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Reducing Pregnancy and Induced Abortion Rates in China: Family Planning with Husband Participation

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ABSTRACT

Objectives. This study assessed the effectiveness of a family planning intervention with and without husband's participation in reducing pregnancy and abortion rates in Shanghai, China.

Methods. In this 3-arm randomized trial among 1800 nonsterilized married women, educational interventions targeting both spouses and targeting the wife only were compared with usual family planning care.

Results. Among women not using intrauterine devices (IUDs), the intervention with husband's participation had an effect in reducing pregnancy rates (adjusted odds ratio [OR] = 0.36, 95% confidence interval [CI] = 0.12, 1.1) and abortion rates (adjusted OR = 0.29, CI = 0.09, 0.94) compared with control subjects, and a significant effect in reducing pregnancy rates (adjusted OR = 0.29, CI = 0.10, 0.85) and abortion rates (adjusted OR = 0.24, CI = 0.07, 0.77) compared with wife-only subjects.

Conclusions. Family planning interventions involving husbands may reduce pregnancy and abortion rates among non–IUD users. (*Am J Public Health.* 1998;88:646–648)

Introduction

China's success in promoting widespread contraceptive use is an enormous and consequential feat of public policy. However, the country's low fertility rate has also been attained by relying heavily on induced abortion.[1–3] Lack of knowledge about conception and contraception accounts for many abortions, and at considerable cost.[2] Current Chinese family planning programs are targeted almost exclusively to women. However, a number of studies indicate the potential effectiveness of including husbands in family planning efforts.[4–6] Physician-directors at the Maternal and Child Health Hospital of LuWan District in Shanghai designed and evaluated the first Chinese family planning intervention to test the effect of educating husbands as well as wives. In this 3-arm randomized trial, a family planning intervention targeting both wife and husband and targeting the wife only was compared with usual family planning care. We examined whether each of the interventions reduced pregnancy and abortion rates compared with usual care.

Methods

Setting and Population

The target population was limited to 13 285 women of childbearing age working in 21 factories and 6 middle schools served by the LuWan Maternal and Child Health Hospital within Shanghai's LuWan District. Factories and schools (each representing one Chinese *danwei*, or work unit) were randomly assigned to 1 of 3 arms. In the 2 experimental arms, wives plus husbands, or wives only, received an educational intervention in addition to usual care, while subjects in the control arm received only usual family planning care. Cluster randomization by work unit to treatment group was employed to minimize contamination, with 9 work units in each arm.

From these 27 work units, 1800 nonsterilized married women of childbearing age were randomly selected to participate. Systematic sampling was used to select participants; every seventh woman was chosen

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from a list of eligible women in each work unit.[7] The number of cases selected was proportional to the size of the work unit. Health workers determined each woman's sterilization status by reviewing on-site work unit clinic records prior to her enrollment in the study. The participation rate of women selected was 98% in each group. We believe this observed rate was high for the following reasons: first, the educational intervention occurred on site for each work unit; second, women were given release time from work to participate; and third, make-up sessions were conducted at each site for those who were unable to attend the first session. In Chinese society, one's marital status is common knowledge among colleagues and neighbors; unmarried women were excluded from cluster randomization at the outset. Ninety husbands (15%) assigned to receive the educational intervention declined to participate or were unable to participate because of their work schedules.

The total number of 27 participating work units was determined by practical considerations, given a setting with relatively abundant humanpower but otherwise limited resources. LuWan District work units were recruited through presentations to management by district hospital leadership, which enjoys a strong rapport with its clients. Each work unit employed between 500 and 800 workers and provided an on-site clinic.

The original sample-size calculations were carried out with tables in Cohen[8] for 3-way comparisons of continuous outcomes. Assuming an effect size of 0.10, which is relatively small on Cohen's scale, and loss to follow-up of 30%, groups of size 464 would have provided 80% power in 2-sided tests with $\alpha = .01$. Larger samples were recruited as an additional protection should loss to follow-up have turned out to be higher than expected.

Usual Care and Intervention

In usual-care family planning programs, women of childbearing age receive instruction about China's population problem, national policy, and access to services. In the LuWan intervention, health care providers from the district maternity hospital visited work sites to educate women about human reproduction and sexuality, the role of sperm in sex determination, the variety and choice of contraceptive methods, sharing responsibility for contraception with one's husband, and communication with family planning workers and with one's spouse. Family planning workers described the importance of performing abortions in the first trimester and the riskiness of second trimester abortion and abortion performed by nonmedical personnel. Each woman received 3 to 5 hours of on-site training for which work unit managers granted time off. Women in the 2 treatment arms also reviewed, during workday hours, 5 videotapes describing the physiology of reproduction, contraceptive methods, and the potential risks of abortion.

Family planning education for couples stressed communication with one's spouse. Investigators and family planning workers instructed husbands separately from their wives in groups of approximately 20 people. Instruction was also designed to enhance husbands' knowledge of sexuality and reproduction and to increase their support of contraceptive behavior.

There was a delay in initiation of the educational intervention for many work units because of limited resources. On-site training at the 18 work units in the couple and wife-only arms occurred 1 work unit at a time and was tailored to accommodate the work units' production schedules. Interventions began as early as January 1991 and were all completed by September 1992; the postintervention survey occurred in December 1992. Health workers ascertained data, including pregnancy and abortion outcomes, by conducting posttest interviews with subjects.

TABLE 1—Adjusted Odds Ratios (ORs) for Pregnancy and Abortion, by Trial Arm[a]: Women (n = 1608) in Shanghai, China, January 1991 through December 1992

	Pregnancy			Abortion		
	OR	95% CI	*P*	OR	95% CI	*P*
Total sample						
With husband vs control	0.7	0.4, 1.3	.26	0.6	0.4, 1.1	.12
With husband vs wife only	0.6	0.3, 1.2	.14	0.6	0.3, 1.2	.12
Wife only vs control	1.2	0.6, 2.2	.58	1.1	0.6, 2.2	.76
Women not using IUDs						
With husband vs control	0.4	0.1, 1.1	.07	0.3	0.1, .94	.04
With husband vs wife only	0.3	0.1, 0.9	.02	0.2	0.1, .77	.02
Wife only vs control	1.2	0.6, 2.5	.58	1.2	0.6, 2.6	.62
Women using IUDs						
With husband vs control	1.1	0.6, 2.0	.87	0.9	0.4, 1.9	.84
With husband vs wife only	0.9	0.5, 1.8	.80	0.8	0.4, 1.7	.55
Wife only vs control	1.2	0.5, 2.6	.72	1.2	0.5, 2.9	.75
Women younger than 35 years old						
With husband vs control	0.8	0.4, 1.6	.50	0.8	0.4, 1.5	.40
With husband vs wife only	0.7	0.3, 1.4	.29	0.7	0.3, 1.5	.31
Wife only vs control	1.2	0.5, 2.7	.65	1.1	0.5, 2.6	.78
Women 35 years and older						
With husband vs control	0.8	0.4, 1.8	.59	0.7	0.3, 1.7	.44
With husband vs wife only	0.6	0.3, 1.4	.26	0.6	0.2, 1.4	.22
Wife only vs control	1.3	0.5, 3.0	.59	1.3	0.5, 3.1	.57

[a]The 3 trial arms were as follows: family planning educational intervention with husband's participation, family planning educational intervention with wife only, and control (usual care).

Statistical Analysis

Multivariate logistic regression models, fit by generalized estimating equations[9] to account for cluster randomization, were used to estimate treatment effects. All models were adjusted for age, having live children, any previous abortion, education, and living area, covariates that predicted both study outcomes (pregnancy and induced abortion) and were in some cases imperfectly balanced by the cluster randomization.

We selected from among related sets of potential control variables. For example, we had information about parity and number of living children, which are highly correlated; we chose to use an indicator of any living children in the models because of the obvious relationship of this variable to the 1-child, 1-family policy. From among various potential measures of social and economic status we selected an indicator of living area equal to or greater than 16 m^2 on the statistical grounds that this measure was the most strongly associated with study outcomes. We included an indicator of age younger than 35 years because outcome

rates were sharply higher in this group and differed little by age among women 35 years and older; we also excluded length of marriage because this variable is highly correlated with age (data not shown).

Unplanned subgroup analyses (presented in Table 1) were undertaken to assess treatment effects in women whose higher event rates would potentially make a significant treatment effect easier to detect than in the overall sample. We chose a relatively liberal α level of .1 as appropriate to unplanned, hypothesis-generating subgroup comparisons for which the current trial was not designed, with a view toward identifying higher-risk women it would make sense to target in a future trial.

Results

Of the 1800 women of recruited, 1608 (89%) were surveyed at the end of the intervention. Retention rates were 89% for each of the 3 groups. The sample was relatively old: about three quarters of the participants were 35 years or older. Sixty-five percent reported that the intrauterine device (IUD) was their preferred method of birth control, and 68% reported having intercourse at least weekly. Sixty percent reported a previous abortion, while nearly all (98%) reported at least 1 previous pregnancy. All but 38 women had at least 1 living child at study entry. We were unable to analyze the pregnancy and abortion rates of women lost to follow-up for each of the 3 groups because these data are not available. Virtually all intervention dropouts were women who moved out of the district or to another city, who found other jobs, or who were laid off from their work units. We have no reason to believe, regarding response to intervention, that these women differed from women who participated in the study.

In the overall sample, odds of pregnancy and abortion were consistently lowest among women who participated in the educational intervention with their husbands, but not significantly so (Table 1). Odds were slightly higher among women who participated in the intervention alone than among women in the control group, but these contrasts were not statistically significant. Excluding the 38 women without children at study entry, who reported the highest pregnancy rates but no abortions, did not materially change the results. While there was no evidence of effect modification by age, the intervention did appear to be differentially effective according to IUD use.

Specifically, in the subgroup of women not using IUDs, contrasts between women participating with their husbands and those in the other 2 experimental arms were nominally significant at $\alpha = .1$ for both study endpoints. No other subgroup comparisons met this criterion, and odds ratios were virtually identical in the 2 subgroups defined by age.

Discussion

This was China's first attempt to involve husbands in family planning education. Among non–IUD users, we found that pregnancy and abortion rates among women receiving family planning education with their husbands were significantly lower than rates among those receiving the educational intervention by themselves or those receiving usual care. These preliminary findings support the need for further study to examine the efficacy of an urban family planning program offered to couples in reducing pregnancy and abortion rates among women not using IUDs. In this subset of women, who may be at elevated risk for pregnancy and abortion, husband's cooperation is plausibly more important for successful contraception than it is among IUD users, for whom no treatment effect was seen. Pregnancy and abortion rates were reduced in the overall sample, but not significantly so; these rate changes might have been significant had the contraceptive failure rate been higher.

The lack of abortion among women without children at study entry suggests that most abortions during the study were undertaken to comply with the 1-child policy, rather than to avoid personally unwanted births. However, reasons for choosing abortion were not directly ascertained.

Because abortion is not without risk, educating women to use contraceptives more effectively could reduce their health risks.[1] Furthermore, a lower abortion rate would substantially decrease medical care costs.[2] In 1983, as many as half of the estimated 14 million abortions in China were performed on women who had used no contraception.[2,10,11] Had only 5% of those pregnancies been averted by educational interventions, 350 000 abortions could have been avoided. Moreover, since this study provided no evidence for effectiveness of the educational intervention in the wife-only arm, it would be of value to determine whether husband's participation would be an effective stand-alone addition to usual care, especially among younger women using consumer-controlled method of contraception, which are increasingly popular in China. Finally, our findings suggest the importance of men's participation in the prevention of human immunodeficiency virus (HIV) infection and other sexually transmitted diseases[12] and argue for the principle of equitable allocation of the benefits and burdens of reproductive health decisions.[13] □

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