

Male involvement in family planning in rural Vietnam: an application of the Transtheoretical Model

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Abstract

Various studies have shown that family planning adoption is likely to be more effective for women when men are actively involved. Male involvement in family planning is an instance of behavior change. The Transtheoretical Model of behavior change was used to examine men's involvement in general contraception and intrauterine device (IUD) use by their wives. The study tested whether the constructs of the model, decisional balance and self-efficacy, are sensitive to differences in stages of change. Reliable scales to test decisional balance and self-efficacy were developed. The study was carried out in rural Vietnam with 201 eligible participants. The staging algorithm identified that 25.8% of men were in the precontemplation stage, 10.5% of men were in the contemplation/preparation stages and 63.7% of men were in the action/maintenance stages. Disadvantages of IUD use for men in precontemplation were significantly higher than those in the action/maintenance stages, while the reverse was true for self-efficacy for convincing their wives to use an IUD. Interventions that are targeted to stage of change, that seek to reduce cons and that increase self-efficacy have the potential to influence male involvement in IUD adoption by their wives.

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Introduction

Vietnam began its first population and family planning program in 1963, and has achieved a high contraceptive prevalence rate of 73% (National Committee for Population and Family Planning, 2001). However, about one-fourth of couples use unreliable traditional methods such as periodic abstinence or withdrawal, even though many types of modern contraceptives have become available.

Studies from several nations have shown that reproductive health programs are likely to be more effective for women when men are actively involved (Drennan, 1998). There is evidence that a husband's disapproval leads to reduction in contraception (Bongaarts and Bruce, 1995; Kamal, 2000). Various studies have shown that providing men with information and involving them in counseling sessions can help them to be more supportive of contraceptive use, and more aware of the concept of sharing decision making (Wells, 1997). Terefe and Larson reported a study in Ethiopia where couples receiving husband-wife counseling showed an increase in contraceptive use after 1 year, compared to women who were counseled alone (Terefe and Larson, 1993). Findings from a study in China suggest that the husband's involvement in the counseling process contributed to reduced rates of pregnancy and abortion among couples not using IUDs (Wang *et al.*, 1998).

Contraceptive use is an instance of healthy behavior that requires behavior change. The Transtheoretical Model (TTM) has been presented as an integrative and comprehensive model of behavior change. It has been shown to be generalizable

across a broad range of behaviors, including condom use (Prochaska *et al.*, 1994).

The TTM is a model of intentional change that initially outlined the process of adopting new behaviors. Of late, it has incorporated variables from behavior change theories to help understand the reasons why people progress through the various stages of behavior change. Stages of change is the central construct of the TTM, involving progress through five stages. In the first stage, precontemplation, the person is not engaged in the appropriate health behavior and has no intention of changing in the next 6 months. In the contemplation stage, the person has formed an intention to change in the next 6 months but still has not attempted the behavior change. The third stage, preparation, is reached when the person intends to take action in the next 30 days and has a detailed plan for taking action. The action stage is achieved when behavior has been changed to the target level that is recommended for that behavior. If the behavior has been maintained for more than 6 months, the person enters the maintenance stage.

The second construct is the processes of change, which combines with stage of change to explain 'how' people change health behavior (DiClemente *et al.*, 1991). The processes include overt and covert activities that individuals use to modify their experiences and environments in order to modify their behavior [(Glanz *et al.*, 1997), p. 63]. The TTM has highlighted 10 processes of change that can be divided into two higher-order factors labeled cognitive/experiential (i.e. consciousness raising, dramatic relief, environmental reevaluation, self-reevaluation and social liberation) and behavioral/environment (i.e. counterconditioning, helping relationships, contingency management, self-liberation and stimulus control).

Two other constructs, self-efficacy and decisional balance (i.e. pros and cons), have been incorporated into the TTM. These integrations appear to be an attempt to help explain 'why' health behavior change occurs [(Norman *et al.*, 2000), p. 190]. Self-efficacy was taken from Bandura's Social Cognitive Theory (SCT) and reflects a person's confidence in completing the health

behavior change (Bandura, 1986). The pros and cons were adapted from Janis and Mann's Decisional Balance Theory, and reflect the costs and benefits of health behavior change (Janis and Mann, 1977). This construct is also similar to the outcome and value expectancies component of SCT.

Many studies have examined the TTM in different fields. It is argued that interventions targeted to a person's stage of change are more likely to be effective than those that are not [(Glanz *et al.*, 1997), p. 66]. Interventions based on the TTM have been able to combine good efficacy rates and good participation rates, and can be disseminated to whole populations (Velicer *et al.*, 2000). Other studies that have used the TTM in family planning behavior have mainly been on condom use and respondent's behaviors may have been confounded by their perceptions of risk of HIV/AIDS (Grimley *et al.*, 1995; Stark *et al.*, 1998).

In contrast, the IUD is used only as a contraceptive and is not confounded with perceptions of protection from HIV/AIDS. The IUD has been promoted in Vietnam since 1960s and is still very familiar to people. Recent surveys have shown that almost all married women and men in Vietnam know about the IUD, while the use of other modern methods like condoms or oral contraceptive pills is very limited at 4.0–6.0% (Mai and Montague, 1998; National Committee for Population and Family Planning, 2000).

There were three objectives guiding this study. The first was to test the ability of the TTM to identify male readiness to accept a modern contraceptive method based on the premise that the husband's readiness will contribute to their wives using contraception. The second was to test whether two core constructs of the TTM, decisional balance and self-efficacy, are sensitive to differences in stage of a husband's readiness to support/encourage his wife in using contraception. The third objective was to test if behavior-specific measures (i.e. the use of a specific type of contraceptive, in this case the IUD) are more sensitive to differences in stage for male readiness

than measures for the use of contraceptives generally.

Methods

Setting and participants

This study was carried out in Quoc Tuan and An Hong rural communes of the An Hai District, Hai Phong Province. Haiphong is in the northeast of Vietnam and has a population of over 1.7 million. The province is divided into 13 districts (nine rural and four urban) and 217 communes. An Hai is a rural district, with a total population of 219 150 people. The district has one district hospital, four inter-communal clinics and 23 commune health centers. Family planning services such as IUD provision and sterilization are offered free of charge at the district hospital, the inter-communal clinic and at commune health centers. Other methods such as condoms or pills are available for purchase in drugstores or clinics.

A multistage cluster sampling technique was used to identify participants in two communes in An Hai district, Hai Phong Province. Two communes (Quoc Tuan and An Hong) were randomly selected from eight rural communes in An Hai District, wherein the majority of people earn their living by farming (An Hai District Hospital, 2000). Six villages were randomly selected from each commune.

Interviewers visited each household in the selected villages and sought all married men aged 19–45 years who lived with their wives in the same house during the last 3 months for the study. The inclusion criteria were: their wife was currently not pregnant, the couple did not plan to have a child in the next 6 months, they currently did not use condoms consistently for family planning and the wife currently did not use pills consistently for family planning. There were 651 men who fulfilled the selection criteria from these 12 villages. A sample of 201 who fitted the selection criteria was selected to complete the survey questionnaire after obtaining their informed consent.

Interviewers, both male and female, were local

village health workers, trained at An Hai District health center. They were given an instruction manual on collecting information for each question. During a 3-day training session, the interviewers also practiced administration of the questionnaire by themselves and through role play. District health workers in charge of the family planning program participated in field supervision. Those were responsible for field editing of questionnaires and validating completed interviews. They were required to call back 20% of cases assigned to an interviewer, and then to ask the respondents directly if they participated in the original interview and also to re-administer sections of the questionnaire. If significant inconsistencies were discovered during this process, other interviews completed by that interviewer were subjected to recheck.

The pre-test of the questionnaire was carried out in Quoc Tuan commune with 50 participants. The purpose of the pre-test was to ensure that the respondents were able to understand the questions and answer them fluently. The wording, logic and skip order of questions were also revised after pre-test.

Measures

The decisional balance and self-efficacy measures for general contraception and condom use were adapted from other studies (Galavotti *et al.*, 1995; Grimley *et al.*, 1995; Levinson *et al.*, 1998; Stark *et al.*, 1998). Since these had not been developed specifically for IUD use and the Vietnamese context, a preliminary qualitative study was carried out to develop the decisional balance and self-efficacy constructs that are relevant to Vietnam. Five in-depth elicitation interviews and two focus group discussions (FGDs) with married men in the study areas were conducted to identify issues relevant to contraceptive use and IUD use.

FGD participants were asked about the practice of contraception with reference to the IUD method, their perceived benefits and costs of family planning, and their perspective of male involvement in family planning. They were also asked to describe the factors related to IUD use such as benefits (one time insertion, free of charge) and constraints, as

Table I. Staging algorithm for IUD use

Algorithm	Stage
Q1. Is your wife currently using an IUD?	1. yes → Q2 2. no → Q3
Q2. How long has your wife been using an IUD?	<6 month → action stage ≥6 month → maintenance stage
Q3. Are you (your spouse) thinking about using an IUD in the next 6 months?	1. yes → Q4 2. no → precontemplation
Q4. Do you (your spouse) plan to use an IUD in the next 30 days?	1. yes → preparation 2. no → contemplation

well as the situations in which women found it hard to use an IUD (abdominal pain, bleeding). Scales were developed to elicit information concerning pros and cons (benefits and costs) and self-efficacy for IUD use (confidence in dealing with IUDs). The resulting questionnaire consisted of three main parts: basic socio-demographic characteristics, detailed questions about contraceptive knowledge and use of contraceptives, and items assessing the three main constructs from the TTM (i.e. stage of change for IUD use, pros and cons, and self-efficacy).

Stages of change algorithm

To assess readiness to adopt and maintain IUD use as a contraceptive method, a four-item staging algorithm was adopted from Galavotti *et al.* and Grimley *et al.* as seen in Table I (Galavotti *et al.*, 1995; Grimley *et al.*, 1995). These items were incorporated into the questionnaire.

Decisional balance (pros and cons) measures

Twelve items were employed to measure pros and cons of general contraception, and 14 items to measure pros and cons of IUD use. Ten of the items on pros and cons for general contraceptive use were adapted from Grimley *et al.* (Grimley *et al.*, 1995). Items for pros covered content such as protection from unwanted pregnancy, personal responsibility, wife's positive reaction to the contraceptive method and promoting the family's eco-

nomie conditions. The content for disadvantages (cons) of contraceptive were 'hassles' associated with contraceptive methods, personal beliefs, difficulties associated with the family setting, costs, and decrease in sexual pleasure. An example of pros for IUD was 'IUD does not reduce sexual pleasure', whereas a cons item was 'IUD cannot prevent the HIV/AIDS/STDs'. Respondents were asked to rate each item on a five-point Likert-type scale ranging from 'not important' (1) to 'very important' (5).

To explore the underlying structure of items assessing decisional balance (pros and cons for general contraception and pros and cons for IUD use), exploratory factor analysis was carried out using guidelines provided by Streiner and Norman (Streiner and Norman, 1998). All items were factor analyzed using principal component analysis with varimax rotation. Six factors having eigenvalues >1 and accounting for 57.6% of total variance were extracted from the correlation matrix. Items having secondary loading (>0.3) on the other factors and items that were highly correlated (correlation coefficient $r > 0.9$) were excluded, and a set of three or four items per sub-scale was retained. Factor analysis of the new scales revealed four factors (eigenvalues >1) which accounted for 65.8% of the total variance. Cronbach's α coefficient for the first three factors varied from 0.72 to 0.89, indicating 'good' internal consistency, and the fourth factor was 0.61. Factor loading and their reliability (Cronbach's α) are shown in Table II.

Self-efficacy

Five of the items for self-efficacy of general contraceptive use were adopted from Grimley *et al.* (Grimley *et al.*, 1995). These items have been described and validated by others (Galavotti *et al.*, 1995; Levinson *et al.*, 1998; Stark *et al.*, 1998). Items for measuring self-efficacy of the males in convincing their wives to get an IUD inserted (in the case of those not yet using an IUD) or to continue to use an IUD (in the case of couples using an IUD) were developed from content elicited on the FGDs and in-depth interviews.

Items for self-efficacy (Bandura, 1982) were

Table II. Decisional balance scale items retained and their factor loadings

Factor items	Factor loading			
	1	2	3	4
Factor 1: Cons for IUD (Cronbach's $\alpha = 0.75$)				
IUD may cause abdominal pain	0.91			
IUD may cause bleeding	0.90			
IUD may cause problems like dizziness and headache	0.85			
IUD may cause PID (pelvic inflammatory disease)	0.80			
Factor 2: Pros for contraception (Cronbach's $\alpha = 0.89$)				
Contraception helps you not to deal with results of unwanted pregnancy		0.78		
Your wife would not have to worry about becoming pregnant if using contraception		0.77		
Contraception helps to limit size of the family		0.73		
Contraception helps you to become more responsible for decisions of having children		0.69		
Factor 3: Pros for IUD (Cronbach's $\alpha = 0.72$)				
IUD may effective in prevention of pregnancy			0.85	
IUD may work for long time			0.82	
IUD use does not require the advanced preparation before having sexual intercourse			0.67	
Factor 4: Cons for contraception (Cronbach's $\alpha = 0.61$)				
Contraception makes sexual intercourse difficult to do in a family setting				0.81
Some contraceptive methods are costly				0.76
Contraception is against your beliefs				0.66

written in such a way as to assess the level of confidence of the respondents in specific situations that might exist (e.g. when the method caused abdominal pain or bleeding). Response options ranged from 'not at all confident' (1) to 'extremely confident' (5). As there were two categories of respondents (those currently using an IUD and those not using an IUD), items were constructed to obtain a gradation of difficulty for each category.

The self-efficacy scales for general contraception use were assessed by factor analysis with varimax rotation. Results showed a factor having eigenvalues >1 and accounting for 51.4 % of total variance. The Cronbach's α coefficients of the subscale was 0.75, illustrating 'satisfactory' internal consistency of the scale (see Table III)

Factor analysis with varimax rotation was carried out separately for items measuring self-efficacy in convincing wives to use an IUD and in convincing wives to continue to use an IUD. One factor for each situation was revealed. The Cronbach's α coefficients of both subscales were between 0.8 and 0.89, illustrating good internal consistency of the scales (see Table IV).

Table III. Efficacy items retained for self-efficacy for general contraception

Construct	Items
Male self-efficacy for general contraception (Cronbach's $\alpha = 0.75$)	when the method is not right on hand/not always available
	when you have been using alcohol or other drugs
	when your wife gets upset about that
	when your wife has to go through too much trouble
	when your wife has to undergo side effects like nausea, pain, etc.

Statistical analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS version 7.5). Frequencies for all variables were examined for missing, unlikely or out-of-range values and, where detected, were checked against the original data source. The relationship of stage of change

Table IV. Items retained for self-efficacy

Construct	Items
Self-efficacy in convincing wife to get an IUD inserted (Cronbach's $\alpha = 0.8$)	<p>I am confident that I can convince my wife to get an IUD inserted even she was concerned that it could cause minor side effects like headache and dizziness</p> <p>I am confident that I could convince my wife to get an IUD inserted even if she was concerned that it could cause abdominal pain</p> <p>I am confident that I can convince my wife to get an IUD inserted even if she was concerned that it could cause bleeding</p> <p>I am confident that I can convince my wife to get an IUD inserted even if she was concerned that it could cause discomfort in sexual intercourse</p>
Self-efficacy in convincing wife to continue to use an IUD (Cronbach's $\alpha = 0.89$)	<p>I am confident that I can convince my wife to continue using an IUD even when she gets minor side effects like dizziness and headache</p> <p>I am confident that I could convince my wife to continue using an IUD even when she gets abdominal pain</p> <p>I am confident that I could convince my wife to continue using an IUD even when she gets bleeding</p> <p>I am confident that I can convince my wife to continue using an IUD even when she experiences discomfort in sexual intercourse</p>

and decisional balance and self-efficacy were assessed by multivariate analysis of variance (MANOVA), analysis of variance (ANOVA) and *post-hoc* Tukey tests. To carry out these tests, raw scores for pros and cons and self-efficacy were converted to standardized score, and then to *T* scores ($M = 50$; $SD = 10$) (Grimley *et al.*, 1995).

Results

A total of 201 men participated in the study. The participant's mean age was 35.7 years, with a little over one-third of men in the sample less than 35 years old. Over two-thirds of the men were working in the local agricultural fields (69.7%). About two-thirds of men (65.3%) had wives who used an IUD for pregnancy prevention and a small proportion of men used condoms inconsistently (3.1%). More than one-third of men (39.8%) used traditional methods such as periodic abstinence and with-

drawal. Some men used different traditional methods in addition to condoms, therefore the total percentage added up more than 100%.

Stages of change for IUD use

When categorized into stages, 25.8% of the men were in the precontemplation stage, 7.5% were in the contemplation stage, 3% each were in preparation and action, and the rest, 60.7%, were in the maintenance stage. As a result of the small numbers in some stages, we reduced the five stages of behavior change to three by combining the men in the contemplation and preparation stages into a single 'contemplation/preparation' group and those in the action with maintenance stages into a single 'action/maintenance' group. As a result, a total of 25.8% of men were in the precontemplation stage, 10.5% were in the contemplation/preparation stage and 63.7% were in the action/maintenance stage.

These three stages corresponded to two import-

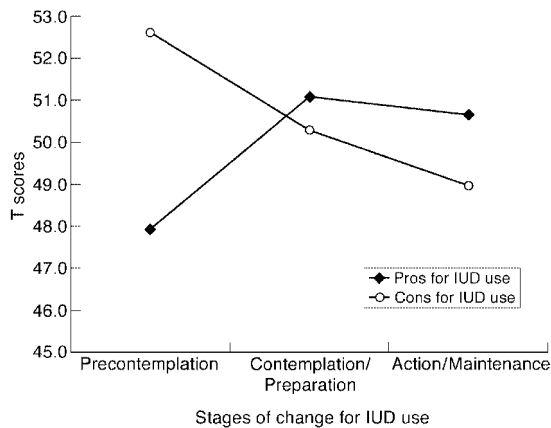


Fig. 1. Standardized scores of pros and cons for general contraceptive and IUD use.

ant transitions. The first transition compares men who lack the intention to use an IUD (who are in precontemplation) with those who are at the contemplation/preparation stage. The second transition compares men in the contemplation/preparation to those in the action/maintenance stage.

Decisional balance by stages of change

The *T* scores ($M = 50$; $SD = 10$) for pros and cons and their movement by stage of change are presented in Figure 1. Multivariate analyses of variance were performed with data on staging and decisional balance measures. Significant difference between cons for IUD across stages of change was detected [$F(2,193) = 3.113$; $P = 0.04$]. Follow-up ANOVA revealed significant differences of cons for IUD [$F(2,194) = 3.249$; $P = 0.04$]. *Post-hoc* Tukey test results indicated that there were significantly higher scores for respondents in the precontemplation stage compared to the action/maintenance stage. No significant differences were found between stages in cons for general contraceptive use and for pros for both general contraceptive and IUD use.

Efficacy scales by stages of change

The findings for efficacy scores and the relationship to stage of change are shown in Figure 2. A MANOVA was performed with data on staging and efficacy measures. No significant differences

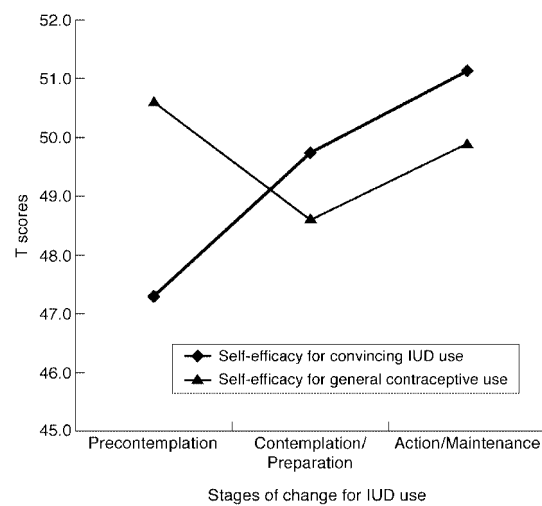


Fig. 2. Standardized self-efficacy scores: IUD use and general contraceptive use.

were found between those in different stages with regards of self-efficacy for general contraception. There was a significant difference between self-efficacy in convincing their wives to have an IUD and stages of change [$F(2,196) = 4.337$; $P = 0.014$]. *Post-hoc* testing indicated significantly higher scores for self-efficacy in convincing their wives to have an IUD for those in the action/maintenance stage compared to those in the precontemplation stage. This shows that those in precontemplation felt less confident in convincing their wives to have an IUD inserted than did those in the higher stages.

Discussion

This study had as its objective to ascertain whether the stages in the TTM were applicable to male 'readiness' for their wives using contraceptives. We identified three stages of behavior change, by combining the men classified as in the contemplation and preparation stages into a single 'contemplation/preparation' group, and those in action with maintenance stages into a single 'action/maintenance' group. It showed that a majority (63.7%) was in action/maintenance. This finding reflected the dominant pattern of IUD use in

Vietnam at 56.0% (National Committee for Population and Family Planning, 2000). Those were in lower stages either did not use any method, or used condoms or a traditional method.

Previous studies of family planning behavior have shown that respondents' balance of pros and cons (benefits and costs) and level of self-efficacy (confidence) toward contraception was different at the different stages of change (Grimley *et al.*, 1995; Galavotti *et al.*, 1995; Levinson *et al.*, 1998; Stark *et al.*, 1998). Specifically, Glanz *et al.* [(Glanz *et al.*, 1997), p. 67] suggested that prior to the action stage, the pros and cons should cross over, with pros being higher than cons.

Our findings show that the expected pattern of pros and cons was seen where the pros and cons intersected at the contemplation/preparation stage. However, in the case of readiness to change for IUD acceptance, it was the cons and not pros that varied by stage. The pros score for IUD was highest at contemplation/preparation and lower in action/maintenance stages, and still remained higher than cons for IUD in these two stages.

This pattern of the relationship between stage and decisional balance for IUD adoption had more similarity to the pattern of addictive behavior (e.g. smoking) than for healthy behaviors (e.g. exercise) (Velicer *et al.*, 2000). Contraceptive behavior is more closely related to behavior adoption rather than behavior cessation (Hester and Macrina, 1985; Galavotti *et al.*, 1995). The findings from our study support this argument. Once action has been taken to have an IUD, maintaining it does not require much effort and ongoing decision making.

Our findings also show that the pros did not increase and cons did not decrease by stage of change for general contraceptive behavior. This confirms the need for developing behavior-specific (in this case for IUD) pros and cons for use in a decisional balance scale. There was a significant decrease in the cons of IUD use by stage, while the pros for IUD use were not significantly associated with the stages of IUD adoption behavior. This highlights the greater importance of cons for IUD use (i.e. side effects would need to decrease for IUD adoption). This is consistent with previous

studies in Vietnam that showed health concerns were the most frequent complaint of IUD users (Hieu *et al.*, 1995; Johansson *et al.*, 1998). Gaining the husband's approval in IUD use will reduce unwanted pregnancies and unmet needs for contraception.

These findings suggest that the implication of decreasing cons for IUDs could be tested in an intervention program aimed at increasing male involvement from precontemplation to action/maintenance by targeting the cons for IUD. Clear guidelines need to be provided for using IUDs with information on possible side effects and how to deal with any problems that may arise. Awareness raising and dispelling rumors related to side effects, when supplemented with counseling, could be very helpful to move people from precontemplation to IUD adoption and maintenance (Velicer *et al.*, 2000).

According to Bandura, self-efficacy is the most important prerequisite for behavioral change (Bandura, 1982). Perceived self-efficacy has been studied with respect to prevention of unwanted pregnancies and has been shown to be a predictor of contraceptive behavior of teenagers (Levinson *et al.*, 1998). In TTM studies for other behaviors, self-efficacy is significantly different among stages and rises from the precontemplation to the maintenance stages (Velicer *et al.*, 2000). We did not find a significant difference of self-efficacy for general contraception by stages. The use of each contraceptive method requires specific knowledge and skills. Therefore, assessing self-efficacy of general contraceptive behavior may not be sufficiently specific in the case of those contemplating (or using) IUDs. This result is in keeping with the theory.

We found that participants in precontemplation scored significantly lower on self-efficacy for their ability to convince their wives to have an IUD than did participants in the action/maintenance stage. This finding may be explained by the fact that men whose wives are already using IUDs had more experience and, therefore, more confidence in convincing wives to use (and continue using) IUDs than did those who had not. This confirms

Bandura's premise that self-efficacy is enhanced through practice. Self-efficacy can also be enhanced through information, encouragement and modeling by others. People may have efficacy, outcomes and other perceptions that are 'advanced' for the behavior that they exhibit. These should be taken into account when helping men move from precontemplation through contemplation and preparation into action.

Although this study has focused on male readiness to and perceptions of change, it still assumes that an ideal approach to family planning involves joint decision making. Joint decision making in contraception is a common practice in Vietnam. Mai and Montague (Mai and Montague, 1998) reported that about two-thirds of men discuss contraceptive use with their wives, although the man's opinion often outweighed the wife's opinion! In the case of IUDs, their wives could initiate contraception on her own, but ultimately she may need to discuss family reproductive or desired fertility goals with her husband (Mahmood and Ringheim, 1997). In this context, their wives would play a major part. It is their wife, in fact, who would be in the best position to convince the husband that the cons are less serious than expected. This could be achieved through couples discussing and sharing information, based on mutual openness and understanding (Hull, 1999).

The generalizability of the findings from our study is limited. Our study was, by its inclusion criteria, designed to identify a group likely to be amenable to use IUDs as a family planning intervention, therefore these findings cannot be generalized to all who need family planning. Whilst the use of two communes only may not be representative of the entire population of rural married men, these communes were typical of rural communes in Vietnam in their size and features. We used self-report measures and local village health workers as interviewers, which could create measurement bias. However, issues related to confidentiality and social desirability of response were likely to have been reduced, as the interviewers were their regular family planning collaborators.

This is the first time that the TTM has been

used as a theoretical framework for understanding men's readiness for family planning behavior. The scales that we have developed and tested can help to explain men's perceptions of general contraception and IUD use in the Vietnamese context. Interventions specifically relating to stages of change with relevant information on these constructs may help to promote use of IUDs. Based on our results, programs aimed at promoting contraceptive prevalence for IUDs should seek ways and means for reducing the cons and for increasing self-efficacy. In our study, we collapsed the five stages of change to three. While this corresponds to two important transitions in behavior change, there is a need for further studies with larger samples to assess the five-stage model. Future studies also need to establish whether such stage-based interventions will have the desired outcomes on IUD acceptance.

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