

BMJ Open Resumption of sexual intercourse post partum and the utilisation of contraceptive methods in China: a cross-sectional study

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ABSTRACT

Objective This is a cross-sectional study that aimed to examine the resumption of sexual intercourse post partum, the utilisation of contraceptive methods and the influencing factors among Chinese women at a tertiary teaching hospital.

Design This is a questionnaire survey by written and online interview for participants.

Participants Based on medical records, we sent online questionnaires about postpartum sexual intercourse and contraception plans to 550 eligible women.

Main outcome measures Potential factors affecting postpartum sexual intercourse and utilisation of contraception were determined by analysis of epidemiological and clinical factors and sexual experiences during and after pregnancy.

Results Of 550 eligible participants, 406 women (73.8%) with a postpartum period of 8.5 months (range 6–10) completed the questionnaires; 146 of 406 (36.0%) resumed sexual intercourse within 3 months, and 259 of 279 (92.8%) used contraceptive methods. In univariate and multivariate analyses, sexual intercourse during pregnancy (adjusted OR 4.4, 95% CI 2.8 to 6.9) and resumption of menstruation (adjusted OR 2.5, 95% CI 1.5 to 4.3) were significant influencing factors in resumption of sexual intercourse within 3 months after childbirth. No factor was found to be associated with using contraceptive methods or the general resumption of sexual intercourse post partum. The questionnaire had good reliability and validity.

Conclusions Having sexual intercourse during pregnancy and resuming menstruation earlier were independent factors for resumption of sexual intercourse within 3 months after delivery. Almost all women who had postpartum sexual intercourse used various contraceptive methods.

BACKGROUND

Sexual activity and contraception are principal topics in women's health, and sexual dysfunction in pregnant women has generally been overlooked by physicians and other healthcare staff.¹ As a widespread issue in reproductive health, postpartum sexual health has gained increasing attention

Strengths and limitations of this study

- For the first time we revealed the patterns of actual and desired contraceptive methods in postpartum Chinese women.
- A validated questionnaire was collected from pregnant women before and after the deliveries, and the potential risk factors for postpartum sexual experiences and contraception were considered.
- The main drawbacks of our study are recall and selection biases originating from enrolment of participants.
- There is no sufficient evidence to confirm the relationship between vaginal–penile intercourse and sexual well-being or relationship satisfaction.

worldwide.² Although a precise definition remains elusive and postpartum sexual health cannot be separated theoretically from sexuality and sexual function,³ the resumption of sexual intercourse after delivery and the utilisation of contraceptive methods are significant features of postpartum sexual health.⁴ These features dramatically affect the quality of life and self-esteem of postpartum women.^{5 6} Some studies have focused on resumption time, frequency of sexual intercourse and influence of fatigue on sexual intercourse.^{7 8} At present, the guidelines for clinical postpartum contraception recommend the initiation of effective contraception 3 weeks after delivery to avoid short pregnancy intervals.⁹ Declines in unintended pregnancy rates in Africa and in Western regions are attributed to implementation of family planning.¹⁰ However, knowledge on the patterns of actual and desired contraceptive methods in postpartum women is sparse.

Few data exist in China with regard to resumption of sexual intercourse post partum and utilisation of contraception. One study reported resumption of sexual intercourse post partum among migrant women

in Shanghai.¹¹ A report from Taiwan has revealed significant differences in sexual function shortly after delivery between groups based on the delivery method, tubal ligation, depression, pain, ethnicity and educational level,¹² while a postpartum sexual health education programme has been shown to improve women's sexual health and sexual behaviour.¹³ In this cross-sectional study, we aimed to describe the patterns of postpartum sexual intercourse, utilisation of contraceptive methods and relevant influencing factors in Chinese women at a tertiary teaching hospital.

METHODS

Patient and public involvement

Participants who were interviewed had been informed that they had the right to freely withdraw from the study, for any reason, at any time prior to their data being integrated into the analysis. A preliminary study was conducted on 10 pregnant women at the Department of Obstetrics and Gynecology of the study hospital in February 2017. The final version of the questionnaire was confirmed after discussion with the participants and researchers. None of the 10 pregnant women validating the questionnaire participated in the study. No patients were involved in the selection of outcome measures or in the recruitment of participants.

Inclusion/Exclusion criteria

This study includes pregnant women who had deliveries at our research centre. It was mandatory to retrieve written consent from all participants during their stay in the hospital for deliveries. The inclusion criteria were as follows: singleton pregnancy; good status without severe complications influencing daily activities; an intact uterine cervix; and detailed and complete information from medical records on pregnancy, perinatal outcomes and infant follow-up. The exclusion criteria are listed in [box 1](#). All participants were assured the information they provided will be strictly secured whether or not they take part in the investigation.

From March to June 2017, based on original recruitment, inclusion criteria and medical records, we sent online questionnaires through a Chinese social media application (WeChat) to participants to collect data on their experiences of postpartum sexual intercourse and contraceptive plans, and were requested on-site retrieval to ensure a proper correspondence rate. Data were included only if all items were specifically addressed.

Questionnaire

The final version of the questionnaire was modified and approved with a total and separate Cronbach's $\alpha > 0.600$ and Kaiser-Meyer-Olkin (KMO) measures > 0.700 in the preliminary study. The questionnaire consisted of 20 items (online supplementary appendix 1) on (1) epidemiological data; (2) experiences, frequencies and complaints about sexual intercourse during pregnancy

Box 1 Exclusion criteria of this study

1. Divorce or separation of partners.
2. Incomplete information on pregnancy, perinatal period and infant follow-up.
3. Fetal complications.
 - Major congenital malformation.
 - Multiple pregnancy.
 - Abortion or threatened abortion.
 - Clinical presentations suggesting threatened premature labour.
4. Maternal complications.
 - Uterine rupture or threatened uterine rupture.
 - History of preterm pregnancy or recurrent pregnancy loss.
 - History of conisation, loop electrosurgical excision procedure or radical trachelectomy.
 - Severe vulvar and vaginal lesions of infections (condyloma acuminatum, Bartholin abscess).
 - Congenital heart disease or any pathological disease of the cardiovascular system.
 - Pneumothorax, pneumonia or any disease restricted to the respiratory system.
 - Anaemia, thrombocytopaenia and other haematological disease.
 - Myasthenia gravis.
 - Mental disease.
 - Cervical precancerous lesions and cervical cancer.
 - Unexplained vaginal bleeding in the first trimester.
5. Placental abnormalities.
 - Placenta previa or low-lying placenta.
 - Placenta accreta.

and postpartum period; (3) practical and desired application of contraceptive methods; (4) reasons for not using contraception; and (5) other issues, including physical exercise, resumption of regular menstruation, depressive mood and cosleeping with the infant. Sexual intercourse was defined as vaginal intercourse of partners rather than other sexual behaviours (eg, non-entry intercourse, masturbation). Physical exercise was defined as a moderate to strong intensity of exercise at least three times per week for 30 min each. In our study, the reasons for not using contraception were as follows: fear that postpartum contraception would impair breast feeding, no knowledge on postpartum contraception, feeling no need to undergo rigorous postpartum contraception, no offer to the desired postpartum contraception and other problems (open options).

Data collection

We collected data from medical records and completed questionnaires using Microsoft Office Excel tables (online supplementary appendices 1 and 2). The following data were collected by retrospectively reviewing participants' and neonatal electronic medical records (created by DT Health 6.9.4, 2011 DT Health): epidemiological data, delivery modes and pregnancy complications, and perinatal outcomes of the mother and the newborn. Puerperal conditions beyond the electronic medical records (wound infections and endometritis) were verified

through participants' complaints on medical records from outpatient clinics and/or the emergency room.

Measures

Primary measures consisted of resumption of sexual intercourse post partum and use of practical contraceptive methods. Secondary measures included (1) influencing factors on resumption of sexual intercourse within 3 months after delivery and (2) influencing factors on utilisation of contraceptive methods.

Statistical analysis

SPSS V.22.0 statistical software was employed for data analysis. We analysed continuous variables with t-test and categorical variables with χ^2 test or Fisher's exact test. Multiple-parameter analysis was performed using binary logistic analysis, calculating the OR and 95% CI to adjust for confounding factors, including all covariates with statistical significance shown in [table 1](#) in a stepwise decision-making process. The reliability and validity of the questionnaire were evaluated using the Cronbach's α method and KMO measures/Bartlett's test of sphericity, respectively, for construct validity in the formal study.

RESULTS

Participants

From March 2016 to December 2016, 1466 pregnant women delivered at the study hospital. Based on the inclusion and exclusion criteria, we sent questionnaires to 550 eligible women, and 406 (73.8%) responded and presented their written consent. The average age and gestational week at delivery were 31 ± 4.1 years and 39 ± 1.2 weeks, respectively. The median postpartum period was 8.5 months (range 6–10). Nearly half of the participants (195 cases, 48%) had deliveries via caesarean section. Exclusive breast feeding, mixed feeding and artificial feeding were observed in 345 (85.0%), 52 (12.8%) and 9 (2.2%) women, respectively.

Among the participants, 279 (68.7%) resumed sexual intercourse after delivery and 259 (92.8%) used contraception. One hundred and eleven participants (27.3%) reported various reasons for not using contraception: fear that postpartum contraception would impair breast feeding (65 women), no knowledge on postpartum contraception (47 women), feeling no need to undergo rigorous postpartum contraception (55 women) and no offer to the desired postpartum contraception (21 women).

Reliability and validity of the questionnaire

Most items on the questionnaire, especially items pertaining to experience and frequency of sexual intercourse and utilisation of contraceptive methods, had good or acceptable reliability (Cronbach's $\alpha > 0.600$) and construct validity (KMO measures > 0.700). Nevertheless, three items in our study had poor reliability and validity, namely postpartum complaints about the intercourse

(Cronbach's $\alpha = 0.520$, KMO measures = 0.511), resumption of regular physical exercise (Cronbach's $\alpha = 0.504$, KMO measures = 0.610) and feeling of depression within 3 months after delivery (Cronbach's $\alpha = 0.600$, KMO measures = 0.423).

Resumption of sexual intercourse post partum in total and within 3 months

One hundred and forty-six of 406 (36.0%) women resumed sexual intercourse within 3 months and 133 of 260 (51.2%) after 3 months ($p < 0.001$). No significance existed between the proportion of women who resumed sexual intercourse within 6 months or during the whole postpartum period (all p values > 0.05). The frequency and complaints about postpartum sexual intercourse are shown in [table 2](#). The total and individual complaints were not significantly different between women who resumed sexual intercourse within 3 months and those who resumed sexual intercourse after 3 months (all p values > 0.05). Among 127 women without postpartum sexual intercourse, 67 (52.76%) reported lack of sexual interest.

Potential factors affecting resumption of sexual intercourse within 3 months after delivery

Potential factors impacting the resumption of sexual intercourse within 3 months are listed in [table 1](#). Among all the 406 cases, in the multivariate analysis, sexual intercourse during pregnancy (adjusted OR 4.4, 95% CI 2.8 to 6.9, $p < 0.001$) and resumption of menstruation after childbirth (adjusted OR 2.5, 95% CI 1.5 to 4.3, $p < 0.001$) were included as covariates and were also significant influencing factors for resumption of sexual intercourse within 3 months after childbirth. However, age, delivery mode, maternal or neonatal outcome, breastfeeding manner, mood status, and physical exercise had no impact on resumption of sexual intercourse within 3 months. Neither sexual intercourse during pregnancy nor resumption of menstruation had impact on resumption of sexual intercourse within 6 months or other periods.

Contraceptive methods used

Among 279 women who resumed sexual intercourse after delivery, 259 (92.8%) used contraception. No significant differences were evident for all variables listed in [table 1](#) between women with and without contraception (all p values > 0.05). The actual and desired contraceptive methods are listed in [table 3](#). Compared with actual usage, more postpartum women desired the use of subdermal implants, intrauterine device (IUD) or oral contraceptive pills, and less postpartum women desired the use of a condom, coitus interruptus or no contraception.

DISCUSSION

In this study, we have described the detailed patterns of postpartum sexual intercourse and contraception and provided an analysis of the relevant factors. However,

Table 1 Demographic characteristics of participants with or without postpartum sexual activities within 3 months after childbirth

	Postpartum sexual activity within 3 months after childbirth		P value*
	No (n=260)	Yes (n=146)	
Age (years) (mean±SD)	31.6±4.1	30.1±4.2	0.744
Sexual intercourse during pregnancy	102 (39.2%)	109 (74.7%)	<0.001
Educational level			0.723
High school or below	27 (10.4%)	19 (13.0%)	
College	166 (63.8%)	90 (61.6%)	
Graduate degree or above	67 (25.8%)	37 (25.3%)	
Income (¥)			0.976
Low income (<10 000)	154 (59.2%)	88 (60.3%)	
Middle income (10 000–20 000)	81 (31.2%)	44 (30.1%)	
High income (>20 000)	25 (9.6%)	14 (9.6%)	
Delivery mode			0.816
Caesarean section	126 (48.5%)	69 (47.3%)	
Vaginal delivery	134 (51.5%)	77 (52.7%)	
Conditions during vaginal delivery			
Application of vacuum extraction	4/134 (3.1%)	4/77 (5.3%)	0.467
Episiotomy	86/134 (64.2%)	49/77 (63.6%)	0.937
Perineal laceration	48/134 (35.8%)	22/77 (28.6%)	0.282
Maternal outcomes			
PROM	48 (18.5%)	28 (19.2%)	0.859
Postpartum haemorrhage	22 (8.5%)	11 (7.5%)	0.743
Infection of CS incision	2/126 (1.6%)	1/69 (1.4%)	1.000
Infection of vulvar incision	6/134 (4.5%)	4/77 (5.2%)	1.000
Puerperal endometritis	18 (6.9%)	6 (4.1%)	0.249
Neonatal admission to NICU	22 (8.5%)	14 (9.6%)	0.701
Other conditions within 3 months			
Resumption of menstruation	36 (13.8%)	45 (30.8%)	<0.001
Resumption of physical exercise	91 (35.0%)	64 (43.8%)	0.079
Feeding manner			0.192
Breast feeding	216 (83.1%)	129 (88.4%)	
Mixed feeding†	39 (15.0%)	13 (8.9%)	
Bottle feeding	5 (1.9%)	4 (2.7%)	
Always feeling depression	125 (48.1%)	60 (41.1%)	0.175
Sleeping with infants	210 (80.8%)	120 (82.2%)	0.724

*Continuous variables are compared with t-test and categorical variables with χ^2 test or Fisher's exact test.

†Mixed feeding denotes a combination of breast and bottle feeding.

CS, caesarean section; NICU, neonatal intensive care unit; PROM, premature rupture of membranes.

only one-third of the generally healthy women resumed sexual activity within 3 months after delivery, in contrast to previous reports in which the resumption rate of postpartum sexual intercourse ranged from 48.2% to 73.1% within 2 months after delivery.^{14 15} The definitive reasons for this discrepancy are unknown. Resumption of sexual activity post partum was regarded as a vital aspect of

sexual health and function, and routine postnatal consultation was an opportunity to identify altered sexual health patterns and counsel women accordingly,¹⁶ which may contribute to improved postpartum sexual activity.

We report that sexual activity during pregnancy, earlier resumption of menstruation and unrestricted access to contraception were independent factors associated with

Table 2 Frequency and complaints about postpartum sexual intercourse

	n (%)
Frequency of sexual intercourse per month	
Less than once	72 (25.8)
1–2	122 (43.7)
3–4	63 (22.6)
>4	22 (7.9)
Complaints about postpartum intercourse	
No sexual interest	76 (27.2)
Pain during intercourse	90 (32.3)
No arousal or orgasm	30 (10.8)
Vaginal dryness	7 (2.5)
Vaginal bleeding	2 (0.7)

resumption of sexual intercourse within 3 months after delivery, while delivery modes, incision issues, maternal/neonatal outcomes, epidemiological factors and breast feeding have no impact. The relationship between sexual activities during pregnancy with postpartum sex is in dispute. According to the study of Yıldız,¹⁷ there was no relation between pregnancy and postpartum sexuality, and majority of women had a significant level of sexual dysfunction in the postpartum period. In our study, sexual activities during pregnancy did not influence postpartum sexual activities, except for sex within 3 months after delivery. The potential significance deserves further exploration.

Reported associations between caesarean delivery and sexual dysfunction are inconsistent. In a randomised controlled trial, delivery modes had no association with the proportion of individuals who had postpartum sexual intercourse.¹⁸ In a previous report, depressive symptoms, having a caesarean section and high maternal education were correlated with dysfunctional problems in several subdomains of the Female Sexual Function Index.¹⁹ Lactating women without sexual desire had lower levels of hormones.^{20–22} Oestrogen plays a critical role in mood

and cognitive regulation.²¹ Hence, menstrual resumption may be associated with the level of oestrogen and progesterone and has an impact on postpartum sexual intercourse. Additionally, perineal trauma and the use of obstetric instrumentation are reported factors associated with the frequency or severity of postpartum dyspareunia,^{23–25} while different types of episiotomy have no impact on the quality of sexual life and perception of perineal pain.²⁶ In the West Berkshire perineal management trial, 37% of women allocated to a group with restrictive use of episiotomy and 27% of women allocated to the routine-use group resumed sexual activity by 1 month after birth ($p < 0.01$).²⁷ However, the proportion of women who resumed intercourse by 3 months, had dyspareunia at 3 months or any dyspareunia within 3 months did not differ between groups.²⁷

Few studies have reported on the effects of specifically relevant factors such as using contraception on postpartum sexual activity. Most reports are primarily concerned with comparing the immediate and delayed insertion of an IUD. However, the evidence base for IUD promotion in low-income and middle-income countries was weak and offered few lessons on what strategies are most effective.²⁸ Home dispensing of hormonal contraceptives may improve the use of postpartum contraceptives by women.²⁹ In our study, considerations about using contraception varied among postpartum women. These findings suggest that reducing related obstacles to facilitate access to contraception for postpartum women is reasonable. Given the paucity of high-quality evidence on the impact of hormonal contraception on breastfeeding outcomes and the strong evidence for improved health outcomes with the achievement of recommended birth spacing intervals, the real risk of unintended pregnancy and its consequences must not be neglected for fear of potential neonatal risks.³⁰ Practical systematic support should be in place to ensure that women who desire long-acting reversible contraception or any other form of contraception can receive it during the comprehensive postpartum visit.³¹

Table 3 Actual and desired contraceptive methods

	Actual contraceptive methods among women with postpartum sexual intercourse (n=279)	Desired contraception		Total (N=406)
		Among women with postpartum sexual intercourse (n=279)	Among women without postpartum sexual intercourse (n=127)	
Condom	210 (75.3%)	170 (60.9%)	80 (63.0%)	250 (61.6%)
Coitus interruptus	42 (15.1%)	28 (10.0%)	12 (9.4%)	40 (9.9%)
Subdermal implant	1 (0.4%)	28 (10.0%)	13 (10.2%)	41 (10.1%)
IUD	3 (1.1%)	29 (10.4%)	9 (7.1%)	38 (9.4%)
OCP	3 (1.1%)	14 (5.0%)	8 (6.3%)	22 (5.4%)
No contraception	20 (7.2%)	10 (3.6%)	5 (3.9%)	15 (3.7%)

IUD, intrauterine device; OCP, contraceptive pill/oral contraceptives.

Although knowledge gap exists, we have demonstrated that more Chinese women choose long-term contraception, including IUDs and subdermal implants. Long-acting reversible contraceptives (LARC) have been recommended for postpartum contraception,^{32 33} as LARC can reduce periodic visits for populations in which regular medical care is inconvenient and can reduce the burden of unintended pregnancy.³⁴ Moreover, clinical evidence suggests that IUDs and implants can be inserted within 48 hours post partum.^{35 36} Nevertheless, in our study, approximately one-fourth of women (27.3%) had any reason of not using contraception. These findings warrant further education programme for postpartum women to achieve accessible, safe and effective contraceptive methods. Accessible contraception and essential knowledge can improve postpartum sexual activity and utilisation of contraception. The official recognition of the 'lactational amenorrhoea method (LAM)' in the Bellagio consensus³⁷ has been proven effective in a number of settings.³⁸ However, a Cochrane meta-analysis did not find clear differences in the life table analysis of pregnancy rates between women using LAM and being supported in doing so, and fully breastfeeding women with amenorrhoea not using any method.³⁹ Considering the unknown pregnancy risk, we did not recommend LAM as a usual method of contraception.

This study has several limitations. First, there were recall and selection biases originating from enrolment of participants. Second, the questionnaire could not assess the delicate cultural background, partners' relationship or newborn care, and thus the assessment may have missed potential reasons for declining sexual activity and contraception. The design lacked detailed information on sexual function and satisfaction. Third, we limited our study to generally healthy pregnant women. More attention and concern for sexual health are needed for all women, especially women with severe comorbidities. Access to safe sexual activity is an essential component of equality in human rights. Fourth, we did not consider pelvic floor function in this study. Fifth, we did not provide any evidence on the role of postpartum intercourse in the improvement of sexual health and well-being of women and intimacy between partners. Last but not the least, we limit the definition of sex to vaginal–penile intercourse. The reason is mainly to assess for the risk of unintended pregnancy as Sok *et al*⁴⁰ had described. The secondary reason is the traditional cultural bondage in China. Women were somewhat abashed with regard to the topic of sex during our work, and a little more deep discussion about other sexual activities is refused by almost all the participants. Indeed, as McDonald and Brown⁴¹ noted, 'sexual activity' in a broad definition was resumed more quickly and more frequently than vaginal–penile intercourse immediately post partum.

In conclusion, having sexual intercourse during pregnancy and resuming menstruation earlier were independent factors for resumption of sexual intercourse within 3 months after delivery. Almost all women with postpartum

sexual intercourse used various contraceptive methods, and no predictor was found to be associated with using contraception. More postpartum women needed long-term contraceptive methods.

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Contributors All authors meet the ICMJE criteria for authorship: LL conceived of the original idea for the study, interpreted the results, carried out the statistical analysis, drafted the paper and is the overall guarantor. CZ designed the questionnaire, obtained ethical approval, contributed to the preparation of the data set, interpreted the results and contributed to drafts of the paper. TL contributed to study design, interpretation of the results and commented on drafts of the paper. CZ and TL contributed equally to the manuscript.

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