Multidimensional Measures of Fertility Intentions Regarding Terminated Pregnancy and Association with Subsequent Reproductive Health Outcomes in Bangladesh

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Abstract

Multidimensional measures of fertility intentions, including desire for pregnancy and mistiming, have been recommended over simpler measures. The present study assesses the association between multidimensional measures of fertility intentions and reproductive health outcomes among a facility-based sample of 360 uterine evacuation clients in Bangladesh. Women who had higher pregnancy avoidance scores for their terminated pregnancy had higher odds of subsequent contraceptive use, and lower odds of pregnancy at four months post-abortion. Ambivalence about the timing of the terminated pregnancy was associated with lower odds of post-abortion contraceptive uptake (95% CI: 0.19 – 0.96). Mistiming of the terminated pregnancy was also associated with subsequent contraceptive use; those whose pregnancies were more mistimed were more likely to use modern contraception. Our findings are in line with those of previous studies, and suggest that multidimensional measures of fertility intentions for a terminated pregnancy can be used to predict subsequent contraceptive use and pregnancy.

Extended Abstract

Background

In Bangladesh menstrual regulation (MR) is allowed to induce menstruation and establish non-pregnancy up to 10 weeks from the beginning of the last menstrual period (Bart Johnston et al., 2010). Though MR services are available in government family planning facilities, induced abortion outside of the health system is common in Bangladesh (Singh et al., 2012). In 2010, the annual induced abortion rate, including safe and unsafe illegal abortions, was 18.2 per 1,000 women of reproductive age, and the annual MR rate was 18.3 per 1,000 women (Singh et al., 2012). Together, this results in a pregnancy termination rate of 36.5 per 1,000 women of reproductive age (Singh et al., 2012). This rate is high compared to the South-central Asia region as a whole, which had a pregnancy termination rate of 27 per 1,000 women of reproductive age in 2003 (Sedgh et al., 2007). This suggests a high rate of mistimed and unwanted pregnancy in Bangladesh, which is associated with negative maternal and child health outcomes (Joyce et al., 2000; Gipson et al., 2008). Understanding fertility intentions among induced abortion clients may explain future reproductive health outcomes in this population.

Multidimensional measures of fertility intentions, including desire for pregnancy and mistiming, have been recommended over simpler measures (Santelli et al., 2009). The present study seeks to understand the association between multidimensional measures of fertility intentions regarding the terminated pregnancy and subsequent reproductive health outcomes among a facility-based sample of MR and postabortion care (PAC) clients in Bangladesh.

Methodology

This study enrolled a facility-based sample of 498 MR or PAC clients aged 18-49 years in Bangladesh. Women completed an interviewer-administered survey at the health facility on the day of their uterine evacuation (UE) procedures. Interviews were conducted in Bangla and lasted 30-45 minutes. Women were also asked to complete a follow-up interview four months after their UE procedures to assess outcomes such as contraceptive use and pregnancy. Follow-up interviews were conducted in person at a location of the woman's choosing. Questionnaires were developed in English and translated to Bangla. The questionnaires were back-translated and pilot-tested, and adjustments were made as necessary. Data collection occurred from March-October 2013. The response rate was 89%, and the follow-up rate was 92%.

Sample

This study used a facility-based sample drawn from among the pool of government and NGO facilities where Ipas had trained a provider in UE service provision and upgraded the site to ensure that appropriate equipment and infection prevention materials were available. The Ipas Bangladesh country office maintains a full list of facilities where Ipas works, and this served as the sampling frame for the study. The sampling frame consisted of 47 facilities (18 primary, 16 secondary, 5 tertiary, and 8 NGO facilities), and 16 were randomly selected for inclusion in this study. There are 5,301 public sector facilities in Bangladesh where UE services are provided (Vlassoff et al., 2012). Compared to the broader group of facilities where UE services are provided, facilities where Ipas works are more likely to be in urban settings such as Dhaka and Chittagong. Selecting facilities for this study from the pool of facilities where Ipas works ensured that the women included in the study received a similar quality of care in UE service and post-abortion contraceptive provision.

A stratified one-stage cluster sampling approach was used to select women for the study. Inclusion criteria for facilities included provision of MR or PAC services and provision of pills, injectables, or condoms as post-abortion contraceptive methods. Facilities were stratified by type: primary, secondary, tertiary, and NGO facilities (RHSTEP clinics). A stratified approach was used to ensure representation

from all facility types, as these facilities are thought to serve different populations of women. Facilities were randomly selected using probability proportional to size (PPS) sampling within facility type strata. Between facility type strata there was an equal allocation of selected facilities.

Within selected facilities, all women receiving MR or PAC services were screened for study eligibility. Inclusion criteria for study participation included: 18-49 years of age; received MR or PAC services using any procedure; and accepted pills, injectables, or condoms as a post-abortion contraceptive method, or selected no method. Women who selected a long-term post-abortion contraceptive method were ineligible for participation.

Measures

Based on the work of Santelli et al. (2009), multidimensional measures of fertility intentions for the terminated pregnancy were constructed using two questions adapted from recent population-based surveys: the 2010 FECOND survey, a sexual and reproductive health survey in France and the 2006-2010 National Survey of Family Growth (NSFG) in the United States (Centers for Disease Control, 2008). First, women were asked, "At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, did you not want to have any (more) children, or did you not think about it?". Women who responded that they wanted to wait until later were then asked, "How much sooner than you wanted did you become pregnant?" This was used to create a continuous measure of mistiming in years. Second, women were shown a scale on a card and asked, "Please look at the scale on the card. On this scale, a 1 means that you did not want to avoid pregnancy, and 10 means you wanted very much to avoid pregnancy. Which number on the card best describes how much you wanted to avoid pregnancy at the time you became pregnant?" This was used as an avoidance score for the terminated pregnancy on a scale of 1-10, with a higher score indicating stronger pregnancy avoidance.

Three outcome measures were assessed in this study: post-abortion contraceptive uptake, modern contraceptive use at four months post-abortion, and pregnancy at four months post-abortion. Post-abortion contraceptive uptake was defined as the woman's report of accepting oral contraceptive pills, injectables, or condoms on the day of her UE procedure. Modern contraceptive use at four months was assessed through the follow-up interview by asking women if they or their partners were currently using anything to avoid pregnancy. If yes, women were asked which methods they were currently using. Women were defined as modern contraceptive users at four months post-abortion if they reported using male or female sterilization, IUD, implant, oral contraceptive pills, injectables, or condoms. Pregnancy at four months post-abortion was assessed through the follow-up interview. Women were defined as pregnant if they said that they were currently pregnant when asked whether they intend to become pregnant within the next month, or if they said that they were pregnant when asked whether they were currently using anything to avoid pregnancy.

A total of 498 women were enrolled in the study, but the analytic sample was restricted to the 360 women who reported induced abortion (either MR or PAC for an abortion attempt) and reported that they did not intend to become pregnant again within the next four months at the time of the baseline interview.

Analyses

Socio-demographic characteristics are presented for the sample. Logistic regression models were used to test the association between women's fertility intentions and reproductive health outcomes. Odds ratios are reported for logistic regression results, and all models adjusted for age, education, parity, urban or rural residence, husband's age, and husband's education. The models assessing post-abortion contraceptive uptake and modern contraceptive use at four months post-abortion also adjusted for uterine evacuation procedure type as this was hypothesized to be an important predictor of method use. Significance was assessed at an alpha of 0.05 for all analyses. Analyses were conducted using Stata/SE 12.1, and clustered standard errors were used to account for non-independence of respondents within facilities.

Results

In this sample, women were an average of 28 years old, with two children, over half had secondary or higher education, over half resided in urban areas, most were Muslim, and almost all were married (Table 1). On average, women's husbands were age 35, and there was a similar distribution in husband's education with over half having secondary or higher education. One third of the sample reported that they wanted the terminated pregnancy later, and terminated pregnancies were mistimed by an average of one year (SD=1.74) (Table 2). Half of the sample did not want the pregnancy at all, and one tenth did not think about the timing of the pregnancy. The average avoidance score for the terminated pregnancy was 8.14. The average avoidance score was higher for women who accepted a post-abortion contraceptive method and those who were using modern contraception at four months post-abortion (8.58 and 8.40, respectively); the average score was lower (5.00) for women who reported pregnancy at four months post-abortion.

Logistic regression results showed that for every one point increase in the avoidance score, a woman's odds of accepting post-abortion contraception increased by 33% (95% CI: 1.13 – 1.56) (Table 2). In addition, there was a 70% reduction in the odds of accepting a post-abortion contraceptive method among women who did not think about the timing of their pregnancy, compared to those who wanted the pregnancy at the time they became pregnant (95% CI: 0.09 – 0.96). Different aspects of fertility intentions were associated with modern contraceptive use at four months post-abortion. For every additional year that the pregnancy was mistimed, there was an almost 50% increase in the odds of modern contraceptive use at the four month follow-up (95% CI: 1.01 – 2.17). In addition, women who reported that their pregnancy was unwanted had an eight times higher odds of using modern contraception at follow-up compared to those who wanted the pregnancy at the time they became pregnant (95% CI: 1.60 – 42.88). The avoidance score for the terminated pregnancy was also associated with subsequent pregnancy at the time of the four-month follow-up. For every one point increase in the avoidance score, a woman's odds of being pregnant by four months post-abortion decreased by almost 30% (95% CI: 0.58 – 0.87).

Discussion

Measures of fertility intentions regarding the terminated pregnancy are predictive of subsequent reproductive health outcomes. Women who had higher pregnancy avoidance scores for their terminated pregnancies were more likely to use contraception, and were less likely to be pregnant at four months post-abortion. This suggests that pregnancy avoidance is a relatively stable measure that is predictive of future reproductive behavior. Timing of the terminated pregnancy was also predictive. Ambivalence about the timing of the terminated pregnancy (did not think about the timing) was associated with lower odds of post-abortion contraceptive uptake, and reporting that the pregnancy was unwanted was associated with increased odds of subsequent modern contraceptive use. Mistiming of the terminated pregnancy was also associated with subsequent contraceptive use; those whose pregnancies were more mistimed were more likely to use modern contraception. Our findings are in line with those of Santelli et al. (2009), and suggest that multidimensional measures of fertility intentions can be used with abortion clients to predict reproductive health outcomes such as modern contraceptive use and subsequent pregnancy.

References

Bart Johnston, H., Oliveras, E., Akhter, S., Walker, D.G. (2010). Health system costs of menstrual regulation and care for abortion complications in Bangladesh. *International Perspectives on Sexual and Reproductive Health*, 36(4), 197-204.

Centers for Disease Control (CDC). (2008). National Survey for Family Growth (NSFG) 2006-2010, Female Questionnaire. Accessed online September 16, 2013, at http://www.cdc.gov/nchs/data/nsfg/NSFG_2006-2010_Y3_FemaleE_CRQ.pdf

Gipson, J.D., Koenig, M.A., Hindin, M.J. (2008). The effects of unintended pregnancy on infant, child, and parental health: A review of the literature. *Studies in Family Planning*, 39(1): 18-38.

Joyce, T.H., Kaestner, R., Korenman, S. (2000). The effect of pregnancy intention on child development. *Demography*, 37(1): 83-94.

Santelli, J.S., Lindberg, L.D., Orr, M.G., Finer, L.B., Speizer, I. (2009). Toward a multidimensional measure of pregnancy intentions: Evidence from the United States. *Studies in Family Planning*, 40(2), 87-100.

Sedgh, G., Henshaw, S., Singh, S., Ahman, E., Shah, I.H. (2007). Induced abortion: Estimated rates and trends worldwide. *Lancet*, 370, 1338-1345.

Singh, S., Hossain, A., Maddow-Zimet, I., Bhuiyan, U., Vlassoff, M., Hussain, R. (2012). The incidence of menstrual regulation procedures and abortion in Bangladesh, 2010. *International Perspectives on Sexual and Reproductive Health*, 38(3), 122-132.

Vlassoff, M., Hossain, A., Maddow-Zimet, I., Singh, S., Bhuiyan, H.U. (2012). *Menstrual regulation and postabortion care in Bangladesh: Factors associated with access to and quality of services*. New York: Guttmacher Institute.

Table 1. Characteristics of study sample (n=360)

	Total (n=458)	
Socio-demographic Characteristics	**n**	**(%)**
Mean age	27.8	
(SD)	(6.11)	
Husband's mean age	35.5	
(SD)	(7.73)	
Education		
None	45	(12.5)
Primary	106	(29.4)
Secondary or higher	209	(58.1)
Husband's education		
None	59	(16.4)
Primary	98	(27.3)
Secondary or higher	202	(56.3)
Religion		
Islam	320	(88.9)
Hinduism	39	(10.8)
Other	1	(0.3)
Marital status		
Married	359	(99.7)
Formerly married	1	(0.3)
Mean parity	2.0	
(SD)	(1.33)	
Residence		
Urban	204	(56.7)
Rural	156	(43.3)

Table 2. Logistic regression model results of the association between fertility intentions and reproductive health outcomes

Fertility Intentions Regarding Terminated Pregnancy	Total (n=360)		Model 1: Post-abortion contraceptive uptake (n=353)				Model 2: Modern contraceptive use at four months post-abortion (n=325)				Model 3: Pregnancy at four months post-abortion (n=326)			
	n	(%)	n	(%)	AOR[a, b]	(95% CI)	n	(%)	AOR[a, b]	(95% CI)	n	(%)	AOR[a]	(95% CI)
Avoidance score for terminated pregnancy	8.14		8.58		1.33 *	(1.13 - 1.56)	8.40		1.04	(0.88 - 1.23)	5.00		0.71 *	(0.58 - 0.87)
(SD)	(2.77)		(2.47)				(2.57)				(3.32)			
Mistiming (years)	1.10		1.09		1.10	(0.75 - 1.63)	1.10		1.47 *	(1.01 - 2.17)	1.57		0.95	(0.77 - 1.17)
(SD)	(1.74)		(1.77)				(1.80)				(1.62)			
Pregnancy unwanted	184	(51.1)	156	(84.8)	1.05	(0.19 - 5.95)	155	(90.1)	8.29 *	(1.60 - 42.88)	2	(1.2)	nc	nc
Did not think about timing of pregnancy	39	(10.8)	26	(66.7)	0.30 *	(0.09 - 0.96)	30	(81.1)	2.72	(0.51 - 14.60)	0	(0)	nc	nc

[a] All models adjusted for age, education, parity, rural or urban residence, husband's age, and husband's education

[b] Models 1 and 2 adjusted for uterine evacuation procedure type manual vacuum aspiration(MVA), medication abortion (MA), or dilatation and curettage (D&C)

nc not calculated