

Modifications in Sexual Behaviour during Pregnancy and Postpartum Related Factors

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ABSTRACT

Objective: Pregnancy and postpartum are stages in a woman's life associated to important psychological and physiological changes that can affect her sexual behaviour. In addition, some sociodemographic and obstetric factors can also alter the sexual response. The aim of this study is to evaluate the modifications in sexual behaviour before, during and after pregnancy in a group of Spanish pregnant women and the factors that may be associated.

Materials and methods: A prospective study was performed on 111 healthy pregnant women who completed a questionnaire about their sexual habits (including coital and orgasm frequency, satisfaction and pain during intercourse) prior to gestation, at 20, 30 and 38 weeks, and at three and six months postpartum. Data regarding sociodemographic variables (maternal age, marital status and parental educational level) and obstetric variables (parity) were also included.

Results: The frequency of sexual activity declined progressively during pregnancy compared with pre-pregnancy levels, with a partial recovery six months after childbirth ($p < 0.001$). Orgasm frequency ($p < 0.006$), satisfaction ($p < 0.001$) and dyspareunia ($p < 0.016$) also changed, but these declined especially in the last weeks before delivery. Overall, women 30 years or younger, nulliparous, unmarried and women with primary education showed better results in the variables of sexuality while father's education level had little effect.

Conclusion: A deep understanding of the changes in sexuality during pregnancy and postpartum is needed to provide couples with information about the normal aspects of their sexuality and to detect sexual dysfunction in these periods.

Keywords: Pregnancy, postpartum, related factors, sexuality

Modificaciones en el comportamiento sexual durante el embarazo y los factores relacionados con el postparto

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RESUMEN

Objetivo: El embarazo y el postparto son etapas en la vida de la mujer asociadas con importantes cambios psicológicos y fisiológicos que pueden afectar su comportamiento sexual. Además, algunos factores sociodemográficos y obstétricos también pueden alterar la respuesta sexual. El objetivo de este estudio es evaluar las modificaciones en el comportamiento sexual

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antes, durante y después del embarazo en un grupo de mujeres embarazadas españolas, así como los factores que pueden asociarse.

Materiales y métodos: *Se realizó un estudio prospectivo en 111 mujeres embarazadas sanas que terminaron un cuestionario sobre sus hábitos sexuales (coitos y frecuencia de orgasmos, satisfacción y dolor durante la cópula) antes de la gestación, en las semanas 20, 30 y 38, y en los meses tres y seis posteriores al parto. También se incluyeron los datos referentes a las variables sociodemográficas (edad materna, estado civil y nivel educativo parental), así como las variables obstétricas (paridad).*

Resultados: *La frecuencia de la actividad sexual disminuyó progresivamente durante el embarazo en comparación con los niveles de pre-embarazo, con una recuperación parcial seis meses después del parto ($p < 0.001$). La frecuencia del orgasmo ($p < 0.006$), la satisfacción ($p < 0.001$) y la dispareunia ($p < 0,016$) también cambiaron, pero disminuyeron especialmente en las últimas semanas antes del parto. En general, las mujeres 30 años o más jóvenes, nulíparas, solteras y las mujeres con educación primaria mostraron mejores resultados en las variables de la sexualidad, mientras que el nivel de educación de los padres tuvo poco efecto.*

Conclusión: *Se necesita una comprensión profunda de los cambios en la sexualidad durante el embarazo y el postparto a fin de proporcionar a las parejas información sobre los aspectos normales de su sexualidad y detectar la disfunción sexual en estos períodos.*

Palabras clave: Embarazo, postparto, factores relacionados, sexualidad

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INTRODUCTION

Sexuality is an important part of human beings and can change throughout life in response to psychological, biological and sociocultural factors. Pregnancy and postpartum are stages in a woman's life characterized by important psychological and physiological changes that can affect her sexual behaviour and couple relationship (1, 2).

There is great variability in the sexual response during pregnancy and postpartum. Sexual activity, satisfaction and coital and orgasm frequency decline progressively compared with the pre-pregnancy state (3–8), with a decrease in sexual interest in the first-trimester, a variable pattern in the second, a decline by the end of pregnancy (4, 9–11) and resumption of sexual activity from the sixth week postpartum (12, 13). These changes do not seem to be related to sociodemographic or obstetric factors; however, some of these factors have been related to changes in sexuality, although in a variable manner and with inconclusive results (9). Similarly, religious and cultural factors have proved to play an important role in sexuality during pregnancy and postpartum (2).

The number of prospective studies that evaluate the sexuality from the pre-pregnancy to the postpartum period and its relationship to other factors is limited and

the findings are contradictory (9), since most of these studies focus on the analysis of delivery-related factors.

The aim of this study is to evaluate the modifications in sexual behaviour before, during and after pregnancy in a group of Spanish pregnant women and the factors that may be associated.

MATERIALS AND METHODS

Design and participants

An observational prospective study was performed on 111 pregnant women attending the Gynecology and Obstetrics Service of San Cecilio University Hospital, in Granada (Spain). The inclusion criteria were healthy low-risk women with uncomplicated singleton pregnancies, receiving antenatal care in our clinics and who intended to give birth in our hospital. The sample size was determined by the resources available to conduct the study.

Women were enrolled at 12 weeks of their pregnancies and received verbal and written information about the study. After signing the informed consent form, participants were administered an *ad hoc* questionnaire based on relevant scientific literature at 20, 30 and 38 weeks, to coincide with their obstetric visits and at three and six months postpartum. In addition, information regarding sexuality before pregnancy was gathered at the week 20

appointment. The participants answered the questionnaire individually and had the option of completing it in a separate room, so they could not be observed by the interviewer or consult with their partners.

Questionnaires included information about sociodemographic and obstetric variables. The specific section on sexuality had the same format for all the interviews and included questions regarding frequency of sexual intercourse (low: less than once a week; weekly: once a week; more than once a week and daily); orgasm during intercourse (rare: never or occasionally; frequently and always); sexual satisfaction (rejection/dissatisfaction; mild satisfaction; complete satisfaction); and lastly, pain during intercourse (never; occasionally; frequently/always). Information regarding the delivery and the resumption of sexual activity was collected at the postpartum appointments.

A total of 111 questionnaires were obtained at 20 weeks; 106 at 30 weeks; 97 at 38 weeks; and 41 questionnaires three and six months after delivery. During pregnancy, the loss of participants was due to pathological conditions during the third-trimester that caused women to avoid sexual intercourse. During the postpartum, the loss was due to the fact that the appointment was not included in the routine follow-up, which made difficult to trace some of the women. We compared the sociodemographic and obstetric data (Table 1) and the data from the sexuality variables (data not shown tables) between the group of women with information gathered during pregnancy and postpartum ($n = 41$) and the group with information gathered only during the pregnancy period ($n = 70$). Significant differences were found only in the frequency of intercourse at 20 weeks ($p = 0.021$) and in intrapartum analgesia ($p = 0.036$).

Table 1. Comparison of sociodemographic and obstetric variables of interviewed women

	Women interviewed during pregnancy and postpartum (n = 41)%	Women interviewed only during pregnancy (n = 70)%	<i>p</i> -value*
Maternal age			
≤ 30 years	16 (39)	39 (55.7)	0.133
> 30 years	25 (61)	31 (44.3)	
Parity			
Nulliparous	21 (51.2)	39 (55.7)	0.746
Multiparous	20 (48.8)	31 (44.3)	
Marital status			
Unmarried	2 (4.9)	7 (10)	0.247
Married	39 (95.1)	63 (90)	
Mother's level of education			
Primary	25 (61)	46 (65.7)	0.766
Middle/higher	16 (39)	24 (34.3)	
Father's level of education			
Primary	28 (68.3)	0.553	0.247
Middle/higher	13 (31.7)		
Gestational week of delivery			
Preterm (< 37 weeks)	4 (9.8)	6 (8.6)	0.998
At term (≥ 37 weeks)	37 (90.2)	64 (91.4)	
Onset of labour			
Spontaneous	29 (70.8)	37 (52.9)	0.119
Induced	11 (26.8)	26 (37.1)	
Cesarean	1 (2.4)	7 (10)	
Intrapartum analgesia			
None	5 (12.2)	4 (5.7)	0.036
Local	12 (29.3)	9 (12.9)	
Others	24 (58.5)	57 (81.4)	
Method of delivery			
Spontaneous	28 (68.2)	35 (50)	0.160
Instrumental	4 (9.8)	13 (18.6)	
Cesarean	9 (22)	22 (31.4)	

**p*-value calculated using Chi-square test (Fisher's exact test if $n < 5$ in any cell)

Statistical analysis

Non-parametric methods, Wilcoxon and Friedman tests for paired samples, were used to analyse the modifications in sexuality. Chi-square and Fisher’s exact tests were used to analyse the different factors related to sexuality. A multivariate stepwise logistic regression analysis was used to adjust the results according to the different variables of interest. A two-tailed *p*-value ≤ 0.05 was considered significant and a *p*-value ≤ 0.1 was considered close to significance. The internal validity of the questionnaires was estimated using a reliability analysis with a Cronbach’s alpha of 0.752 for the pregnancy questionnaires and of 0.676 for the global questionnaires (pregnancy and postpartum) (SPSS 20.0 for Windows, Chicago, IL).

RESULTS

Table 2 shows the sociodemographic and obstetric characteristics. Overall, 96.6% of women resumed intercourse before three months postpartum and 51.7% even before six weeks postpartum.

The four sexuality variables examined showed changes across the different stages of pregnancy and postpartum (Table 3).

A decline in intercourse frequency during pregnancy was observed, with a partial recovery during the postpartum. The differences were statistically significant particularly between the pre-pregnancy coital frequency and the three prenatal visits (*p* < 0.001) and the three

months postpartum (*p* < 0.015). Orgasm frequency progressively decreased as pregnancy progressed. This decrease was more pronounced at 38 weeks compared to pre-pregnancy levels (*p* = 0.046). Sexual satisfaction

Table 2. Sociodemographic and obstetric characteristics of pregnant women and their partners

Variables	n = 111	
Maternal age (years); mean (SD)*	30.3	(4.92)
Maternal age by groups (years); n (%)		
≤ 30 years	55	(49.5)
> 30 years	56	(50.5)
Parity, n (%)		
Nulliparous	61	(55.0)
Multiparous	50	(45.0)
Ethnicity, n (%)		
Caucasian	111	(100.0)
Marital status, n (%)		
Unmarried	9	(8.1)
Married	102	(91.9)
Mother’s level of education, n (%)		
Primary	71	(64.0)
Middle/higher	40	(36.0)
Father’s level of education, n (%)		
Primary	84	(75.7)
Middle/higher	27	(24.3)
Gestational week of delivery, n (%)		
Preterm (< 37 weeks)	10	(9.0)
At term (≥ 37 weeks)	101	(91.0)

*Standard deviation

Table 3. Changes in sexuality variables throughout the pre-pregnancy, pregnancy and postpartum periods

	Pre-pregnancy n = 111(%)	20 weeks n = 111(%)	30 weeks n = 106(%)	38 weeks n = 97(%)	Three months postpartum n = 41(%)	Six months postpartum n = 41(%)	<i>p</i> -value*
Coital frequency							
Low	11 (9.9)	40 (36.0)	49 (46.3)	66 (68.0)	16 (39.0)	8 (19.6)	<0.001
Weekly	28 (25.2)	34 (30.0)	28 (26.4)	16 (16.5)	16 (39.0)	15 (36.6)	
> Once a week	64 (57.7)	34 (30.6)	24 (22.6)	13 (13.4)	8 (19.5)	17 (41.5)	
Daily	8 (7.2)	3 (2.8)	5 (4.7)	2 (2.1)	1 (2.4)	1 (2.4)	
Orgasm frequency							
Low	21 (18.9)	29 (26.2)	28 (26.4)	42 (43.3)	10 (25.0)	8 (20.0)	0.006
Frequent	42 (37.8)	31 (27.9)	29 (27.4)	19 (19.6)	12 (30.0)	12 (30.0)	
Always	48 (43.3)	51 (45.9)	49 (46.2)	36 (37.1)	18 (45.0)	20 (50.0)	
Satisfaction							
Dissatisfaction or rejection	0 (0.0)	3 (2.7)	6 (5.7)	10 (10.4)	3 (7.3)	1 (2.5)	<0.001
Mild satisfaction	21 (18.9)	31 (27.9)	21 (19.8)	27 (27.8)	11 (26.8)	9 (22.5)	
Satisfaction	90 (81.1)	77 (69.4)	79 (74.5)	60 (61.8)	27 (65.9)	30 (75.0)	
Pain during intercourse							
Never	43 (38.7)	37 (33.3)	38 (35.8)	29 (29.9)	18 (43.9)	23 (56.1)	0.016
Occasionally	65 (58.6)	65 (58.6)	62 (58.5)	54 (55.7)	20 (48.8)	15 (36.6)	
Frequently/Always	3 (2.7)	9 (8.1)	6 (5.7)	14 (14.4)	3 (7.3)	3 (7.3)	

**p*-value calculated using the Friedman’s test.

declined progressively to term ($p = 0.027$) with a partial recovery postpartum that did not reach pre-pregnancy levels. As for pain, significant differences were found between 38 weeks and six months postpartum ($p < 0.001$), but not differences were found between the sixth month postpartum and pre-pregnancy state.

The analysis of the influence of sociodemographic and obstetric factors on sexuality revealed an association with age, parent's level of education, marital status and parity. Women younger than 30 reported a higher frequency of sexual intercourse before pregnancy ($p = 0.025$), at 20 weeks ($p < 0.001$), 30 weeks ($p = 0.075$) and 38 weeks ($p = 0.006$) as well as higher sexual satisfaction before ($p = 0.033$) and during pregnancy (20 weeks, $p = 0.069$; 30 weeks, $p = 0.053$; 38 weeks, $p = 0.034$). In contrast, women older than 30 reported a decrease in orgasm frequency before pregnancy ($p = 0.033$) and 20 weeks ($p = 0.017$). Women with middle/higher education reported a decline in coital frequency toward the end of pregnancy ($p = 0.021$) and decreased orgasm frequency before pregnancy ($p = 0.017$) and at 30 weeks ($p = 0.061$). Father's level of education was found to be associated only with pain in the pre-pregnancy period, which seems to decrease in fathers with higher education ($p = 0.055$). Regarding marital status, unmarried women showed higher coital frequency before pregnancy ($p = 0.022$) and during pregnancy (20 weeks, $p = 0.049$; 30 weeks, $p = 0.047$; 38 weeks, $p = 0.002$), higher orgasm frequency before pregnancy ($p = 0.023$) and at 38 weeks ($p = 0.032$), as well as higher sexual satisfaction at 38 weeks ($p = 0.049$), and less pain at 38 weeks ($p = 0.009$). Lower coital frequency was more pronounced in multiparous women before pregnancy ($p = 0.021$) and at 20 weeks ($p = 0.088$), with more dissatisfaction at 38 weeks ($p = 0.046$).

The multivariate analysis revealed the association between sexuality variables and maternal age, mother's level of education and parity. Women younger than 30 showed higher coital frequency throughout the pregnancy appointments and higher frequency of orgasm at 20 and 30 weeks. Women with primary education showed higher coital and orgasm frequency at 38 weeks and nulliparous women showed higher levels of satisfaction at 38 weeks.

DISCUSSION

In this prospective study conducted on 111 Spanish pregnant women, the sexuality variables examined progressively declined as pregnancy progressed compared to pre-pregnancy levels, with a partial recovery six

months postpartum. These changes are primarily influenced by the time in the pregnancy, age, parity, marital status and mother's level of education.

There are many studies on the sexual function during pregnancy, but very few have actually analysed the sexual function over the long periods of time of the present study. In addition, data on the influence of demographic and obstetric factors published to date are limited and contradictory (9).

The decline in sexual activity observed in this study is consistent with previous studies (13–16), as well as the time to resuming intercourse after childbirth (12–15, 17). The decline in coital frequency has been reported previously (3, 4, 13, 15–16, 18) and around the end of pregnancy this decline can be related to the physical changes associated with pregnancy. The pre-pregnancy orgasm frequency varied between 51% and 87% (5, 9, 17) with a recovery during the postpartum (5, 9, 17, 19). Similarly, sexual satisfaction decreases during the last weeks of pregnancy compared with pre-pregnancy levels (3, 8, 10). In addition, increased dyspareunia throughout pregnancy has been reported (8, 11, 13) with a recovery at six months postpartum (14). However, Leite reports an improvement of dyspareunia in the third-trimester probably due to a reduction in coital frequency (19).

Age has been related to a decline in sexual activity (10, 18–19), but some authors have not found differences (4, 7, 12–13, 20) and the decline seems to be more related to the pre-pregnancy level of sexual activity (21). The meta-analysis carried out by Von Sydow revealed an association between age and increased dyspareunia (9). This differs from our work in that we found no association between age and pain. Moreover, the influence of parity is controversial. Our findings are consistent with those of previous studies (6, 20, 22), but some authors have found no association with parity (4, 7, 11, 13) or even reported a better sexual function in multiparous women (5, 18, 23). A higher level of education of the mother seems to be related to a decrease in sexual activity during pregnancy (10, 20); however, other studies have found no association between sexual activity and the level of education of the mother (4, 7, 11, 13) or the father (7). Marital status is also controversial. For example, Pauls (13) found no relationship with sexual function, while Kadri found an association in terms of sexual desire, which is decreased in married women (22).

The limitations of this study include the use of a non-validated questionnaire, but despite this, the results of the reliability analysis were acceptable. The loss of

cases after the births might have affected the results, but the differences between the two groups (with and without postpartum information) are fairly small.

It is evident that the sexual behaviour of women changes during pregnancy and postpartum and that multiple variables may affect it; in this context, the woman should be treated as a whole. It is important to have an in-depth knowledge of these changes which must be understood as normal and temporary (24) and to provide couples with information and support in order to diminish the negative impact on their quality of life (13, 15) and to identify those cases in which the decline in sexual activity becomes a sexual dysfunction (11, 13).

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AUTHORS' NOTE

Conflicts

- Did all authors have full access to all study data, take full responsibility for the accuracy of the data analysis, and have authority over manuscript preparation and decisions to submit the manuscript for publication?-Yes
- Are you aware that any of the authors' academic institutions or employers has any financial interest in or a financial conflict with the subject matter or materials discussed in this manuscript?-No
- Is this manuscript currently under consideration elsewhere (*eg*, at another journal or the Cochrane Library), or has a similar version of this manuscript been published elsewhere (*eg*, in another journal or the Cochrane Library)?-No

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