EFFECTIVENESS OF COMMUNICATION INTERVENTION TO IMPROVE THE SEXUAL FUNCTION OF PREGNANT WOMEN

Phan Chi Thanh[1,✉], Tran Danh Cuong[1], Ngo Van Toan[2]

[1]National Hospital of Obstetrics and Gynecology
[2]Hanoi Medical University

Sexual dysfunction is common during pregnancy. This disorder will continue and worsened during the postpartum period, greatly affecting family happiness. The objective of the study was to access the effectiveness of communication and counseling interventions to improve sexual function of pregnant women. We used Female Sexual Functuin Function Index to assess sexual dysfunction for pregnant women. The study's results showed that the FSFI score in the control group decreased by -2.5 (IQR: -7.2 to 0.2) points while in the intervention group, the decrease was only -1.1 (IQR: -5 to 2.6) points. This difference is statistically significant with p < 0.05. In the intervention group, pregnant woman who did not read media books or read less than 20% had the same reduction in FSFI scores after 1 month as the control group. The higher the reading level, the better the FSFI score. The risk of no intercourse during pregnancy in the control group was 2.81 times higher (95% CI 1.26 - 6.29) than in the intervention group. There was 64.0% of reduction in the risk of not having intercourse in the intervention group in comparison with the control group.

I. INTRODUCTION

Sexual dysfunction is common in women, especially during pregnancy because of the physical, hormonal, and psychological changes that have a significant impact on sexual behavior. The rate of sexual dysfunction in pregnant women (PW) accounts for a relatively high rate: 46.6% in the first trimester, 34.4% in the second trimester and 73.3% in the third trimester.[1] The consequence of this dysfunction is the emergence of extramarital relationships of husband when his wife is pregnant.[2,3] Sexual dysfunction during pregnancy can last until after postpartum and affect the quality of life, reducing marital satisfaction.[4]

On the other hand, due to Asian culture, sexual issue is still considered as a secret and has not been given proper attention. Women who have sexual problems are often shy and do not dare to share. In particular, many pregnant women fear that sex may affect the safety of the fetus.

Thus, if there is no early intervention from pregnancy, the sexual dysfunctions arousal, lubrication and pain will be more serious into the period of first even third month postpartum.[5] Sexual Intervention model is widely accepted by many scientists as a comprehensive intervention model, combining psychology, physiology, society, and many disciplines to bring about the best results. Early detection of female sexual dysfunction is essential for early and appropriate interventions to reduce and maintain sexual health and improve marital quality. Communication, counseling, and psychosexual interventions are considered as one of the main axes in the approach to treatment of patients with sexual disorders. Communication, counseling, and

psychosexuality for pregnant women can reduce sexual dysfunction not only during pregnancy but also after delivery. Research around the world show that female sexual function changes significantly after receiving sexual communication and counseling. The Female Sexual Function Index (FSFI) in the group receiving communication and counseling was 7 to 8 scores higher than the control group.[6,7]

In Vietnam, there is still much less information about this field, particularly supportive intervention programs to improve knowledge about sexual health. Scientific information about sex during pregnancy has not been disseminated as a service in health facilities. Even when asked, not all medical staff fully advise women about the safety of sexual activity during pregnancy. The objective of the study was to access the effectiveness of communication and counseling interventions to improve sexual function of pregnant women.

II. METHODS

Research method

Randomized controlled trial

Participants

Pregnant women in the first (under 14 weeks of gestation) and second (14–26 weeks) trimesters who visited National Hospital of Obstetrics and Gynecology between September and October 2020 were recruited.

The criteria for selecting the subjects were as follows

Pregnant women who were currently living with their husbands/partners and had no signs or symptoms of threatened abortion, vaginal bleeding, or fetal congenital anomalies.

Exclusion criteria for the pregnant women were those who received in vitro fertilization or had an indication for abortion. Illiterate women or those with mental illness or incapacity were also excluded from the study.

Sample

186 PW who satisfy the selecting criteria were invited to participate in our study

Sample method: randomization

The outpatient department at NHOG has eight examination rooms, but due to logistic issues, we only implemented recruitment of participants at two rooms; therefore, we could not screen all pregnant women who visited NHOG during the study period, and this was thus convenience sampling. We recruited pregnant women in the first (under 14 weeks of gestation) and second (14–26 weeks) trimesters who were currently living with their husbands/partners and had no signs or symptoms of threatened abortion, vaginal bleeding, or fetal congenital anomalies.

Instruments

Participants were administered a questionnaire collecting sociodemographic, clinical information, frequency of sexual intercourse, and female sexual function index (FSFI). FSFI questionaire was validated in Vietnamese by Ngo Thi Yen. FSFI consists of 19 questions in six different aspects of sexuality: desire, arousal, secretion, orgasm, pleasure, and pain. Each question has a self-assessment 5-point Likert scale. The score for each section is calculated by adding the scores of the sentences in that section and multiplying by the impact factor. The coefficient of libido is 0.6, the coefficient of excitement and secretion is 0.3, the coefficient of orgasm, satisfaction, and pain is 0.4. Each woman had a total FSFI score from 2 to 36 points. Women with a score of 26.55 or less are assessed as having sexual dysfunction.[5]
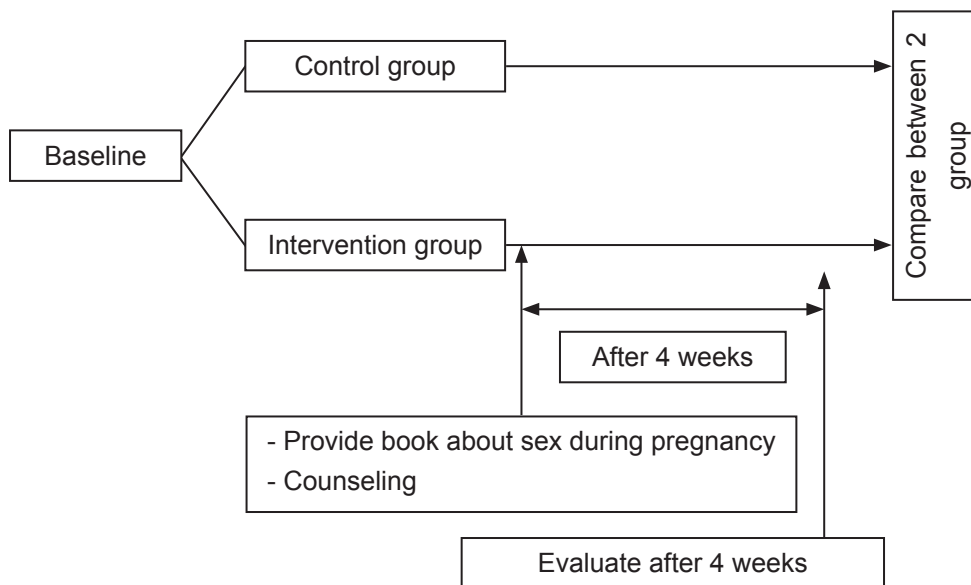
Figure 1. Research process

Phase 1 - Baseline: After explaining the purpose of the study and receiving the consent of pregnant women, we collected information on the administrative and sexual function of pregnant women through a structured questionnaire. We randomly divided the study participants into two groups: the intervention group (consultation and distribution of books on sex during pregnancy) and the control group (distributing vitamins/functional foods).

Phase 2: Assess sexual dysfunction of both groups after 1 month. Due to the complicated situation of the COVID-19 epidemic, participants may not come to the doctor after 1 month. To limit the loss of participants, we collected data by online questionnaires or telephone interviews.

Book content: Misconceptions about sex and pregnancy, Benefits of sexual activity, Body changes during pregnancy, sex is not just intercourse, intercourse during pregnancy, care myself during pregnancy. We send weekly text message via zalo to remind our participants to read the book. If they have any questions about the content of the book, they can ask directly via zalo for answers.

Statistical analyses: Data was collected into a paper case report form, then entered into an electronic Access database (Microsoft Access, Microsoft Corporation, USA), and cleaned and analyzed using Stata version 14.0 (StataCorp LLC, USA). All characteristics were described in percentage, mean (standard deviation, SD), or median (interquartile range, IQR), and were compared between pregnant women who did and did not have sexual intercourse using the chi-square test, t-test, or Wilcoxon rank-sum test where are appropriate.

Research ethics: The information regarding their participation as well as answers were kept confidential. Only members in the study team had the right to access data and were not allowed to share the data with people who are not involved in the study without the principal investigator's permission. This study was ethically approved by the Hanoi Medical University Institutional Review Board (Approval No. 68/GCN-HDDDNCYSH-DHYHN dated March 27th, 2020) and administratively approved by the participating NHOG.

III. RESULTS

Table 1. Characteristics of study participants, compared between control and intervention groups

Characteristics		Control group n (%)	Intervention group n (%)	Total n (%)	p-value
Gestational age (week)		13.50 ± 3.00	13.36 ± 2.92		0.6565
Trimester	First trimester	62 (50)	62 (50)	124 (66.7)	0.534
	Second trimester	34 (54.8)	28 (45.2)	62 (33.3)	
Women age	< 30	59 (48.8)	62 (51.2)	121 (65.1)	0.288
	≥ 30	37 (56.9)	28 (43.1)	65 (34.9)	
Education	High school or less	37 (53.6)	32 (46.4)	69 (37.1)	0.674
	College or above	59 (50.4)	58 (49.6)	117 (62.9)	
Partner's age	< 40	87 (51.5)	82 (48.5)	169 (90.9)	0.908
	≥ 40	9 (52.9)	8 (47.1)	17 (9.1)	
Partner's education	High school or less	36 (50)	36 (50)	72 (38.7)	0.726
	College or above	60 (52.6)	54 (47.4)	114 (61.3)	
Married	Not yet/ divorce	2 (66.7)	1 (33.3)	3 (1.6)	0.599
	Yes	94 (51.4)	89 (48.6)	183 (98.4)	
Sleeping with children	No	47 (46.1)	55 (53.9)	102 (54.8)	0.096
	Yes	49 (58.3)	35 (41.7)	84 (45.2)	
Duration	< 5 years	69 (53.1)	61 (46.9)	130 (69.9)	0.543
	≥ 5 years	27 (48.2)	29 (51.8)	56 (30.1)	
Living with partner family	No	53 (56.4)	41 (43.6)	94 (50.5)	0.188
	Yes	43 (46.7)	49 (53.3)	92 (49.5)	
Obstetric history					
Ever had a child	No	36 (46.8)	41 (53.2)	77 (41.4)	0.265
	Yes	60 (55)	49 (45)	109 (58.6)	

Characteristics		Control group n (%)	Intervention group n (%)	Total n (%)	p-value
Ever had an abortion	No	72 (52.9)	64 (47.1)	136 (73.1)	0.55
	Yes	24 (48)	26 (52)	50 (26.9)	
Ever had Cesarean section	No	75 (49)	78 (51)	153 (82.3)	0.128
	Yes	21 (63.6)	12 (36.4)	33 (17.7)	
Ever had vaginal delivery	No	54 (49.5)	55 (50.5)	109 (58.6)	0.501
	Yes	42 (54.5)	35 (45.5)	77 (41.4)	

186 pregnant women participated in the study and were randomly divided into 2 control and intervention groups. The means gestational age of the 2 groups were similar: the control group was 13.50 ± 3.00 weeks, and the intervention group was 13.36 ± 2.92 weeks. Randomization makes the characteristics of participants relatively equal in both control and intervention groups. The rate of pregnant women under 30 years old accounted for 65.1%. The education level from high school and above (intermediate, university, graduate) accounted for 62.9%, high school and lower were 37.1%, only a few people finish secondary school, no one has only finished primary school or illiterate. 98.4% of them were married, 45.2% sleep with children, 69.9% have lived together for less than 5 years, nearly half (49.5%) of couples are currently living with their family husbands. 58.6% had delivery birth before, 26.9% had an abortion/ stillbirth/ miscarriage, 17.7% had a cesarean and 41.1% had a vaginal delivery.

Table 2. FSFI between control and intervention group

Domain FSFI	Control group (n=96) Median (IQR)			Intervention group (n=90) Median (IQR)			p (Difference FSFI)
	Before	After	Difference FSFI	Before	After	Difference FSFI	
Desire	3.6 (3 - 3.6)	3 (2.4 - 3.6)	-0.6 (-1.2 - 0)	3.6 (3 - 3.6)	3.6 (3 - 3.6)	0 (-0.6 - 0.6)	0.0037
		P < 0.00001			p = 0.1568		
Arousal	3.9 (3 - 4.5)	3 (2.1 - 3.9)	-0.8 (-1.5 - 0)	3.6 (3.3 - 4.2)	3.6 (2.7 - 4.2)	-0.3 (-1.2 - 0.3)	0.0414
		P < 0.00001			**p = 0.0138**		
Lubrication	5.1 (4.2 - 5.4)	4.5 (3.6 - 5.4)	-0.3 (-1.2 - 0)	5.1 (4.5 - 5.7)	5.1 (3.9 - 5.4)	-0.3 (-0.9 - 0.3)	0.3127
		p = 0.0002			**p = 0.0065**		
Orgasm	4.2 (5.4 - 4.4)	3.6 (5.4 - 3.6)	-1.2 (0 - -0.4)	4.5 (5.7 - 4.4)	3.9 (5.4 - 4)	-0.9 (0.3 - -0.2)	0.0264
		P < 0.0001			p = 0.2235		
Satisfaction	4.8 (3.6 - 4.8)	3.6 (3.6 - 4.8)	-0.4 (-1.2 - 0)	4.8 (3.6 - 4.8)	4.8 (3.6 - 4.8)	0 (-1.2 - 0.4)	0.0752
		P < 0.0001			**p = 0.0425**		
Pain	5.2 (3.6 - 6)	4.8 (3.4 - 6)	0 (-1.2 - 0)	4.8 (4.4 - 6)	5 (4 - 6)	0 (-0.8 - 0.8)	0.0984
		p = 0.0078			p = 0.9952		
Total FSFI	26.5 (22.2 - 29.2)	23.3 (17.1 - 28.1)	-2.5 (-7.2 - 0.2)	26.2 (22.8 - 28.6)	25.5 (21 - 28.7)	-1.1 (-5 - 2.6)	0.0113
		p < 0,00001			p = 0,1809		

Table 2 describes the sexual function scores in the 2 groups before and after the intervention. In the control group: the scores for six domains of sexual function tended to decrease: from 0.3 to 1.2 points. Total FSFI score decreased by -2.5 (IQR -7.2 to 0.2) points. The decrease between before and after the intervention was statistically significant. In the intervention group: the reduction amplitude of the median score for each domain was lower: from 0 to 0.9 points and domain "Pain" was fixed. The total FSFI score decreased by only -1,1 (IQR -5 to 2.6) points. The changes in domains: Arousal, lubrication, and satisfaction were statistically significant between before and after the intervention. We also compared the difference before and after the change of FSFI index between the 2 control and intervention groups. The results showed that the intervention group had a lower decrease than the control group in six domains of sexual function. The difference in the domains of "desire", "arousal", "orgasm" and total sexual function is statistically significant $p < 0.05$.
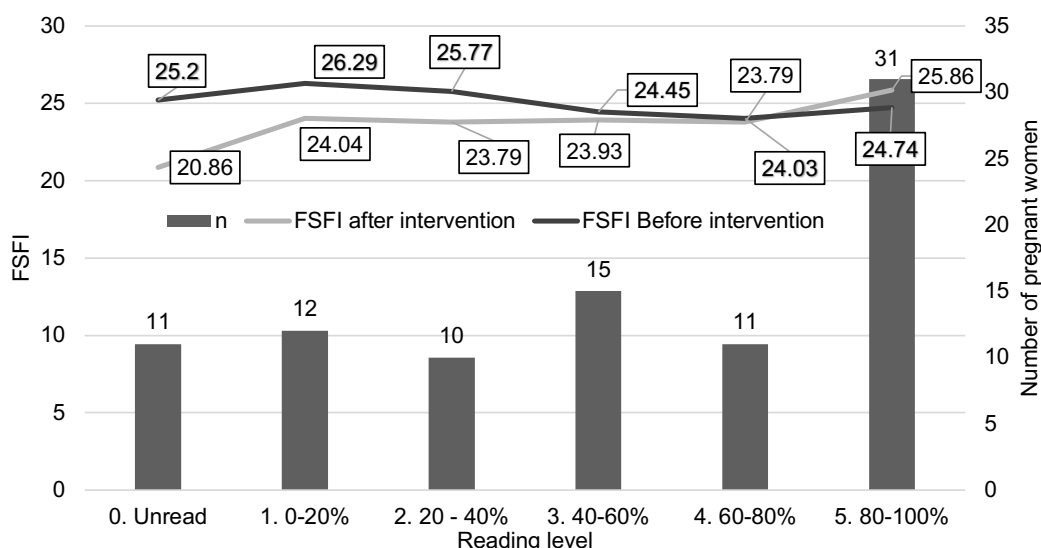

Figure 2. FSFI score and reading level in the intervention group

Figure 1 presents the FSFI score and reading level in the intervention group: For 12 PWs who did not read, the pre-intervention FSFI score of 25.2 felt to the lowest level of 20.86 points after 1 month. Similarly, for the groups of PWs who read from 0-20% or read from 20-40% of the book, the post-intervention FSFI was lower than the pre-intervention, but the FSFI gap narrowed as the level of reading increased. For the group who can read 80-100% of the book, the total of FSFI was higher than before intervention.

Table 3. Relative risk of no intercourse between control and intervention groups

		Control group (n = 96)		Intervention group (n = 90)	
		Before	**After**	**Before**	**After**
No intercourse	n	20	21	18	7
	%	20.8%	21.9%	20.0%	7.8%

		Control group (n = 96)		Intervention group (n = 90)	
		Before	After	Before	After
Relative Risk	RR	2.81			
	95%CI	1.26 - 6.29			
Relative Risk Reduction	RRR	0.64			
	95%CI	0.20 - 0.84			
p = 0.0072					

The prevalence of no intercourse between control and intervention group was significantly different after 1 month. This prevalence in the intervention group decreased from 20.0% to 7.8% after the intervention. The risk of not having intercourse in the control group was 2.81 times higher than the risk of not having sex in the intervention group (95% CI: 1.26 – 6.29). The prevalence of not having intercourse in the intervention group decreased by 64% compared to the control group. This difference is statistically significant with p < 0.01.

IV. DISCUSSION

Among the 186 PWs in the study, their education level was relatively high: 62.9% graduated from high school/intermediate/ university and post graduated. Most of them are married. This is a favorable condition for our team when talk about sex – a relatively new and secret in Vietnam. About half of the couples currently live with the husband's family. This is consistent with the trend of increasing small households, gradually decreasing traditional households (multi-generational families living together), according to the census from 2009 to 2019. Household size average urban area was 3.3 people/household lower than rural areas.[8]

According to previous studies, the total FSFI tends to decrease with increasing gestational age, this is related to physiological changes, increased waist size, couples have begun to be aware of raising Fetal, fear of sexual intercourse affecting the fetus…[5,9,10] Most of the studies have emphasized that sexual dysfunction is common during pregnancy and is associated with a decrease in frequency as well as a decrease in fertility satisfaction.[1,9] Our results are consistent with the above trend. In the control group, FSFI scores decreased significantly after 1 month in all domains: Desire, arousal, lubrication, orgasm, satisfaction, pain and total FSFI score. The decrease between before and after 1 month was statistically significant p < 0.01. In the intervention group, due to being consulted and given books, the rate of decline in indicators after 1 month was lower than that of the control group in all domains. The FSFI difference in the control group was -2.5 (IQR: -7.2 – 0.2) points, while in the intervention group it was -1.1 (IQR: -5 – 2.6) points. This difference is statistically significant with p < 0.05. This shows that providing information through books and counseling is effective. However, when comparing the results with similar studies on PWs in Iran, our results are still quite modest. The FSFI score in the communication group increased by 5.08 points after 1 month of intervention.[6] The difference in the results of this study may be due to differences in the demographic characteristics of the study sample, tools and methods, the media. The effectiveness of the intervention in

this study, although not able to increase the CNTD score, also contributed to slowing down the rate of decrease in the intervention group.

When analyzing further between the FSFI scores by reading level in the intervention group, we found that there was a clear difference between the groups. PWs who have never read or read very little, the FSFI score after the intervention decreased significantly compared to the baseline; PWs who did not read decreased from 25.2 to 20.9 points, PWs who read less than 20% of the book decreased from 26.29 to 24.04 points. This reduction in scores was comparable to that of the control group. For more reading levels, the score reduction range is narrower. The group that read 80-100% of the book, the FSFI score increased from 24.74 to 25.86 points.

Notably, in this study, up to 20.0% of PWs did not have intercourse within the past 4 weeks despite living with their husband/partner. This may be due to misconceptions about intercourse during pregnancy that PWs are afraid to have normal sex as before pregnancy. This rate decreased significantly within 1 month in the intervention group: from 20.0% to 7.8%. The rate of no intercourse in the control group was 2.81 times higher than the rate in the intervention group. This shows that the interventions could be effective. Providing correct and accurate information has helped couples overcome the boundary of fear of sexual intercourse affecting the fetus.

Some studies have shown that the sexual function of the partner greatly affects the women sexual function. However, in our research, because the proportion of partners accompanying to the hospital was low, we could not communicate and advise partner directly. The communication to the partner is mainly through the media books distributed to the wife.

V. CONCLUSIONS

Total FSFI before intervention in the 2 groups was similar: the control group was 26.5 (IQR: 22.2 to 29.2) points and the intervention group was 26.2 (IQR: 22.8 to 28.6) points. After the intervention, the rate of decrease of FSFI in the intervention group was slower than the control group. The control group decreased -2.5 (IQR: -7.2 to 0.2) points, the intervention group only decreased -1.1 (IQR: -5.0 to 2.6) points. The higher the reading level, the higher the FSFI score after the intervention. After intervention, the control group had a risk of not having intercourse 2.81 times higher (95% CI: 1.26 - 6.29) than the intervention group.

REFERENCES

1. Jamali S, Mosalanejad L. Sexual dysfnction in Iranian pregnant women. *Iranian journal of reproductive medicine*. 2013;11(6):479.

2. Nichols FJCeP, research,, Saunder tnePW. Philosophy and roles: In: Nichols FH, Humenick SS, editors. 2000:3-17.

3. Onah H, Iloabachie G, Obi S, Ezugwu F, Eze J. Nigerian male sexual activity during pregnancy. *International Journal of Gynecology & Obstetrics*. 2002;76(2):219-223.

4. Williamson M, McVeigh C, Baafi M. An Australian perspective of fatherhood and sexuality. *Midwifery*. 2008;24(1):99-107.

5. Saotome TT, Yonezawa K, Suganuma N. Sexual Dysfunction and Satisfaction in Japanese Couples During Pregnancy and Postpartum. *Sex Med*. Dec 2018;6(4):348-355. doi:10.1016/j.esxm.2018.08.003

6. Heidari M, Aminshokravi F, Zayeri F, Azin SA. Effect of Sexual Education on Sexual Function of Iranian Couples During Pregnancy: A Quasi Experimental Study. *J Reprod Infertil*. Jan-Mar 2018;19(1):39-48.

7. Afshar M, Mohammad-Alizadeh-Charandabi S, Merghti-Khoei ES, Yavarikia P. The effect of sex education on the sexual function of women in the first half of pregnancy: a randomized controlled trial. *Journal of caring sciences*. Dec 2012;1(4):173-81. doi:10.5681/jcs.2012.025.

8. Tổng cục Thống kê. Kết quả toàn bộ Tổng điều tra dân số và nhà ở năm 2019. 2020;

9. Gałązka I, Drosdzol-Cop A, Naworska B, Czajkowska M, Skrzypulec-Plinta V. Changes in the Sexual Function During Pregnancy. *The journal of sexual medicine*. 2015;12(2):445-454. doi:10.1111/jsm.12747.

10. Corbacioglu Esmer A, Akca A, Akbayir O, Goksedef BPC, Bakir VL. Female sexual function and associated factors during pregnancy. *Journal of Obstetrics and Gynaecology Research*. 2013;39(6):1165-1172. doi:10.1111/jog.12048.