality of women life, good health and well-being [4]. In the present study, the prevalence of dyspareunia among 300 sexually active women aged from 18- 60 years was 40, 33%. The literature didn't precise a reference value about the prevalence of dyspareunia, because, it vary depending on the specific population studied, the measurement and sampling approaches [1, 3, 8, 13, 15].

In general, female aging is associated to female sexual dysfunction [16], but in our study, there is no significant trend with age. This result corroborate with study among British women suffering from dyspareunia [15]. Although, our results showed that the experience of dyspareunia is strongly associated to gynecological diseases, vaginismus, vaginal dryness, menopause and body mass index. In fact, there is panoply of factors associated to dyspareunia like abdominal, pelvic floor, or hip muscle dysfunction or pain, visceral functional disorders, and some inflammatory and/or structural causes [17].

The WHO considered obesity as a major public health problem worldwide. The obesity is related and associated to risk factor of different illnesses and disabilities including dyspareunia [18, 19]. In other words, when we have obesity, the level of estrogen is decreased, so vaginal epithelial lining becomes thin and vasocongestion is reduced leading to dyspareunia [19]. This fact appeared in our investigation, we found that women with Body Mass Index (BMI) ≥ 30 reported suffering from dyspareunia.

Furthermore, the results showed that vaginismus is associated to dyspareunia. In this sense, the literature suggests that vaginismus may be anticipation of dyspareunia [10, 20]. On another hand, dyspareunia can be clinical characteristic of vaginismus [20]. According to our results analysis, endometriosis is one of dyspareunia causes. The finding in previous studies explained that usually endometriosis is related to deep dyspareunia [17, 21]. Moreover, other studies precise that 50% of women suffering from endometriosis reported having a deep dyspareunia [22].

In addition, we found a strong association between menopause status and dyspareunia. Empirical evidence explained that menopause is not highly correlated to dyspareunia, but women with vaginal atrophy due to decreasing levels of endogenous estrogen who developed dyspareunia [23]. Also, studies confirmed that there is relationship between menopause transition stages and vaginal dryness. However, it may be caused by reduce of vaginal epithelium function due to decrease of vaginal blood flow, mucosal thinning, microbiome changes, and inflammation [9, 24]. Like the result of our study, vaginal dryness is most often clinically associated to dyspareunia, even it's difficult to localize the pain [24].

According to some studies, history of pregnancy, abortion, mode of delivery, episiotomy, and post-partum psychological complications are considered as the risk factors of dyspareunia [25, 26]. This finding corroborate with our statistical analysis mentioned in result section. So, our study indicated that mode of delivery, post-partum and abortion complications are associated to dyspareunia. Although, a meta-analysis was reported that it's important to make more studies with a larger sample size to prove the significant association between mode of delivery, post-partum period and dyspareunia [27].

Also, dyspareunia in our finding is associated to Sexual transmitted infection (STI). WHO was explained that if the vagina is inflamed or due to an STI, this may cause sexual pain, so, it was affirmed that dyspareunia is one of symptoms of STI [28]. About contraceptive methods, in this study, we found that combined oral contraception (COCs) is related to dyspareunia as risk factor. According to literature, COCs is the third most popular contraceptive method and WHO do not mention their effect on sexuality [29]. While, there are studies was suggested that older-generation COCs can cause dyspareunia [29]. It is why; physicians should screen women for pre-existing any sexual pain like dyspareunia, inform them of the possible sexual side effects of COCs before taking them and inquire about decreased sexual desire and dyspareunia [30].

V.Conclusion

This study is part of our investigation which contained other dimensions about dyspareunia including psychological dimension, treatments, knowledge, attitudes and practices of women to prevent or treat dyspareunia. According to the finding of the present study, several risks factors are associated strongly or relatively to dyspareunia among Moroccan women, like vaginal dryness and menopause; vaginismus; endometriosis, mode of delivery or abortion and complication of postpartum period; sexual transmitted infection, combined oral contraception and body mass index. This emphasizes the importance to improve access to healthcare, raise awareness, and provide comprehensive sexual health education in developing countries to address and manage conditions like dyspareunia effectively. This can help individuals receive the necessary support, diagnosis, and treatment for their sexual health concerns.

VI. Abbreviations

P: probability value

CI: Confidence intervals

OR: Odds ratio

n: sample size of women with dyspareunia

n': sample size of women without dyspareunia

WHO: World Health Organization

BMI: Body Mass Index

STI: Sexual transmitted infection

COCs: Combined oral contraception

VII. Ethics approval

We had the authorization from Health authority of Marrakesh-Safi Region. The committee's reference number is not applicable.

VIII. Acknowledgements

All authors of the present study declare no conflicts of interest and no financial support of a company or a financial organization. The authors would like to thank all women who had participated in this investigation.

IX. Declaration of interest

All authors of the present study declare no conflicts of interest

X. Author's Contribution

SE contributed to study planning, conception, questionnaire development, data collection and editing of the manuscript. AB and MC contributed to development of research design, data collection and the editing manuscript. SE, AB, MC, contributed to analysis and interpretation of data. The draft of the manuscript was revised by AB, YA and MC. All authors read and approved the final manuscript.

XI. References

- [1] Hayes, RD. The Prevalence of Dyspareunia. *Female Sexual Pain Disorders*. 2009; 4–8. DOI:10.1002/9781444308136.ch2
- [2] Basson R, Leiblum S, Brotto L, Derogatis L, Fourcroy J, Fugl-Meyer K, Graziottin A, Heiman, JR, Laan E, Meston C, Schover L, van Lankveld J, Weijmar Schultz W. Definitions of women's sexual dysfunction reconsidered: advocating expansion and revision. *Journal of psychosomatic obstetrics and gynecology*. 2003; 24 (4): 221- 229. DOI: 10.3109/01674820309074686.
- [3] Binik YM. Should dyspareunia be retained as a sexual dysfunction in DSM-V? A painful classification decision. *Archives of sexual behavior*. 2005; 34:11–21. DOI: 10.1007/s10508-005-0998-4.
- [4] Rossella E, Nappi E, Cucinella L, Martella S, Rossi M, Tiranini L, Martini E. Female sexual dysfunction (FSD): Prevalence and impact on quality of life (QoL). *Maturitas*. 2016; 94: 87–91. DOI : 10.1016/j.maturitas.2016.09.013.
- [5] Ishak WW, Tobia G. DSM-5 changes in diagnostic criteria of sexual dysfunctions. *Reproductive System Sexual Disorders*. 2013; 2(2):122. DOI: 10.4172/2161-038X.1000122.
- [6] Alizadeh A, Farnam F. Coping with dyspareunia, the importance of inter and intrapersonal context on women's sexual distress: a population-based study. *Reproductive health*. 2021; 8:161. DOI: 10.1186/s12978-021-01206-8.
- [7] Latthe P, Latthe M, Say L, Gulmezoglu M, Khan KS. WHO systematic review of prevalence of chronic pelvic pain: a neglected reproductive health morbidity. *BMC Public Health*. 2006; 6:177–83. DOI: 10.1186/1471-2458-6-177.
- [8] MacNeill C. Dyspareunia. *Obstetrics and gynecology clinics of North America*. 2006; 33 (4): 565-577. DOI:10.1016/j.ogc.2006.09.003.
- [9] Sorensen J, Bautista KE, Lamvu G, Jessica F. Evaluation and Treatment of Female Sexual Pain: A Clinical Review. *Cureus*. 2018; 10(3): e2379. DOI 10.7759/cureus.2379.
- [10] Steege JF, Zolnoun DA. Evaluation and Treatment of Dyspareunia. *Obstetrics and gynecology*. 2009; 113(5):1124-1136. DOI: 10.1097/AOG.0b013e3181a1ba2a.
- [11] Pitts MK, Ferris, JA, Smith AMA, Shelley JM, Richters J. Prevalence and Correlates of Three Types of Pelvic Pain in a Nationally Representative Sample of Australian Women. *Medical journal of australia*. 2008; 189(3):138–143. DOI:10.5694/j.1326-5377.2008.tb01945.x.

- [12] Farnam F, Janghorbani M, Merghati-Khoei E, Raisi F. Vaginismus and its correlates in an Iranian clinical sample. *International journal of impotence research*. 2014; 26 (6):230-234. DOI: 10.1038/ijir.2014.16.
- [13] Asogwa SU, Nwafor JI, Olaleye AA, Ugoji, DPC, Obi CN, Ibo CC. Prevalence of dyspareunia and its effect on sexual life among gynaecological clinic attendees in Alex Ekwueme Federal University Teaching Hospital Abakaliki, Nigeria. *Advances in Sexual Medicine*. 2019; 9(4): 110-119. DOI: 10.4236/asm.2019.94007.
- [14] Lewis RW, Fugl-Meyer KS, Corona G, Hayes RD, Laumann EO, Edson D, Moreira Jr, AH, Rellini, Seagraves T. Definitions/epidemiology/risk factors for sexual dysfunction. *Journal of Sexual Medicine*. 2010; 7(4): 1598- 607. DOI: 10.1111/j.1743-6109.2010.01778.x.
- [15] Mitchell KR, Geary R, Graham CA, Datta J, Wellings K, Sonnenberg P, Field N, Nunns D, Bancroft J, Jones KG, Johnson AM, Mercer CH. Painful sex (dyspareunia) in women: prevalence and associated factors in a British population probability survey. *BJOG: An international journal of obstetrics and gynecology*. 2017; 124(11):1689–1697. DOI: 10.1111/1471-0528.14518
- [16] Buster J.E. Managing female sexual dysfunction. *Fertility and Sterility*. 2013; 100(4): 905-915. DOI: 10.1016/j.fertnstert.2013.08.026
- [17] Steege J.F, Zolnoun D.A. Evaluation and Treatment of Dyspareunia. *Obstetrics and gynecology*. 2009; 113(3):1124–1136. DOI: 10.1097/AOG.0b013e3181a1ba2a.
- [18] Silva BM, Rêgo LM, Galvão MA, Florêncio TMMT, Cavalcante JC. Incidence of sexual dysfunction in patients with obesity and overweight. *Colégio Brasileiro de Cirurgiões*. 2013; 40(3): 196-202. DOI: 10.1590/s0100-69912013000300006.
- [19] Farooq Shah A, Chawla I, Goel K, Gollen R, Singh R. Impact of Obesity on Female Sexual Dysfunction: A Remiss. *Current Women's Health Reviews*. 2021; 17: 21-28. DOI: 10.2174/1573404816999200917121519.
- [20] Binik YM. The DSM Diagnostic Criteria for Vaginismus. *Archives of Sexual Behavior*. 2010; 39(2): 278–291. DOI: 10.1007/s10508-009-9560-0
- [21] Denny E, Mann CH. Endometriosis-associated dyspareunia: the impact on women's lives. *Journal of Family Planning Reproductive Health Care*. 2007; 33(3): 189-193 DOI: 10.1783/147118907781004831.
- [22] Natasha L, Orr BSc, Heather Noga MA, Williams C, Allaire C, Bedaiwy MA, Lisonkova S, Kelly BS, Paul JY. Deep Dyspareunia in Endometriosis: Role of the Bladder and Pelvic Floor. *Journal of sexual medicine*. 2018; 15(8):1158-1166. DOI: 10.1016/j.jsxm.2018.06.007
- [23] Kao A, Binik YM, Kapuscinski A, Khalifé S. Dyspareunia in postmenopausal women: A critical review. *Pain Research and Management*. 2008; 13(3): 243-254. DOI: 10.1155/2008/269571
- [24] Waetjen LE, Crawford SL, Chang Po-Yin, Reed BD, Hess R, Avis NE, Harlow SD, Greendale GA, Dugan SA, Gold EB. Factors associated with developing vaginal dryness symptoms in women transitioning through menopause: a longitudinal study. *Menopause*. 2018; 25(10): 1094–1104. DOI: 10.1097/GME.0000000000001130
- [25] Fauconniera A, Goltzenec A, Issartel F, Janse-Marecc J, Blondeld B, Fritel X. Late post-partum dyspareunia: Does delivery play a role? *Progrès en urologie*. 2012; 22(4): 225-232. DOI: 10.1016/j.purol.2012.01.008.
- [26] Lagaert L, Weyers S, Van Kerrebroeck H, Elaut E. Postpartum dyspareunia and sexual functioning: a prospective cohort study. *The European Journal of Contraception and Reproductive Health Care*. 2017; 22(3): 200–206. DOI: 10.1080/13625187.2017.1315938.
- [27] Marvi N, Miri HH, Hooshmand E, Abdollahpour S, Zamania M. The association of mode of delivery and dyspareunia: a systematic review and meta-analysis. *Journal of obstetrics and gynaecology*. 2022; 42(3):361-369. DOI: 10.1080/01443615.2021.1916802
- [28] World Health Organization. Regional Office for South-East Asia. Management of Sexual transmitted infection: Regional guidelines. 2011. ISBN 978-92-9022-410-5
- [29] Lee JJM L, Tan TC, Ang SB. Female sexual dysfunction with combined oral contraceptive use. *Singapor medical journal*. 2017; 58(6): 285–288. DOI: 10.11622/smedj.2017048
- [30] Lee JML, Low LL, Ang SB. Oral contraception and female sexual dysfunction in reproductive women. *Sexual medicine review*. 2017; 5(1):31–44. DOI: 10.1016/j.sxmr.2016.06.001