Obstetric Outcome and Emotional Adjustment to Childbirth in Women with Dyspareunia: A Cross-sectional Study

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Abstract

Objective: To assess obstetrical outcomes, perceptions of childbirth experience and emotional adjustment in women with dyspareunia. Design: Cross-sectional study. Setting: The maternity ward of a single medical center. Population: Four-hundred forty women, recruited within two days postpartum. Methods: We administered self-report questionnaires addressing demographic and reproductive background, dyspareunia, pain and perceived threat during delivery, sense of control during labour, perceived professional support, and maternal adjustment (i.e., perinatal dissociation, acute stress disorder (ASD), bonding, anticipated maternal self-efficacy depression and positive and negative affect). Obstetrical information was retrieved from clinical files. Main outcomes measures: Obstetrical outcomes and emotional adjustment to childbirth in women with dyspareunia versus comparisons. Results: Three-hundred eighty-eight women filled the dyspareunia questionnaire. The dyspareunia group included 71 women (18.3%) and the comparison group 317 (81.7%). Demographic data were similar between groups. No difference was observed in labour onset, analgesia, route of delivery and perineal tears. More participants with dyspareunia had premature delivery versus comparisons (14.1% vs 5.6%, p=0.02). Women with dyspareunia reported lower sense of control (p=0.01), lower perceived support (p<0.001), more perinatal dissociation (p<0.001), ASD symptoms (p<0.001), depression (p=0.02), negative affect (p<0.001), lower maternal bonding (p<0.001) and anticipated maternal self-efficacy (p=0.01). Women who experienced pain during pelvic exams were less likely to have spontaneous labor onset, more likely to need cervical ripening (p=0.02), and reported higher levels of negative affect (p=0.03). Conclusion: Dyspareunia was associated with more premature deliveries, more emotional distress and poorer maternal adjustment. Perinatal caregivers should be cognizant of such emotional reactions during prenatal care.

Introduction

Dyspareunia, a common complaint, reported by 7.5% of sexually active women (1), is a multifactorial biopsychosocial phenomenon and carries extensive physical, mental and social implications. Causes include bio-medical factors such as vulvovaginal skin conditions, iatrogenic factors, and hormonal changes (2). The most common aetiologies of long-standing dyspareunia are provoked vestibulodynia (PVD), a chronic vulvar pain condition, with prevalence ranges of 10%-28% in women of reproductive age (3,4), and vaginismus, a reflexive, involuntary pelvic muscle tightening with prevalence ranges of 5%-17% (5).

Despite the high prevalence of dyspareunia, surprisingly few studies have addressed reproductive function in women with this condition, with inconsistent results. Some studies have shown dyspareunia to be related to a higher need for assisted reproductive techniques (ART) (7,8), while others have not identified such an association (9). Studies in women with dyspareunia have observed a higher risk for cesarean section, instrumental delivery (8) and perineal lacerations (10,11). Women with dyspareunia were also found to experience postpartum perineal pain longer than comparisons (9).

So far, studies on reproductive outcomes in women with dyspareunia have focused mainly on obstetrical parameters. There are indications that women with dyspareunia express fear of delivery (12), yet reports on their actual experience of labor are restricted to pain and anxiety levels and largely based on midwives' impressions (11). Excluding a single study which used a qualitative methodology (13), no research has focused on emotional and cognitive parameters or on maternal adjustment after childbirth in women with dyspareunia. The aim of this study was to assess obstetrical outcomes, perceptions of childbirth experience and emotional adjustment following childbirth, among women with a history of dyspareunia.

Methods

Participants and procedure

Following IRB approval, a convenience sample of adult postpartum women (N=440) were recruited in the maternity ward of the "Shamir-Assaf Harofeh Medical Center", between April 2018 and August 2020. Assuming medium-sized effects, with 0.80 power and 0.05 probability of Type I error, the minimum group size for t test is 64 participants. Considering an estimated prevalence of dyspareunia in women of reproductive age as 16% (1,3,4), and taking into account 10% missing values, resulted in 440 participants. Exclusion criteria included: lack of knowledge of the local language and physical, emotional or psychiatric conditions not allowing to fill self-report questionnaires, including women in critical medical conditions or with negative maternal or neonatal outcomes. On recruitment days, the researches approached women at the maternity ward, within 48 hours postpartum. After individual explanation on the aim and importance of the study, women were invited to go through the questionnaire before they consented to participate and were alerted that some questions may be of a sensitive, private, or triggering nature. Participants were encouraged to contact the researchers if they needed counselling after reading the questionnaire, and were provided with the principal investigator's (AP) contact details. We reached out to 636 women and 440 agreed to participate, resulting in a response rate of 69%. Due to the nature of the enlisting procedure, we don't have details characterizing the non-respondent women. After informed consent, participants filled out self-report questionnaires. Women who returned the questionnaire were offered to be sent a copy of study results. Three-hundred eighty-eight women (88.2%) who filled out the dyspareunia questionnaire were included in the analyses. Demographic data, medical background and obstetrical information were retrieved from clinical files. Obstetrical data included details on pregnancy complications, week and mode of delivery, nature of labour onset, analgesia method, birthweight, and perineal tears.

Measures

Dyspareunia was assessed based on a questionnaire developed by Alon et al. (11). Patients were asked the following screening question: "Do you experience pain during sexual intercourse?". Patients who answered "yes" or "sometimes" were asked to complete an additional questionnaire on dyspareunia severity (i.e., how many times out of 10 episodes of intercourse they experience pain), onset (primary or secondary), patient's experience regarding localization of pain and its cause (introital, deep, muscular or experiencing fear with penetration), duration of symptoms, previous medical evaluation, diagnoses, and treatment. As suggested by Alon et al.(11), a cutoff of 3 (out of 10 episodes) was used as an indication for the presence of moderate to severe dyspareunia.

In addition, patients were queried about pain experienced during routine pelvic exams, transvaginal sonography, "internal checks" (a Jewish orthodox ritual, performed following menstruation), and use of menstrual tampons.

Participants' perceptions of birth were assessed by three single-item indicators, assessing participants' sense of pain, perceived threat for themselves and perceived threat for the baby. Participants were asked to rate, on a scale ranging between 0-10, the level of pain during delivery, perceived threat of death for them and for the baby. The assessment of pain by the single-item indicator is widely used following birth (14). The items for perceived threat for the mother and the baby are elaborations of items used to assess perceived threat following medical procedures (15). For the benefits of using single-item indicators in medical setting, see Youngblut & Casper (16).

Sense of control during birth was assessed by the 10-item version of the Labor Agentry Scale (LAS) (17). The scale includes six positive and four negative descriptions of the extent to which women feel in control during childbirth. Participants were asked to rate their experiences on a 7- point scale from (1) 'almost all of the time' to (7) 'never, or almost never'. Mean scores were used, with higher scores representing greater levels of sense of control. Cronbach's alpha for the current sample was 0.76.

Perceived professional support was assessed by the Intrapartum Care Scale (18). The scale includes 13 statements regarding birth attendants such as "Members of the team calmed me down" and "I felt abandoned by members of the team" (reverse scored). Participants were asked to rate their level of agreement with each statement ranging from 1 (completely disagree) to 5 (completely agree). Mean scores were used, with higher scores representing greater levels of perceived staff support. Cronbach's alpha for the current sample was 0.77.

Perinatal dissociation was assessed by the Peritraumatic Dissociative Experiences Questionnaire (PEDQ) (19,20), a widely used scale that assesses dissociative experiences during and shortly after traumatic events. Participants were asked to rate the extent to which each item describes their reactions during labour or immediately after labour, on a 5-point scale ranging from 1 (not at all true) to 5 (extremely true). One item, referring to pain experienced during labour was reduced, due to a possible effect of analgesia. Mean scores were used, with higher scores representing greater levels of perinatal dissociation. Cronbach's alpha for the current sample was 0.83.

Birth-induced acute stress disorder (ASD) symptoms were assessed by the Stanford Acute Stress Reaction Questionnaire (SASRQ) (21), a 28-item scale describing ASD symptoms. Participants were asked to rate, on a six-point scale, the extent to which they suffer from each of the symptoms ranging from 1 (not at all) to 6 (very often). Mean scores were used, with higher scores representing greater levels of ASD. Cronbach's alpha for the current sample was 0.93.

Depression was assessed by the Edinburgh Postnatal Depression Scale (EPDS) (22), a commonly-used measurement consisting of 10 items relating to postnatal depression. Participants were asked to rate the extent to which each item characterizes their overall emotional state since labour, with four response options each rated 0–3. Sum scores were used, with higher scores representing greater levels of depression. Cronbach's alpha for the current sample was 0.85.

Positive and negative affect was assessed by the short form of the Positive and Negative Affect Schedule (PANAS) (23), and is comprised of 10 items evaluating various positive (5 items) and negative (5 items) emotions. Respondents are asked to rate the extent to which they feel each emotion on a 5-item scale ranging from 1 (not at all) to 5 (very often). Mean scores were used, with higher scores representing greater levels of positive and negative emotions. Cronbach's alpha for the current sample was 0.78 and 0.79, for positive and negative emotions, respectively.

Maternal bonding was assessed by the Mother-to-Infant Bonding Scale (MIBS) (24). This 8-item scale assesses mothers' feelings towards their infant. Participants were asked to rate the extent each item describes their feelings, on a 4-point scale ranging from 1 (not at all) to 4 (very much). Mean scores were used, with higher scores representing greater levels of maternal bonding. Cronbach's alpha for the current sample was 0.75.

Anticipated maternal self-efficacy was assessed by the Maternal Self-Efficacy Scale (25). This 18-item scale,

refers to women's expectations regarding the degree of their competence as mothers (e.g., "I think I will be able to relax my baby when he/she is crying"; "Being a mother will cause me stress and anxiety"). Participants were asked to indicate the degree to which they agreed with the statements on a four-point scale ranging from 1 (not at all) to 4 (very much). Mean scores were used, with higher scores representing greater levels of anticipated self-efficacy. Cronbach's alpha for the current sample was 0.85.

Statistical analysis

The statistical software package SPSS 27 was used to analyze the data. Missing data analysis indicated that, across variables measured by the self-report questionnaires, 0-10.3% of values were missing. Missing data were replaced with expectation maximization algorithm, based on all variables in the model.

A serial of Chi square and t tests analyses were used to examine differences between the dyspareunia group and the comparison group in demographic data, obstetric outcomes, perceptions of birth, and adjustment following the childbirth.

Finally, to explore the specificity of the effects of dyspareunia on study variables, Chi square analyses and univariate analyses of variance (ANOVAs), examined the associations between pain experienced during pelvic examinations, and obstetric outcomes, perceptions of birth, and adjustment following the childbirth.

Results

One hundred and fourteen (29.3%) participants reported having experienced some extent of pain during intercourse. Of them, 69 (60.5%) women reported superficial dyspareunia and 16 (14%) reported deep dyspareunia. Eighteen participants (15.8%) reported primary dyspareunia, eight (7.0%) secondary dyspareunia, and 88 participants (77.2%) did not recall the timing of pain onset, or did not respond. Only 24 participants (17.4%) had consulted with a practitioner regarding dyspareunia. Eleven women (8.0%) had received a diagnosis, including yeast infection, vulvovaginitis, vaginal dryness, PVD, vaginismus, pelvic floor overactivity, retroverted uterus, uterine leiomyoma. Ten women (7.2%) had received treatment, including pelvic floor physiotherapy, local creams, psychosexual treatment or vulvar vestibulectomy. Seventy-one women (18.3%) reported dyspareunia in at least one-third of intercourse episodes. According to this cutoff, participants were classified into the dyspareunia group (n=71,18.3%) or the comparison group (n=317, 81.7%).

More women in the dyspareunia group suffered pain during transvaginal ultrasound and pelvic exam, as compared to comparisons (34.3% vs 14.6%, $p<0.001$; 39.4% vs 13.6%, $p<0.001$, respectively). In addition, more women in the dyspareunia group reported experiencing pain while performing internal checks and inserting tampons, as compared to comparisons (8.6% vs 1%, $p<0.001$; 8.5% vs 3.2%, $p<0.001$, respectively).

The participants' demographic data and obstetric outcomes are shown in Table 1 and Table 2. The two groups did not differ in demographic and clinical characteristics. History of ART was similar between groups [13 (18.3%) vs. 34 (10.9%), p=0.09]. As for obstetric outcomes, more participants from the dyspareunia group had premature delivery versus comparisons (14.1% vs 5.6%, p=0.02, respectively), and in accordance, the mean birthweight was lower in the former group (BW=3100.76±550.73 vs. 3253.95±482.45, p=0.01, respectively).

No difference between groups was found in prevalence of high-risk pregnancies [18 (26.5%) vs. 70 (23.6), p=0.61] and labour induction (Table 2). Type of analgesia used during labour, rate of cesarean sections, operative vaginal deliveries and perineal tears were similar between groups (Table 2).

Participants' perceptions of childbirth experience are presented in Table 3. Although the two groups did not differ in their reports on pain and perceived threat to their lives or that of the baby during delivery, participants in the dyspareunia group reported lower levels of sense of control (p=0.01) and perceived support ($p<0.001$), as compared to comparisons.

Table 4 presents the participants' emotional reactions and adjustment during and following childbirth. Participants in the dyspareunia group reported higher levels of perinatal dissociation ($p<0.001$), ASD symptoms ($p<0.001$), depression (p=0.02), negative affect ($p<0.001$), lower levels of bonding with the baby ($p<0.001$),

and anticipated maternal self-efficacy (p=0.01). The two groups did not differ in their reported levels of positive affect.

Further analyses examined the associations between participants' reports on pain during pelvic exams and obstetrical characteristics, birth perceptions, and adjustment following childbirth. Pain during pelvic exam was not related to preterm delivery (p = 0.68), birthweight (p = 0.74), route of delivery (p = 0.86), type of analgesia (p = 0.47), and perineal tears (p = 0.68). Pain during pelvic exams was associated, with nature of labour onset: more participants who did not experience pain had spontaneous labour onset (n=90, 53.9%) as compared to those who reported always (n=21, 31.8%) or occasionally (n=59, 44.1%) experiencing pain during pelvic exams. Fewer participants who did not report pain on pelvic exams had cervical ripening (n=11, 6.6%) as compared to those who reported always (n=9, 13.6%), or occasionally (n=18, 15.3%) experiencing pain during pelvic exams (p=0.02).

Pain experienced during pelvic exams was not related to participants' reports regarding pain during delivery (p = 0.66), perceived threat for their life (p = 0.75), or that of the baby during delivery (p = 0.41), sense of control during delivery (p = 0.28), perceived support from the staff (p = 0.17), ASD symptoms (p = 0.67), dissociation (p = 0.18), depression symptoms (p = 0.07), positive affect (p = 0.66), bonding to the baby (p = 0.92), and maternal self-efficacy (p = 0.39). Participants reporting pain during examinations had higher levels of negative affect, as compared to those who do not experience pain (1.81 ± 0.86 vs. 1.55 ± 0.63, p=0.03).

Discussion

Main Findings

In our cohort, 18.3% reported significant dyspareunia. We observed more preterm deliveries in the dyspareunia group and no difference between groups in other obstetrical outcomes. Women with dyspareunia reported lower sense of control and perceived staff support, despite similar pain levels and perceived threat for their or the baby's lives. Women with dyspareunia reported higher dissociation, ASD-related symptoms, depression, negative affect, lower bonding and maternal self-efficacy. Women with pain during pelvic exams had less spontaneous labor onset, more cervical ripening, and higher levels of negative affect.

Strengths and limitations

Despite our study's cross-sectional design, which does not allow us to determine causality but only a relationship between variables, we have gathered important data on obstetrical outcomes, childbirth experiences and emotional adjustment in women with dyspareunia. The lack of effect of pain during pelvic exams on the study variables, further validates our findings, by demonstrating the specific effect of dyspareunia on women's experiences. To our knowledge, the latter topics have not been addressed in the medical or psychosocial literature so far.

There are several limitations to this study. Firstly, we used a non-validated screening tool for dyspareunia assessment. The cohort included women in the immediate post-partum period, therefore we considered available validated tools unsuitable, as they are designed for non-pregnant women and inquire on sexual activity during the last few weeks. We therefore selected a questionnaire (11) specifically developed and utilized for post-partum women. Some questionnaire items indicate a possible aetiology for dyspareunia, nevertheless the condition was established according to self-report, which by itself does not allow a precise medical diagnosis. Potential recall bias is a major limitation, given the lack of pre-delivery comparative data. As for obstetrical parameters, selection bias of participants is plausible: for ethical reasons, we excluded women in critical conditions or with negative outcomes. Therefore, our cohort included mostly uncomplicated deliveries. Lastly, this is a convenience sample in a single study center, with understandable threat to external validity.

Interpretation

The observed prevalence of dyspareunia in this study is similar to established epidemiological data (3).

In obstetrical cohorts, the prevalence of dyspareunia has varied from 0.06% (8) to more than 40% (11). An explanation for this discrepancy may be different study populations and methodologies: some studies identified subjects according to a specific diagnosis in the medical records, such as "vaginismus" or "provoked vestibulodynia (PVD)" (8,10), while others have relied on self-report by patients (11).

Our study indicates similar mode of delivery in women with and without dyspareunia, confirming previous findings (11) and conflicting with studies showing a higher likelihood of cesarean deliveries in women with dyspareunia (8). We observed no difference between groups in rate or severity of perineal lacerations. This contrasts with previous data indicating increased risk for perineal tears in women with dyspareunia (10) and showing a correlation between perineal lacerations and dyspareunia severity (11). This discrepancy may be attributed to a selection bias, as there were no perineal tears grade 3-4 in our cohort.

We found no difference in rate of ART between groups. Likewise, Nguyen et al. (9) reported similar rates of conception in women with PVD versus comparisons. Conversely, studies focusing on women with vaginismus (7,8) have reported a high rate of ART. This discrepancy may stem from different coping strategies in vaginismus versus PVD. Women with vaginismus tend to be "fear-avoidant" and refrain from intercourse, hindering their ability to conceive, while women with PVD are "task-persistent" and continue to have intercourse despite pain (26).

The relationship between dyspareunia and pre-term labour has not been previously described, however studies have pointed out a connection between chronic pelvic pain conditions and pre-term labour. A systematic review (27) has suggested a relationship between endometriosis (28) and preterm delivery, through hyper-expression of pro-inflammatory mediators involving changes in gene expression, oxidative stress, local estrogen production and progesterone resistance. When such changes occur earlier than at pregnancy term, the contractile activity of the myometrium is triggered, leading to preterm labour (29). Some studies have shown a heightened systemic inflammatory response in PVD (3,30) and we suggest that an inflammatory mechanism may be plausible in women with dyspareunia.

The literature regarding emotional strategies for approaching reproductive events in women with dyspareunia is scarce. A study (13) on the impact of vulvodynia on thoughts and feelings on reproduction identified some central themes: efforts to reach acceptable pain levels before pregnancy; disconnect between dyspareunia treatment and obstetric care, anxiety and hopefulness regarding pregnancy. Rather than on conception and pregnancy, in our study we focused on women's perception and emotional adjustment to childbirth.

We observed that women with dyspareunia are discontent with obstetric care, confirming previous data showing greater negative affect, more interpersonal and social discomfort (31) and mistrustful attitudes of women with dyspareunia toward health care providers (13). A study (32) exploring personality traits of women with PVD found evidence of cautiousness, insecurity, pessimism, shyness in social situations, along with a tendency to be intolerant, impatient and critical of others. Another recent study (33) observed social anxiety and paranoid ideation in women with dyspareunia. The low level of sense of control experienced by our dyspareunia patients is aligned with previous data (32) indicating reports by women with dyspareunia that their attitudes, behaviours and choices were determined by influences outside their control or against their own will. Expert opinion on management of women with dyspareunia during labour and delivery has indeed emphasized the importance of practices that increase women's sense of control (34).

We observed more perinatal dissociation in women with dyspareunia. A relationship between dissociative symptoms and chronic pelvic pain states has been previously suggested (35). Recently, Farina et al. (36) conceptualized dyspareunia as a somatoform dissociative symptom and found an odds ratio of 6.15 of psychoform dissociation in women with dyspareunia. Similarly, Özen et al. (37) found high rates of somatoform dissociation in dyspareunia patients. Our study corroborates these data and is, to our knowledge, the first study specifically assessing perinatal dissociation in women with dyspareunia.

Women with dyspareunia reported more ASD-related symptoms, depression, negative affect, lower maternal bonding and self-efficacy. Previous research has indicated depression (3,38–40), anxiety (31,38,40–42), obsessive-compulsive and phobic symptoms (42) are common co-morbidities in dyspareunia. Regardless whe-

ther these affective states represent a personality style predating pain onset, or are a product of the prolonged pain experience, they constitute potential risk factors for negative affective reactions to childbirth.

We observed less spontaneous labour onset, more cervical ripening, and higher negative affect in women experiencing pain during pelvic exams. The presence of high anxiety levels, known to be related to increased need for induction of labour (43,44), may explain this relationship. Pain during pelvic exams is often related to anxiety, which results in phasic activation of the perineal muscles as part of a guarding response (45).

Conclusion

Our findings point on comparable obstetric outcomes in women with and without dyspareunia, except for more preterm deliveries in the former group. Women with dyspareunia scored worse on parameters of emotional distress during childbirth and maternal adjustment following childbirth. Women with dyspareunia are reluctant to disclose their history to medical professionals, however they do not feel at ease with the disconnect between dyspareunia treatment and perinatal concerns. In light of the complexity of such experiences, future studies should assess whether screening for dyspareunia and validating its broad impact during prenatal care may improve emotional outcomes.

Disclosure of interest

Anna Padoa Receives annual royalties from Springer as co-editor of the book "The Overactive Pelvic Floor" and is Board member of the International Society for the Study of IC/BPS (ESSIC).

Authors have no additional disclosures.

Contribution to authorship

Study conception: AP, IB, IL, AT, KG

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Conduction of study: AP, RT, AG, MSI, YR, AT, KG

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Ethics approval:

The study has been approved by the "Shamir-Assaf Harofeh IRB" and by the Ethics Committee at Tel Aviv University.

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