

Depression as a mediator between intimate partner violence and postpartum sexual issues: a structural analysis

Depressão como mediadora da relação entre violência por parceiro íntimo e dificuldades sexuais após o parto: uma análise estrutural

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ABSTRACT: *Introduction:* No studies were found that evaluate the association between intimate partner violence (IPV) before childbirth and sexual issues in the postpartum period. *Method:* A cross-sectional study with 700 women who received prenatal care in a basic health unit in São Paulo, between 2006 and 2007. Sexual issues were assessed through a questionnaire created by the authors, and intimate partner violence was evaluated using a structured questionnaire developed by the WHO. Postpartum depression was evaluated using the SRQ-20 instrument, with a cut-off point of 7/8 considered to be the mediating variable. A path analysis was performed to determine the different pathways: the direct association between outcome and exposure, and the indirect pathways through the mediator. *Results:* The prevalence of sexual issues, intimate partner violence and postpartum depression were 30; 42.8; 27.8%, respectively. Violence occurring exclusively before childbirth did not show a direct association (ED = 0.072 (-0.06 - 0.20, p = 0.060)) or indirect (EI: 0.045 (-0.06 - 0.20, p = 0.123)), with sexual issues. *Conclusion:* Longitudinal studies that include other mediators may provide a better understanding of the causal chain and elucidate variables that influence postpartum sexuality issues.

Keywords: Sexuality. Intimate partner violence. Domestic violence. Postpartum period. Postpartum Depression.

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RESUMO: Introdução: Não foram encontrados estudos que avaliam associação entre violência por parceiro íntimo (VPI) anterior ao parto e dificuldades na esfera da sexualidade no período pós-parto. O presente estudo avalia se existe essa associação. **Método:** Estudo transversal com 700 mulheres que realizaram o pré-natal em Unidade Básica de Saúde (UBS), em São Paulo, entre 2006 e 2007. As dificuldades sexuais (DS) foram avaliadas por meio de questionário elaborado pelos autores e a VPI foi investigada por questionário estruturado elaborado pela Organização Mundial da Saúde (OMS). Já a depressão pós-parto (DPP) foi avaliada por meio do Self-Reporting Questionnaire (SRQ-20) e foi considerada variável mediadora. Para calcular os coeficientes de associação das vias diretas e indiretas foi utilizada a análise estrutural (path analysis). **Resultados:** As prevalências de DS, a VPI e a DPP foram, respectivamente, 30, 42,8 e 27,8%. A violência ocorrida antes do parto não mostrou associação direta — ED = 0,072 (-0,06 – 0,20; p = 0,060) — nem indireta — EI: 0,045 (-0,06 – 0,20; p = 0,123) — em relação ao desfecho estudado. **Conclusão:** Futuras investigações sobre a relação entre as três variáveis estudadas são recomendadas. Estudos longitudinais que incluam outros mediadores podem trazer melhor entendimento da cadeia causal e elucidação das variáveis que influenciam as questões da sexualidade no pós-parto.

Palavras-chave: Sexualidade. Violência por parceiro íntimo. Violência doméstica. Período pós-parto. Depressão pós-parto.

INTRODUCTION

Sexuality is a prominent aspect of human beings, and it includes gender roles and identity, sex, sexual orientation, eroticism, intimacy and reproduction¹. It is part of an individual's well-being and health, and it is recognized in maintaining romantic relationships². There are many factors that affect sexuality, and understanding them, can facilitate a positive experience of sexuality, in addition to have major implications for well-being³.

Human sexuality, and particularly female sexuality, has an extremely subjective character, as it is shaped by personal, relational and cultural issues. Conceptually, female sexual dysfunction is defined in the following ways: changes in desire, arousal, anorgasmia, dyspareunia and vaginismus⁴. These dysfunctions can overlap and evolve differently, however, the subjective dimension of sexuality is not limited to a diagnostic framework.

Many women with possible sexual dysfunction do not complain about it due to other criteria, such as the quality of the relationship or the low importance attached to sexual activity. Women without evident sexual dysfunction may feel dissatisfied with their sexual performance. Thus, it is important to note how a woman evaluates her current sexual life, taking into account that it may fluctuate according to the phase of life that the woman is in. In periods of female life, such as postpartum, it is common to report sexual difficulties (SD)⁵. Several factors interact at this moment. Alongside puberty and menopause, the post-partum period is considered to be one of the most critical moments of female development.

In the postpartum period, important changes occur in the physiological, psychological and social spheres. These changes can interfere with sexuality and require a reorganization and redirection of sexual desire⁶. Compared to the period prior to pregnancy, sexual desire and the frequency of sexual relations are reduced until the third month of postpartum. Even so, 95% of couples resume sexual activity in this period⁷, and 97% resume up to 12 months after childbirth⁸. In Brazil, 21% of the puerperal women showed a decline in their sexual life (DSL), in comparison with sexual activity in the pre-pregnancy period^{9,10}. In Australia¹¹, they reported a decrease in frequency and also in sexual desire, in relation to the pre-pregnancy period, assessed at 3 and 6 months after delivery. The relationship between SD and intimate partner violence (IPV) is rarely studied in the literature.

IPV is a public problem in the social and health spheres, and it affects developed and developing countries¹². It is defined as any type of physical, sexual or psychological violence perpetrated by someone who is, was, or wishes to be intimately involved with the victim¹³. The World Health Organization (WHO) estimates that the prevalence of IPV in Latin American and Caribbean countries is 29.8%, and is lower (23.2%) in high-income regions¹⁴. Sexual, physical and psychological violence exposes women to a greater risk of physical and mental suffering, illness, unwanted pregnancy and often inhibits them from using health services¹⁵. Other outcomes associated with IPV are physical problems that include chronic pain, psychosomatic symptoms, weight loss or gain, and pain or burning when urinating¹².

There are articles in the national and international literature that address the relationship between SD and postpartum depression (PPD)^{16,17}. According to Faisal-Cury¹¹, women who experience depressive and anxious symptoms during the postpartum period are 3.5 times more likely to complain of DSL at this stage of life. PPD is also commonly associated with decreased activity and sexual desire until the 12th postpartum week¹¹. The prevalence of mental disorders during the postpartum period, including PPD, is estimated at 13% worldwide¹⁷, and the estimate of DPP alone is higher in Brazil, with a variation of 19.1%¹⁸ to 37.1%¹⁹. PPD is associated with increased risk of attempted suicide²⁰. The main risk factors for PPD, in the period from 4 to 6 weeks after delivery, are: mixed race ethnicity; low socio-economic status; alcoholism; psychiatric history; unplanned pregnancy; and multiparity¹⁸. A systematic review also included, as risk factors for PPD, lack of support from a partner, being single, and IPV¹⁹.

Postpartum SD and IPV have associated factors in common, including PPD. There is a lack of studies that address the relationship between SD and IPV, which in addition to being frequent, can, in theory, have a causal relationship. SD can be both a consequence and a cause of IPV, and both are amenable to preventive or therapeutic measures. In theory, the relationship between IPV as a cause of SD in the postpartum period can occur through (mediation) of depression. A woman victim of IPV could, through DPP, present SD. The fact is that the relationship between the three variables - IPV, PPD, SD - has not been explored in the researched literature, a fact which has encouraged us to evaluate PPD as a mediating variable in the relationship between IPV and SD.

The aim of the present study was to assess whether there is an association between IPV occurring before delivery and SD in women in the postpartum period, considering PPD as a mediating variable.

METHOD

DESIGN AND SAMPLE

This study is a cross-sectional analysis of cohort data that started between January 2006 and March 2007. The cohort that gave rise to the sample aimed to assess the association between depression/anxiety in pregnancy and obstetric complications²¹. In the cohort, interviews were carried out, between 20 and 30 weeks of gestation, with 828 pregnant women who were attended at Basic Health Units (BHU) located in the west zone of São Paulo. This area has a heterogeneous population, and people from the upper, middle and lower classes live nearby. The public health sector offers free care to residents in its coverage area. Women over 16 years of age whose conception was spontaneous, uniparous and who received prenatal care at the BHU in the study region were considered eligible for the study. All women participating in the cohort who had given birth were contacted. The women who agreed to participate answered the questionnaire designed for the present study. The interviews were conducted at the participants' homes, between 6 and 18 months after delivery. The final sample, for convenience, included 700 women interviewed, 644 of whom had resumed sexual activity at the time of the interview. These data were used to assess the prevalence of DSL and the lack of sexual pleasure. In the case of the prevalence of lack of sexual desire, a total of 700 women was considered, because this outcome does not depend on the return to sexual activity.

The women were interviewed at home (average interview time after delivery: 11.1 months, standard deviation [SD]: 2.3 months, range 6 to 18 months). The timing of the interviews was divided into three groups: group 1: up to 8 months (99 participants; 14.1%); group 2: from 9 to 12 months (408 participants; 58.3%) and group 3: from 13 to 18 months (193 participants; 27.6%). Of the women who participated in the cohort, 128 did not return in the postpartum period. The women who didn't participate were similar in relation to marital status and age, but had fewer years of study, had a lower family income and were more depressed in the evaluation carried out during pregnancy, when compared to the women who participated in the present study.

DESCRIPTION OF VARIABLES

Main outcome: sexual difficulties

DSL, absence of sexual pleasure and absence of sexual desire were assessed using direct questions in a semi-structured questionnaire. A variable called SD was created, which considered

both DSL (if the woman reported a worsening of postpartum sexual life) and a negative response to at least one of the other two questions evaluated, one about the presence of desire and the other about the presence of pleasure. Thus, the participant who reported DSL or lack of pleasure or absence of desire was classified as having SD. A comparison between the woman's current sexual life and her sexual life before the pregnancy was made through the following question: When comparing your sex life before pregnancy, would you evaluate your current sex life as better, equal or worse? DSL cases were considered to be those that responded "worse". "Better" and "equal" responses were grouped as non-cases. Regarding the lack of pleasure and sexual desire, the following questions were asked: Do you feel pleasure? and Do you feel desire?, respectively. In the case of negative response(s), the woman was classified as having no pleasure and/or no desire. The use of the SD variable sought to contemplate different aspects of female sexuality in the period following childbirth.

Main exhibition: intimate partner violence

We used the final Brazilian/Portuguese version of a structured and standardized questionnaire to assess IPV²¹⁻²³. This instrument was developed by an international team of researchers who evaluated and revised it. It was designed by the WHO to measure violence against women in a Multi-Country Study²³. The interviewees answered whether or not they had suffered psychological, physical and sexual acts of violence perpetuated by an intimate partner, current or ex. An intimate partner was defined as the partner - or ex - with whom the woman lives or used to live, regardless of a formal union. It also includes current partners with whom women have sexual relations. For each act of violence, the period during which it occurred - before or after the baby's birth - was questioned. The prevalence of IPV was defined by the proportion of responses in which women reported experiencing one or more acts of violence by their current partner or ex²⁴. To carry out the mediation analysis, the variable "violence before childbirth" was created: if they suffered any form of IPV exclusively before the birth of the child.

Mediating variable: postpartum depression

The Self-Reporting Questionnaire (SRQ-20) was used to assess the presence of PPD. It was developed in 1980 by Harding et al.²⁵ to detect the presence of PPD in primary care clinics. It consists of 20 yes and no questions. The SRQ-20 was validated in Brazil with 85% sensitivity and 80% specificity²⁶. For data analysis, one point is assigned for each positive response and zero for each negative response. The *cut-off* point in the SRQ-20 for the present study was defined as 7/8, dividing women into two groups: probable non-cases (score less than or equal to 7); probable cases (score greater than or equal to 8)²⁴. Studies have shown that the SRQ-20 has a great capacity to diagnose PPD²⁷.

Confusion variables

To evaluate social support, the Brazilian version of the Medical Outcomes Scale was used. The original version showed good psychometric properties²¹. The 19 items on the scale comprise five dimensions of social support: material, emotional, informational, affective and social interaction. Each item poses a situation in which the interviewee would need social support and, within each item, the interviewee must answer how often she could count on someone in these situations. In the present study, only the total score was used and, for analysis purposes, divided into tertiles, with tertile 1 being defined as less social support and tertile 3 as more social support.

The questionnaire included questions for the evaluation of several sociodemographic variables that could be confounding variables in the association between IPV and SD. Table 1 explains, in detail, the variables used and how they were constructed.

Table 1. Type and categorization of explanatory variables.

Sociodemographic variables	Type and categorization
Education level	Categorical, divided into 2 categories:
	<ul style="list-style-type: none"> Completed up until middle school (0 – 9 years of study); High school or higher (10 or more years of study).
Income	Continuous, divided into tertials:
	<ul style="list-style-type: none"> 0 to 595 reais; 600 to 980 reais; Above 1.000 reais.
Ethnicity	Categorical, divided into 2 categories:
	<ul style="list-style-type: none"> White; Not white (includes black women, mixed-race women, Asian and indigenous women).
Marital status	Categorical, divided into 2 categories:
	<ul style="list-style-type: none"> No partner (single) Partner (married or civil union)
Maternal characteristics	Type and categorization
Maternal age	Continuous, divided into tertials:
	<ul style="list-style-type: none"> 16 to 20 years and 11 months 21 years to 30 years and 11 months Older than 31 years.

Continue...

Table 1. Continuation.

Sociodemographic variables	Type and categorization
Number of children	Continuous, divided into 3 categories:
	• 1 child;
	• 2 or 3 children;
	• 4 or more children.
Breastfeeding	Categorical, divided into 2 categories:
	• Yes (breastfed up to at least 6 months)
	• No (did not breastfeed for the first 6 months)

PROCEDURES

Home interviews with the mothers were carried out by trained researchers. During this moment of contact, women were invited to participate in this new phase of the study. Those who accepted signed a new consent form and were interviewed. The Ethics Committee of the School of Medicine of the University of São Paulo approved the research project.

STATISTICAL ANALYSIS

Initially, a comparison was made, using the χ^2 test, between women who participated in the study and those included in the cohort when pregnant and who did not return to the puerperal evaluation.

After a comparative analysis, a descriptive analysis of the women who participated was implemented, considering all of the categorized variables mentioned above. The prevalence of IPV and DSL, the absence of sexual pleasure, the absence of sexual desire and SD with a 95% confidence interval (CI) were calculated. The mediation analysis was conducted in the Mplus version 7 program, which, using the weighted least squares (WLS) estimate, estimates the Probit regressions. Probit regressions are used when the variables are categorical and indicated in samples with more than 20 participants. A structural analysis (path analysis) was performed for the different association pathways: direct, between exposure (IPV) and outcome (DS); and indirect, through the mediator (PPD). A Bootstrapping analysis was used to estimate the 95%CI. The coefficients obtained by the mediation analyzes have a cut-off of 0.08²⁸, and the values that explain the association force range from 1 to $-\infty$. As for the strength of the association, the coefficient value was considered in the following ways: close to 0.10, the association was considered to be weak; close to 0.30, the association was

considered to be average; and above 0.50, it was considered to be strong. The significance level considered was $p < 0.05$).

RESULTS

Most participants were married or lived with their partner (75%), were white (45%), were in the age group of 21 to 30 years old (55%), did not breastfeed the baby until 6 months of age (56%), and did not present puerperal depression (72%).

The prevalence of DSL, lack of pleasure, lack of desire and SD were 21.1% (95%CI 17 - 24), 11.6% (95%CI 9 - 14), 15.2% (95%CI 12 - 17) and 28% (95%CI 0.24 - 0.31), respectively. The prevalence of IPV before delivery was 24.7%.

Table 2 shows that there is an association between IPV that occurred before the baby's birth and SD, with a total effect of 0.14 (95%CI 0.01 - 0.26; $p < 0.31$), which is considered to be moderate, and that 44% (95%CI 23 - 86) of this effect is explained by an indirect effect through the PPD. In addition, there is little evidence of a direct association between IPV and DS.

After including the possible confounding variables, there was an attenuation of the strength of the associations with a loss of significance from the direct and indirect routes (Table 3).

Table 2. Crude estimate of the effect of intimate partner violence (IPV) before childbirth on postpartum sexual difficulties, using postpartum depression (PPD) as a mediator.

Model 1	Total effect 95%CI	Direct Effect (95%CI)	Indirect effect through PPD (95%CI)	% of the indirect effect (95%CI)
IPV before delivery and SD	0.14 (0.01 – 0.26) $p = 0.031$	0.076 (-0.05 – 0.21) $p = 0.250$	0.062 (0.003 – 0.12) $p = 0.043$	44% (23 – 86)

CI95%: 95% Confidence Interval.

Table 3. Adjusted estimate of the effect between intimate partner violence (IPV) before delivery on postpartum sexual difficulties (SD), using postpartum depression as a mediator (adjustment for marital status, ethnicity, education, mother's age and number of children).

Model 2	Total effect (95%CI)	Direct effect (95%CI)	Indirect effect through PPD (95%CI)	% of the indirect effect (95%CI)
IPV before delivery and SD	0.117 (-0.01 – 0.24) $p = 0.069$	0.072 (-0.06 – 0.20) $p = 0.281$	0.045 (-0.06 – 0.20) $p = 0.123$	38% (-10 – 87)

CI95%: 95% Confidence Interval.

DISCUSSION

The crude mediation analysis model suggests that IPV before delivery would be associated with SD after delivery, which would be explained by an indirect mechanism, that is, by the presence of PPD and not by a direct relationship between these two variables. However, when we include other variables, this association loses significance, suggesting that marital status, mother's age, ethnicity, education and number of children are likely to be confounding variables. In addition, it is worth mentioning that SD, IPV before delivery, and PPD were measured at the same time, which would make it difficult to interpret the results of mediation analysis that used recent IPV, and not a previous one, as was done, as an exposure variable.

A possible explanation for the loss of significance of the association could be that other variables are confusing the aforementioned association. However, it should be kept in mind that only previous remote violence was used as an exposure, and, as stated earlier, recent violence is more associated, than in the past, with negative outcomes for women's health¹⁰.

In the present study, IPV, PPD and SD showed a high prevalence, which reinforces the importance of investigating these aspects in the perinatal period. In fact, problems related to these issues are difficult for women to report²⁹, often leading them to be underdiagnosed and not receive adequate treatment. Particularly, SD are common in the postpartum period, as this phase of a woman's life is a period of adjustments and changes not only for her, but for the couple. The decline in sexual intimacy is felt by men who, in some cases, report feeling jealous of the newborn. The couple's adaptation to the new routine and the new tasks of motherhood/paternity already explain, in large part, this first moment of the decline in sexuality. And such a decline can increase the tension normally generated by this moment of adaptations³⁰. Therefore, including the partner in prenatal care and making them aware of the changes that may occur during this period can be useful in coping with the frustrations related to the transition to parenting, in increasing the bond and support between partners and in reducing conjugal dissatisfaction³¹⁻³³.

Among the positive aspects of the present study, it is worth highlighting the unprecedented approach to the relationship between IPV and different aspects of female sexuality in the postpartum period. In fact, no studies were found to assess this relationship. Another positive aspect is to reinforce the importance of evaluating sexuality and violence up to 18 months after childbirth, in a group of low- and middle-income women treated in public services. As a rule, sexuality and violence are neglected issues when caring for women in the public services. This is for several reasons, including health professionals' lack of preparation³⁴, women's resistance to speak about these topics²⁹ and the obligation of compulsory notification when any violence is reported³⁵.

The present study had some limitations. Firstly, because it is a cross-sectional study, it was not possible to infer which causal path was associated with this association. The variables of exposure, outcome and mediation were measured simultaneously and refer to different periods of occurrence. Depression and SD referred to women's more recent experiences,

while IPV referred to older experiences. Second, there exists the possibility of memory bias (recall bias) as we are dealing with very delicate issues, and some women may feel compelled to give socially “acceptable” answers or answers that they deem appropriate when talking about their experiences regarding sexuality and conjugal violence. They may, for example, omit a history of violence, out of shame or fear of reprisal from partners, even though they have been assured of the secrecy of the research. On the other hand, reporting violence that did not occur, is considered unlikely because it is a stigmatizing theme for women and sometimes comes with feelings of shame and guilt³⁶. It is also possible that women have more difficulty remembering past violence than recent violence. In this case, the results obtained in the present study would underestimate the prevalence of both problems. Third, the study participants’ satisfaction with their sexual life was not evaluated, only the effects and changes that occurred in the quality of sexual life during the transition from pregnancy to puerperium. Furthermore, a self-assessment of the quality of the marital relationship was not evaluated. It is possible that both factors may be associated with IPV and DS and, consequently, confuse this association. Another limitation is that sexuality outcomes were assessed using direct questions and not through instruments previously designed and validated for this purpose. It should be noted, however, that the interviewers were trained in the application of the questions and that the participants were asked about their understanding of the questions. Similarly, a screening instrument was used to assess depression and not a standardized psychiatric interview, which would have required additional costs and difficulties. Finally, 700 women from a cohort of 828 pregnant women took part in the present study, and women who did not return, had the same family income, but had fewer years of study and were more depressed in the evaluation carried out during pregnancy. The depressed women in the study tended to complain more about sexual issues and suffered from IPV at some point in their lives, so the losses must have underestimated the prevalences found.

CONCLUSION

Although SD and IPV are prevalent problems in the pregnancy-puerperal cycle, with impacts on the quality and even the integrity of a woman’s life, there is a lack of studies on the relationship between these aspects. Due to the high prevalence of SD and IPV in this sample, the inclusion of questions about sexuality and violence in the follow-up during pregnancy and in the postpartum period is an important step towards comprehensive health care for women. The present study reinforces this need and also the relevance of clarifying the expected changes during this period for the woman and her partner. Mediation analysis provides an understanding of the causal paths of these associations, expanding the possibilities for identifying these issues and also creating preventive and/or therapeutic measures. However, in the present study, there was no performance of the PPD as a mediator of the relationship between IPV and SD.

Further investigations on the relationship between different forms of violence and sexuality in the postpartum period are recommended. Longitudinal studies that evaluate new aspects of the couple's relationship, with questionnaires created for this purpose, and that include other mediators, in addition to PPD, can be carried out to better understand the causal chain and elucidate the variables that directly and/or indirectly influence sexuality issues in the postpartum period. These studies may be useful in the development of preventive and/or therapeutic interventions for sexual health issues and problems that may underlie them.

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