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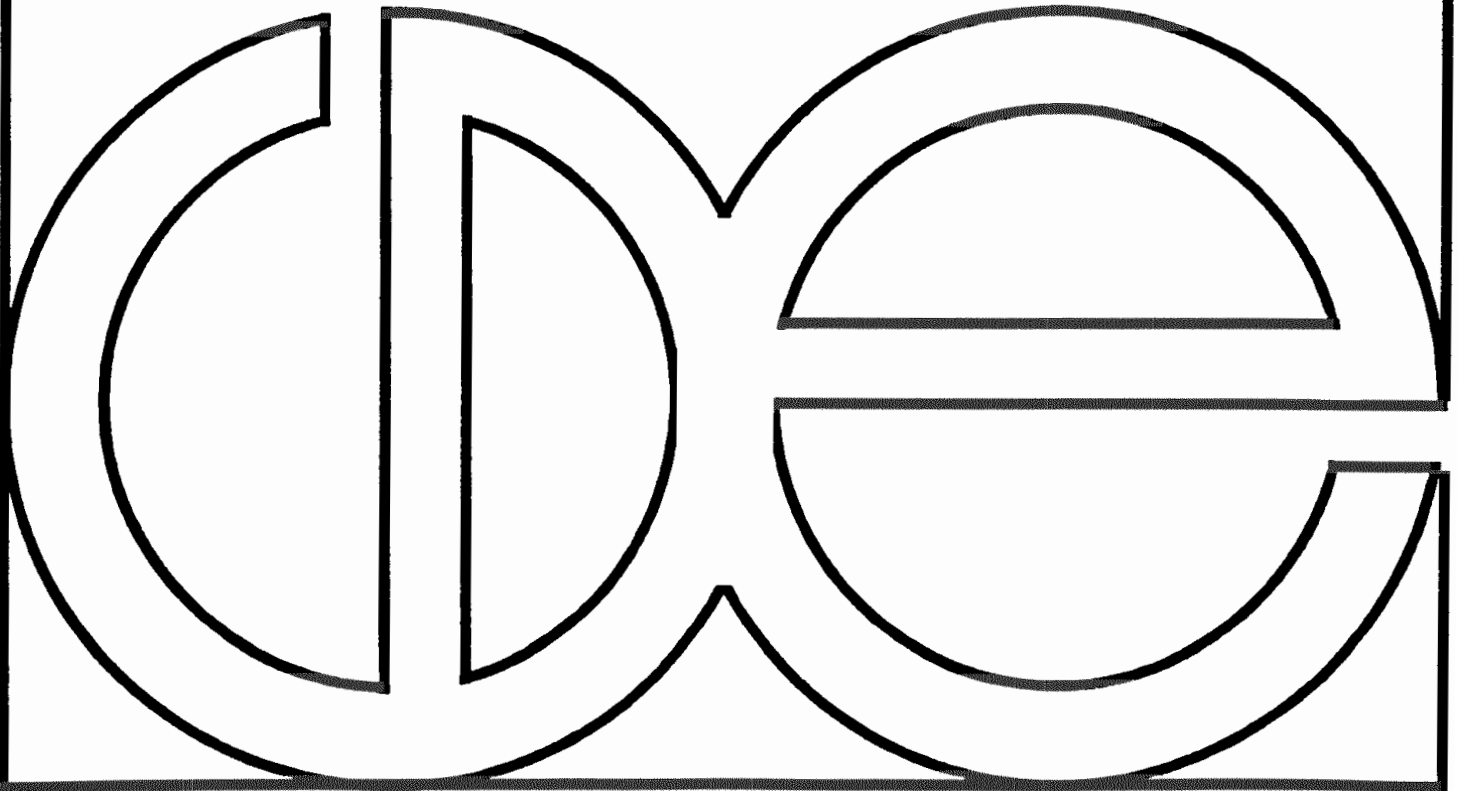
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**PREVENTING UNPLANNED PREGNANCIES  
AMONG MARRIED COUPLES:  
ARE SERVICES FOR ONLY THE WIFE SUFFICIENT?**

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**PREVENTING UNPLANNED PREGNANCIES AMONG MARRIED COUPLES:  
ARE SERVICES FOR ONLY THE WIFE SUFFICIENT?**

(Preventing Unplanned Pregnancies Among Married Couples)

by

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**SUMMARY**

Unplanned pregnancies among married couples in the United States are a major problem today. The effects of predisposing factors (conceptualized according to the Luker theory of contraceptive risk-taking) on use of effective contraceptive methods and on the occurrence of an unplanned pregnancy were examined among a sample of 150 white married couples who did not desire a(nother) child within two years. The effects of husbands' predisposing factors on both dependent variables were highly significant, either directly or through interaction with their wives. Our findings demonstrate the need for continued research on wife and husband effects on reproductive behaviors and outcomes.

Contrary to the beliefs of many health professionals, the occurrence of unplanned pregnancies is a major problem for married couples in the United States (U.S.). More than half of all pregnancies in the U.S. today are unplanned, and more than a third of these occur among married women (Westoff, 1988). Considering the number of births and induced abortions reported in the U.S. in 1987, this means that over 900,000 unplanned pregnancies occurred among married couples that year. Of these unplanned pregnancies, some ended in birth while others were terminated in induced abortions.

Unplanned pregnancies are the sum of two types: those which are mistimed--a desired pregnancy that occurred sooner than the woman wanted; and those which are unwanted--a pregnancy that occurred even though the woman did not desire a pregnancy.

Contraceptive methods that are used effectively may prevent unplanned pregnancies among married couples. However, effective contraceptive use involves both a conscious decision to adopt a method and action to assure its continuation. The continuous use of contraception by married couples in the U.S. is a complex behavior that is influenced by many factors such as reproductive intent; socio-demographic, cultural, physical and psychological characteristics; and problems in the use of the chosen contraceptive method. Attitudes toward both pregnancy, contraception and the particular contraceptive method as well as perceived normative expectations of significant other people (such as one's parents) may influence contraceptive behavior.

Contraceptive behavior is further complicated by the involvement of two people who may or may not have the same childbearing desires or attitudes toward contraception. Thus, contraceptive behavior may be influenced by the desires or attitudes of either spouse or by agreement between the partners. Medical care associated with contraception in the U.S. is usually delivered only to women, not to couples (American College of Obstetricians and Gynecologists, 1989). Therefore, health

practitioners need to understand whether individual or couple factors are more likely to affect contraceptive behavior. The purpose of this study was to assess the effects of wife and husband attitudes and norms on contraceptive behavior and the occurrence of an unplanned pregnancy when controlled for relevant predisposing factors. A couple modeling strategy is employed to analyze the effects of the wife, the husband, or both on couple reproductive behaviors and outcomes.

#### STUDYING COUPLES' FERTILITY

The study of couples' fertility behavior and outcomes has produced conflicting results and recommendations. In 1961 it was reported that little was to be gained in predicting fertility by studying U.S. husbands in addition to their wives (Westoff, Potter, Sagi & Misher, 1961). In 1977 two reports with conflicting results were published. In a study of contraceptive behaviors and unplanned pregnancies among 328 white married couples, husbands' predictors were often as significant as wives', and use of wives' and husbands' responses were even more predictive (Neal & Groat, 1977). A study of the effects of birth planning values on fertility behavior among 74 married couples revealed that wives' data were the best predictors (Townes, Beach, Campbell, and Martin, 1977). In 1980, Udry and associates assessed the effects of perceived consequences of reproduction on the intent to have a child among 316 white married couples (Fried, Hofferth, & Udry, 1980). They concluded that obtaining responses from husbands in addition to wives did not increase prediction enough to outweigh the added cost. Later, Udry found that models containing wife and husband responses were the most predictive when considering normative effects on fertility (Udry, 1982). In 1983, the influences of wives' and husbands' reproductive attitudes and intentions on use of contraception and the likelihood of pregnancy and birth among 578 married couples were studied using LISREL analysis techniques (Beckman, Aizenberg, Forsythe, & Day, 1983). Spouses' attitudes were found to influence each other, but only the

wife's intention about having a child during the next few years influenced contraceptive behavior and the likelihood of a pregnancy or birth. The authors also postulated that some effects of attitudinal variables may have been interactional.

The varied results from the above studies demonstrate that we do not have yet have a clear understanding of wife and husband effects on contraceptive behavior and outcomes. Furthermore, these results do not support the 1961 premise that only wives need to be studied when predicting fertility; using only wife data may lose important husband effects on fertility behavior and outcomes. Therefore, a statistical modeling technique that incorporates wife and husband factors is needed when examining fertility data.

#### **Analysis of Couple Behavior Using Statistical Models**

A statistical technique to analyze couple reproductive behavior or outcomes has been used successfully by Udry and colleagues (Fried & Udry, 1979; Fried, et al., 1980; Udry, 1982). The assumption of this technique is that either the wife or the husband variables or both the wife and husband variables may additively predict the couple's outcome. Multiplicative effects between the wife's and husband's variables (interaction terms) may also be predictive.

This couple modeling method was used by Udry and associates when testing the effects of consequences of reproduction such as satisfactions with infant care, financial costs of children, and marital changes on reproductive intentions of wives and husbands (Fried, et al., 1980). The investigators analyzed data on different subsamples of couples from the 1977 wave of the UTILITY survey, a panel study in which a national urban sample of 572 couples were interviewed in 1973, 1977, and 1978, with a fertility follow-up in 1979 (Udry, 1979). The review of the studies by Udry and associates (below) shows that results were mixed in terms of couple modeling.

When predicting pregnancies or attempts to become pregnant, Fried & Udry (1979) found that two sex statistical models generally explained more variance in white couples than wife-only statistical models. In black couples the husband's effect appeared much more pronounced, but conclusions could not be reached about black patterns because there were too few black couples in the study. Fried, et al. (1980) found in white, nonpregnant, nonsterile couples that wife predictors were always superior to husband predictors in explaining intentions of the wife and husband to have another child. Two-sex additive models were only a slight improvement over the wife-alone models; the investigators found few significant interactions. Later, in a study of the effects of normative influences on fertility using the same dataset, Udry (1982) concluded that models with both the wife and husband variables were more predictive than models using only the wife variables. He did not find significant effects of interactions.

In the present study couple effects of predisposing factors on use of effective contraceptive methods and the occurrence of an unplanned pregnancy were examined using the couple modeling statistical method described above. The conceptual model for this study (Figure 1) is based on the Luker (1975, 1977) theory of contraceptive risk-taking. Predisposing factors in this study were grouped according to components of Luker's contraceptive risk-taking theory, i.e., contraceptive utilities, childbearing utilities, the probability of pregnancy, and the probability of an induced abortion. Each of those Luker theory components had been validated in previous studies (Condelli, 1984; Crosbie & Bitte, 1982; Gutman, 1984; Kalmuss, Lawton, & Namerow, 1987; Kastner, 1984; Philliber, Namerow, Kaye, & Kunkes, 1984). Path modeling (not shown here) was used to validate the paths displayed in the conceptual model for the present study (Zotti, 1991).

The object of this report is not to report significant variables affecting contraceptive use and the occurrence of unplanned pregnancies;

the significance of these variables are discussed elsewhere (Zotti, 1991). The purpose here is to report wife, husband and couple effects on the dependent variables.

#### METHODS

This study employed a secondary analysis of the 1977-78 data from the UTILITY dataset (Udry, 1979), a prospective cohort study of a probability sample of urban, married couples. The women (wives) were interviewed in their homes in 1973, 1977 and 1978. Telephone follow-up in 1979 established whether or not a pregnancy had occurred. The men (husbands of these women) were interviewed in 1977 and 1978, yielding data on 572 married couples. Finding a dataset that contained wife and husband responses was difficult. The UTILITY dataset was chosen because it allowed the researcher to operationalize the Luker (1975, 1977) model, contained data for both wives and husbands, and provided data on reproductive behaviors and outcomes.

#### Sample

The study sample was a subsample of the above married couples who were white, nonsterile, nonpregnant in 1977, and still married to the same partner in 1978 and 1979. Black couples had to be dropped because they were not included in the 1979 telephone follow-up. The couple must have been at risk for an unplanned pregnancy; that is, the wife and husband must have agreed that they did not desire a(nother) child in 1977 and 1978. The final sample for this study consisted of 150 low and middle income couples. Overall, the husbands were older (mean=30.1 years, SD=4.6) than their wives (mean=27.5 years, SD=2.8). Fewer than one-fifth of the couples (18%) had been married less than four years, and the mean marital duration was 6.7 years (SD=2.7). Most couples had one or two children; only 17% of the couples had no children. Wives were less well educated than their husbands; 55% and 41% of the husbands and the wives, respectively, had more than high school education. The sample consisted primarily of low and middle income couples. About one



quarter of both wives and husbands were in the professional/technical occupational classification, but the largest percent of wives (33%) were clerks while the largest percent of husbands (31%) were craftsmen.

#### Predisposing Factors

Variable names, definitions and scores for all predisposing factors are shown in Table 1. Scoring was intended to simulate the tension that couples often experience, i.e., they may have positive attitudes about using contraception, yet also have positive attitudes about future childbearing. Additional information on the scoring of variables in the different groups shown in the conceptual model is presented below. All variable names are underlined.

In the contraceptive utilities grouping, high utilities indicate couples who expressed positive attitudes toward the use of more effective methods and accurate knowledge regarding the effectiveness of methods. "More effective" contraceptive methods were those in which the failure rates in typical users are equal to or less than five percent, i.e., sterilizations, all birth control pills (BCP) and the intrauterine device (IUD) (Bachrach, 1984; Hatcher, Guest, Stewart, Stewart, Trussell, Cerel, & Cates, 1986; Pratt, Mosher, Bachrach, & Horn, 1984). "Less effective" methods included all other methods.

High childbearing utilities indicate attitudes and norms in which the couple members expressed a personal desire or influence from significant others regarding future childbearing. In terms of probabilities, a high score of the Probability of Pregnancy variable indicates accurate knowledge. A high score of the perceived Probability of Abortion variable indicates the respondent's unwillingness to obtain an induced abortion if a pregnancy were to occur.

#### Dependent Variables

The first dependent variable was Use of Effective Methods: The contraceptive method used by the couple categorized by level of effectiveness, ranging from 0-3 with rising numbers indicating

increasing effectiveness. In contrast to the predisposing variables, this variable was constructed as a *couple* variable, i.e., wife and husband responses were combined to create a single variable that described the behavior of the couple. Wife and husband responses were combined according to agreement regarding the primary method the couple used, and rules were devised to assign couples to an effectiveness group when couples disagreed.

The second dependent variable was the Occurrence of an Unplanned Pregnancy: a zero/one variable in which the value one (1) indicates the occurrence of a pregnancy to a couple, zero (0) indicates no pregnancy.

#### Data Analysis

Any missing variables were imputed at their mean value. Ordinary Least Squares regression was used when the dependent variable was Use of Effective Methods, and the adjusted  $R^2$  was used to determine the fit of the model. Multiple logistic regression was used when the dependent variable was Occurrence of an Unplanned Pregnancy, and the maximum likelihood chi-square was used to assess the fit of the model to the data. Significance was tested at the  $\leq .05$  level.

In the bivariate procedures, the wife, husband and interaction terms for each predisposing factor were regressed on the dependent variables listed above. Then the interaction terms were dropped, and the partial  $F$  test (for OLS regression) or the chi-square (for logistic regression) was used to determine whether the addition of the interaction terms significantly added to the fit of the model.

Attempts were made to enter into the final model any variable with an overall significant bivariate model  $F$  or chi-square or any variable with a nonsignificant overall model  $F$  or chi-square but a significant interaction term. The final model was built by first selecting the variable with the highest model  $F$  (or chi-square), then adding (one variable at a time) the variable with the next highest model  $F$  or

chi-square. As each variable that was composed of wife, husband and interaction terms was added, the entire variable was tested for significance. If it was not significant, the entire variable was dropped. If the variable was significant, first the interaction term was dropped and tested to determine if it significantly added to the fit of the model; then the wife and husband terms (as a group) were tested for significance. If the interaction term was significant, the entire variable was kept. If the interaction term was not significant but the wife and husband terms were, the interaction term was dropped from the final model. Finally, wife or husband terms that did not significantly contribute to the fit of the model and were not associated with an interaction term were dropped to result in a parsimonious model.

## RESULTS

### Use of Effective Methods Models

The Adjusted  $R^2$  of the Use of Effective Methods model, 0.49, was quite satisfying (Table 2). The most powerful variable was the wife's Likelihood of Quitting contraception, but all of the terms for Likelihood of Quitting contributed substantially to the model. Three of the four variables, i.e., Likelihood of Quitting, Self Perception Related to Pregnancy, and Importance of a Girl, showed significant interaction effects between the wife and the husband. Effective Method Preference showed only a significant positive wife effect, i.e., as the wife preferred a larger number of the more effective methods, use of effective methods rose.

In order to understand the results in models with interaction terms, it is necessary to compute the changes in the dependent variable while varying the values of one variable at a time. The effects of varying values for each of the interaction terms on the Use of Effective Methods are shown in Table 3. When both members of the couple reported that they were most likely to quit using contraception during the next year, the couple used methods of low effectiveness (0.7); when both

couple members indicated they will not stop using contraception during the next year, the effectiveness of their method was much higher (2.5). When both partners reported a low self perception related to pregnancy, the couple used more effective methods (2.9) than the couple in which both partners reported high self perception related to pregnancy (0.7). When both partners attached the highest importance to having a girl, the couple used methods of higher effectiveness (3.5) than couples in which both members reported the lowest importance of a girl (2.2). Perhaps the use of methods with higher effectiveness resulted from the couple's desires for only a girl, not for having any child.

#### Occurrence of an Unplanned Pregnancy Models

In the Occurrence of an Unplanned Pregnancy model (Table 3), again three of the four variables show significant husband effects. The variable showing only a positive wife effect is Effective Method Use. In the Enjoyment of Infant Care variable, wife and husband terms have nearly equal opposite effects. Examining Perceived Spouse Desire for Pregnancy, if the husband perceives that his wife would like another pregnancy, the couple is more likely to have an unplanned pregnancy. For the Encourage Pregnancy variable, the wife and husband effects are in opposite directions, with the wife's negative effect somewhat larger.

#### DISCUSSION

In this study predisposing factors were conceptualized according to the Luker (1975, 1977) theory of contraceptive risk-taking (i.e., utilities of contraception and childbearing and probabilities of pregnancy and induced abortion). The effects of the predisposing factors on the use of effective contraceptive methods and the occurrence of an unplanned pregnancy were examined for 150 low and middle income, white married couples who did not desire a(nother) child within two years. A statistical modeling method for studying married couple effects was used.

The effects of husbands' attitudes and norms on the couples' contraceptive behavior and the occurrence of an unplanned pregnancy are unequivocal. In the contraceptive behavior model, all variables except one showed interaction effects between the wife and husband. In the unplanned pregnancy model, husbands' direct effects were seen in every variable except one.

An obvious limitation of this study is the age of the dataset. Findings were derived from data collected in the late 1970's; these may not be generalizable to married couples in the 1990's. Certainly, attitudes toward induced abortion are likely to be much different than they were in this study. Also, some new family planning methods have recently been introduced. However, these data provided an unusual opportunity to analyze husband as well as wife attitudes and norms. The importance of the findings relate to: (1) the significant impact of husbands' attitudes on couples' reproductive behavior; and (2) the use of the couple modeling technique.

In addition, this study does not stand in isolation. Previous studies have shown wife and husband effects on reproductive intent and behavior (Neal & Groat, 1977; Udry, 1982; Thomson, 1988; Thomson, 1989; Thomson, McDonald, & Bumpass, 1990). Even though some variables may have changed effects over time, it is unlikely that wife and husband interaction regarding reproduction has decreased. Husbands now frequently take a more active role in both delivery of their children (American College of Obstetrics & Gynecology, 1989) and in child care than most men did during the 1970s. Women have also taken more control over their own bodies since the 1970s. Further research should be conducted with both partners in the 1990s in order to evaluate the effects of these societal changes on couples' contraceptive behaviors and childbearing outcomes.

What do the results of this study suggest for nursing practice and delivery of family planning services to married women? Currently family

planning services in the U.S. are delivered primarily to women. Our system of care offers few opportunities to assess husbands' knowledge and attitudes regarding contraception and childbearing. The findings from this study suggest that participation of husbands in reproductive education, decision-making and services should be increased. Some authors advocate that husbands be encouraged to be part of the reproductive care of their wives (Hanson & Bozett, 1986; Swanson & Forrest, 1984; Zotti, 1991). However, changes in health care delivery to include husbands in regular reproductive care involves many unknowns. How many husbands want to be involved? What are husbands' knowledge and attitudes about family planning methods? Nurses and other professionals may need to conduct family planning counseling differently when including the wife and the husband. How often should husbands participate? When might wives not want their husbands to participate? When might husbands want a private discussion with a health care provider? What changes in clinic routine are needed to encourage husband participation? Family practice offers a setting in which all members of a family receive health care; modifications in family practice to include husbands in pre- and post-natal care offers one readily available opportunity to expand or enhance practice to the couple as a unit.

The sample in this study was restricted to white couples. Would the same husband/wife service delivery procedures be appropriate regardless of the race or ethnicity of the couples? Previous studies suggest there may be larger interaction effects if one were to study married couples of different ethnic groups (Fried & Udry, 1979). Further research is needed to assess whether similar or different results occur among married couples of other ethnic background or in couples of mixed ethnic backgrounds.

Furthermore, the results of this study (and previous studies) also suggest the need for large national surveys that include both wife and

husband data (Thomson, et al., 1990). Over the past 50 years, there have been only three major U.S. fertility studies that have collected data from both wives and husbands (in 1941, 1961 and 1975), and several localized surveys were carried out during the 1970's (Udry, 1982; Thomson, 1988; Thomson, 1989; Thomson, et al., 1990). To further understand fertility behaviors and outcomes among married American couples, it is insufficient to interview women only.

Moreover, any future study of childbearing behaviors needs to include questions about behaviors and outcomes that might be affected by wives and husbands. Because nurses tend to view clients in the whole context of their lives, nurse researchers study wife and husband effects using a more comprehensive and valid set of variables. Some nurses (e.g., Mercer, Ferketich, May & DeJoseph [1987]; Mercer, Ferketich, & DeJoseph [1993]; and Miles, Funk, & Kaspar [1993]) are already studying partner relationships and mother and father responses in high risk pregnancies and parenting preterm infants. Mercer and associates' works suggests that male partner involvement in planning a pregnancy may affect satisfaction with the partner relationship during pregnancy. More studies are needed in which data are collected from both marital partners in order to build a knowledge base about the effects of wives and husbands in reproduction, parenting and family functioning.

Further research into spouse effects on reproductive behaviors and outcomes is very important. Future research could provide the needed information to design changes in health care delivery that would have dramatic effects on the delivery of family planning or childbearing services to American couples. Given the magnitude of the problem of unplanned pregnancy among married couples in the U.S., research findings and resulting changes in reproductive services might yield greater health and benefits to American families based on more cost effective services.

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**Table 1: Variable Definitions and Scores**

Variable Name	Definition of	Scores
<b><u>Contraceptive Attitudes</u></b>		
Method Use	The # of more effective methods the Respondent (R) would use	0-4
Method Preference	A preference rating of more effective methods	2-27
Perceived Effectiveness	Knowledge score of more effective methods' effectiveness	0-4
Likelihood of Quitting	Likelihood of quitting contraception during the next year	0-4
<b><u>Couple Utilities Toward Childbearing</u></b>		
<b>Predisposing Factors</b>		
<b>Couple Attitudes:</b>		
Pregnancy Concerns	The mean of a scale about concern about pregnancy problems	1.3-4.0
Importance of a Boy	The importance of having a(nother) boy	1-6
Importance of a Girl	The importance of having a(nother) girl	1-6
Importance of a Sibling	The importance of having at least one sibling	1-8
Family Traditions	The importance of having a(nother) child for family traditions	1-4
Enjoyment of Infant Care	The mean of a scale about liking various aspects of infant care	1.4-4.9
Religious Traditions	Importance of a(nother) child for religious traditions	1-4
Personally Feel	How strongly the R felt about having a(nother) child	2-20
Self Perception	Factor analysis score of a scale about feelings	-2.53-+2.20
<b>Subjective Norms:</b>		
Encourage Pregnancy	Whether the R had been encouraged to have a(nother) child	1-2
Discourage Pregnancy	Whether the R had been discouraged to have a(nother) child	1-2

Variable Name	Definition of	Scores
<b>Predisposing Factors</b>		
Criticize Pregnancy	Whether the R had been criticized for # of children already had	1-3
Perceived Support	The mean of a scale about support for future pregnancy	1.6-3.0
Perceived Approval	The mean of a scale about approval for a future pregnancy	1.4-3.0
Spouse Desire	The perceived intensity of the spouse's desire for a(nother) child	1-20
<u>Couple Probabilities:</u>		
Probability of Pregnancy	The perceived chance of becoming pregnant if no method is used	1-7
Probability of Abortion	How seriously the R would consider an induced abortion	1-4

Table 2: Final Use of Effective Methods OLS Models

Variable	b*	(SE)
Intercept	0.40	(0.40)
Effective method preference		
W	0.03***	(0.01)
Likelihood of quitting		
W	0.56***	(0.09)
Husband (H)	0.26**	(0.10)
W*H	-0.09***	(0.03)
Self perception related to pregnancy		
W	-0.16**	(0.08)
H	0.04	(0.07)
W*H	-0.22***	(0.07)
Importance of a girl		
W	-0.17**	(0.09)
H	-0.12	(0.10)
W*H	0.07**	(0.03)
Summary Statistic		
Adjusted R <sup>2</sup>	.49	

\*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001

**Table 3: Effects of Varying Interaction Values on Y, Use of Effective Methods**

Varied interaction terms	Y*
1. All model terms are at their mean values	2.2
2. Both partners most likely to quit contraception	0.7
3. Both partners least likely to quit contraception	2.5
4. Both partners with lowest self perception related to pregnancy	2.9
5. Both partners with highest self perception related to pregnancy	0.7
6. Both partners with lowest importance of a girl	2.2
7. Both partners with highest importance of a girl	3.5

\*Y=Value of use of effective methods when only the wife, husband and interaction terms of the variable are varied; all other terms are at their mean values

Table 4: Final Occurrence of Unplanned Pregnancy Logit Models

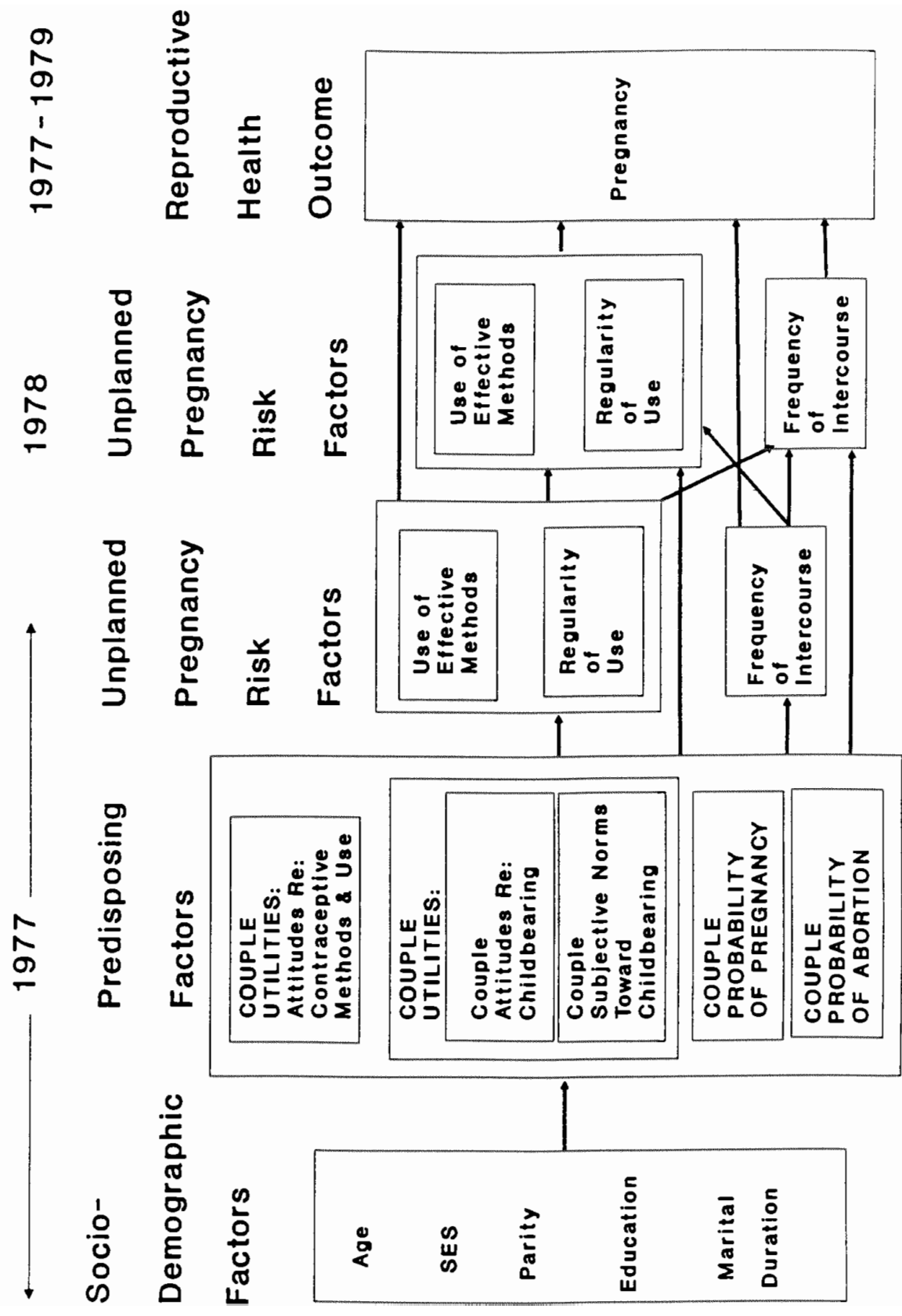
Variable	b <sup>a</sup>	(SE)	OR <sup>b</sup>
Intercept	-1.55	(1.19)	
Effective method use			
W	-0.42 <sup>*</sup>	(0.18)	0.66
Enjoyment of infant care			
W	0.60 <sup>*</sup>	(0.31)	1.82
H	-0.68 <sup>*</sup>	(0.51)	0.51
Perceived spouse desire for pregnancy			
H	0.16 <sup>***</sup>	(0.05)	1.17
Encourage pregnancy			
W	-1.40 <sup>**</sup>	(0.51)	0.25
H	1.01 <sup>*</sup>	(0.53)	2.75
Model $\chi^2$	38.84 <sup>***</sup>	(6df)	

<sup>a</sup>b=Unstandardized regression coefficient

<sup>b</sup> Odds ratio

<sup>\*</sup>p ≤ .05, <sup>\*\*</sup>p ≤ .01, <sup>\*\*\*</sup>p ≤ .001

Figure 1. Model of risk for unplanned pregnancy in married couples.





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