



JORDAN FURTHER ANALYSIS

Mistimed and Unwanted Pregnancies in Jordan

Department of Statistics
of Jordan

ORC Macro



This publication was made possible through support provided by the U.S. Agency for International Development under the terms of Contract No. HRN-C-00-97-00019-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.

Mistimed and Unwanted Pregnancies in Jordan

Kiersten Johnson
Osama al Zoubi
Martin Wulfe

Department of Statistics
Amman, Jordan

ORC Macro
Calverton, Maryland, USA

September 2004



Department of Statistics



ORC Macro

This report presents findings from a further analysis study undertaken as part of the follow-up to the 2002 Jordan Demographic and Health Survey. ORC Macro provided technical assistance for the project. Funding was provided by the U.S. Agency for International Development (USAID) through its Mission in Jordan. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of USAID.

This report is part of the MEASURE *DHS+* program, which is designed to collect, analyse, and disseminate data on fertility, family planning, and maternal and child health. Additional information about the 2002 Jordan DHS survey may be obtained from the Department of Statistics, P.O. Box 2015, Amman 11181, Jordan (telephone: (962) 6-5-300-700; fax: (962) 6-5-300-710; e-mail: stat@dos.gov.jo; internet: www.dos.gov.jo). Additional information about the MEASURE *DHS+* program may be obtained from ORC Macro, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; e-mail: reports@orcmacro.com; internet: www.measuredhs.com).

Acknowledgements:

The authors wish to thank Masoud al Boukhari and Livia Montana for their assistance in calculating the geographic indicator used here. Thanks also go to Shea Rutstein, who reviewed this study.

Recommended citation:

Johnson, Kiersten, Osama al Zoubi, and Martin Wulfe. 2004. *Mistimed and Unwanted Pregnancies in Jordan*. Calverton, Maryland, USA: Jordan Department of Statistics and ORC Macro.

CONTENTS

1	INTRODUCTION	1
2	BACKGROUND	2
3	METHODOLOGY	3
3.1	Survey Data.....	3
3.2	Weaknesses of the Analyses	4
3.3	Analytical Approach	4
3.4	Dependent Variable	5
3.5	Explanatory Variables.....	5
4	RESULTS	6
4.1	Risk Factors for Unintended Pregnancy Among all Women Who Had a Birth in Five Years Before the Survey	6
4.1.1	Background Characteristics	6
4.1.2	Pregnancy Intention Status-Bivariate Analysis	7
4.1.3	Multivariate Analysis.....	10
4.2	Risk Factors for Unintended Pregnancy among Women Who Had a Birth, Before Which they Used a Contraceptive Method, in the Five Years Before the Survey	12
4.2.1	Background Characteristics	12
4.2.2	Pregnancy Intention Status-Bivariate Analysis	14
4.2.3	Multivariate Analysis.....	16
4.3	Women Who Had a Birth, Before Which They Used a Contraceptive Method, in the Five Years Before the Survey: Source of Method.....	18
4.4	Women Who had a Birth, Before Which They Used a Contraceptive Method, in the Five Years Before the Survey: Type of Method	18
5	DISCUSSION AND CONCLUSIONS	19
	REFERENCES.....	21
	APPENDIX A	23

ABSTRACT

Context. Over the past two decades in Jordan, contraceptive use has risen, and total fertility has declined. However, the proportion of pregnancies resulting in live births that are reported as wanted when conceived has declined over time. There is therefore a need to explore the risk factors for experiencing unintended pregnancy in Jordan.

Methods. Two multinomial logistic regression analyses of the risk factors for unintended pregnancy (both unwanted and mistimed) were conducted using a subsample of women who were interviewed for the 2002 Jordan Population and Family Health Survey. The study sample for the first analysis consisted of 3,881 women whose most recent pregnancy occurred between January 1997 and October 2002. The second analysis selected from this group the 2,030 women who had used a contraceptive method before the pregnancy and within the five years before the survey, to determine the effect of the contraceptive source and method on the probability of experiencing an unplanned pregnancy.

Results. The multivariate analysis indicated that several factors significantly influence the likelihood that a woman would classify her most recent pregnancy as unwanted or mistimed. Risk factors that independently increase the likelihood of an unintended pregnancy included ever-use of modern contraception, use of the contraceptive pill, and number of previous births. Factors associated with pregnancy reported as intended include obtaining contraceptive services from private medical providers, and the ability to pay for health care with little difficulty.

1 INTRODUCTION

The impending birth of any child takes place within a complex of social relations, the dynamics of which carry implications for the child itself, the family affected by the pregnancy, and the community and society within which the pregnancy and birth take place. When a pregnancy comes sooner than desired or comes at a time when the mother had wished for no more children, the complexities associated with the birth of that child are more likely to be perceived as complications.

Previous research has shown that women with unintended pregnancies are less likely to get the recommended health care (Eggleston, 2000; Bitto et al., 1997; Joyce and Grossman, 1990); that children whose conceptions were unintended have poorer health and educational outcomes (Marston and Cleland, 2003; Eggleston, Tsui and Kotelchuck, 2001; Kallan, 1993; Sable, et al., 1997; Myhrman et al., 1995; Bustan and Coker, 1994; but see Joyce, Kaestner and Korenman, 2000); and that women who become unintentionally pregnant have poorer health outcomes (Barber, Axinn and Thornton, 1999) and are more likely to have experienced spousal violence (Campbell et al., 1995; Gazmararian et al., 1995). In the aggregate, nations with high levels of unintended pregnancy incur higher rates of population growth, often stressing national resource availability and distribution, than they would if couples were able to effectively implement their fertility preferences (see Petro-Nustas and Al-Qutob, 2002: 517). It is thus of interest, from a public health, gender, and population perspective, to explore the risk factors for unintended pregnancy, and to enable policymakers and program planners to better understand and address this issue via legislation and the targeted provision of relevant services.

The analyses presented in this report examine the risk factors associated with having a mistimed pregnancy, or a pregnancy that occurred at a time when the mother wished for no more children,¹ in the Hashemite Kingdom of Jordan. Social, geographic, and economic indicators, as well as demographic indicators, will be assessed for their influence on the probability that a woman has a mistimed or unwanted pregnancy.

Over the past two decades, the total fertility rate has declined in Jordan, from 7.4 lifetime births per woman in 1976 to 3.7 births per woman in 2002. This decline in fertility is partially the result of a concomitant increase in proportions of ever-married women currently using modern contraception, rising from 27 percent in 1990 to a plateau of 38-39 percent in 1997 and 2002.² Despite these improvements in key fertility-related indicators, the proportion of births reported as mistimed or unwanted has not decreased since 1990, when the Jordan Population and Family Health Survey (JPFHS) indicated that 32 percent of births to ever-married women within the five years preceding the survey were unintended, 21 percent of pregnancies resulting in live births were considered unwanted, and 11 percent were mistimed. The 2002 JPFHS revealed that the proportion of unintended pregnancies was equally high, at 33 percent, but differently distributed: 16 percent of births were considered unwanted, and 17 percent were considered mistimed. According to one measure of wanted fertility, called the wanted fertility rate, if the

¹ For the sake of parsimony, from this point on we will refer to the status of pregnancies that occurred earlier than desired as “mistimed,” and those that occurred at a point in time when the woman had decided that she wanted no more children as “unwanted.” Children born later than desired are not considered, in the literature on unintended fertility, to be mistimed.

² To maintain comparability between the 1997 and 2002 figures, we have not included those women who reported using the lactational amenorrhea method (LAM) as a contraceptive method in the 2002 figures for current use of a modern method, because LAM was not considered a modern method in 1997, and because almost all women who reported that they used LAM are in fact ineligible to use the method effectively, as a result of reported breastfeeding behaviors incompatible with LAM, the return of menses, or the age of the infant being greater than six months.

women interviewed in the JPFHS had been able to implement their ideal family size, Jordanian women would have had an average of 2.6 births per woman, rather than the current 3.7 births.³

Jordan has had an explicit and official national population policy since the 1990s, aimed at promoting improved maternal and child health, as well as reducing fertility, by advocating increased birth intervals. Contraception is also widely used and approved of: 81 percent of currently married women have used a method of contraception at some time, and the large majority of Islamic religious leaders (82 percent of male and 98 percent of female religious leaders) justify the use of family planning within the context of the national religion (Underwood, 2000). As health facilities are reasonably accessible to the vast majority of the population, and the use of contraception is popularly accepted, it is of significant concern that such a large proportion of women with recent births continue to report mistimed and unwanted pregnancies, despite government efforts to enable families to plan their fertility.

To determine the relevant underlying issues, this report presents two separate analyses: The first analysis seeks to determine risk factors for unplanned pregnancy among women who have had a birth in the five years before the survey or who are currently pregnant. The second analysis restricts the sample used in the first analysis to those women who report using some kind of contraceptive method before the index birth or current pregnancy, but within the five years preceding the survey. The purpose of the second analysis is to allow for an assessment of the effects of the contraceptive method, as well as the effects of the source of the contraceptive method, on the planning status of the woman's most recent pregnancy.

2 BACKGROUND

A significant body of research exists in the area of unintended pregnancy that identifies several risk factors for experiencing mistimed or unwanted pregnancy. One limitation of the current literature, however, is the lack of analyses of pregnancy "intendedness" using data from the developing world, despite the availability of appropriate data from the multinational Demographic and Health Surveys program. The majority of work on this topic has analyzed data from the United States, rather than from developing countries, with the exception of one analysis of mistimed and unwanted pregnancy in Ecuador (Eggleston, 1999).

It is conceptually difficult to apply the findings in the American literature on mistimed and unwanted pregnancy to the situation in Jordan. First, little fertility occurs outside of marriage in Jordan, whereas 32 percent of all births in the United States occur outside of marriage (Sawhill, 1999); these nonmarital pregnancies are more likely to be considered mistimed or unwanted. Second, although abortions have become progressively more difficult to obtain in the United States, they remain legal and available on demand. In Jordan, abortion on demand is not legal; it is permitted exclusively to save the life of the mother, or to preserve her physical or mental health, in which cases the procedure must be certified by two licensed physicians (United Nations Population Division, 2002). Given that those who opt for the termination of a pregnancy are more likely to consider that pregnancy unwanted, it is probable that most American data on wantedness of pregnancy are biased by the availability of abortion.⁴ Thus,

³ The total wanted fertility rate (TWFR) is the level of fertility that would result if all unwanted births were prevented; in this specific instance of the TWFR, a birth is considered "wanted" if the number of living children at the time of conception of the birth is less than the ideal number of children, as reported by the respondent.

⁴ For example, some of the datasets most frequently used for analysis of pregnancy intention in the United States, such as the PRAMS (Pregnancy Risk Assessment Monitoring System) or the NSFG (National Survey of Family Growth), collect wantedness information from mothers who recently gave birth to a live infant. Pregnancy terminations (induced or miscarried) therefore are not assessed for their wantedness status (d'Angelo et al., 2001; Petersen and Moos, 1997).

findings regarding the determinants of unwanted pregnancy in the American setting may not translate well to the Jordanian context.

Another limitation of the current body of research on this topic is that the literature tends to use a fairly narrow range of explanatory variables in the analyses. Most analyses on the topic of mistimed or unwanted fertility incorporate only basic demographic variables as predictors of an outcome that occurs in a highly dynamic and multidimensional context. Because adoption of changing ideas and behaviors, such as desiring smaller family sizes and using contraception, is a social process steeped in human interaction with a social environment, it stands to reason that social factors should account for some of the variation in pregnancy planning status. This analysis includes several variables that attempt to tap social dimensions likely to be associated with mistimed or unwanted pregnancy, such as indicators of women's empowerment, attitudes toward fertility and contraception, and economic variables. A geographic variable is also included to assess the effect that distance from a health facility has on pregnancy planning status.

3 METHODOLOGY

3.1 Survey Data

The data in this study come from the Demographic and Health Surveys (DHS). These nationally and regionally representative surveys have been carried out since 1984 in more than 70 less-developed countries. Many countries have had periodic DHS surveys, including Jordan, which has had three Demographic and Health Surveys (1990, 1997, and 2002), as well as a World Fertility Survey in 1976 and a Fertility and Family Health Survey in 1983. The surveys are based on scientifically selected samples of households and inquire about household and household members' characteristics. Basic characteristics of all members and overnight guests are collected in a schedule format, similar to that of a census, with information provided by any adult member of the household. Individual women of reproductive age (15 to 49 years) are interviewed individually in face-to-face interviews about their background characteristics, work status, fertility levels and desires, contraceptive use, and use of maternal and child health services. Fertility and infant and child mortality data are obtained through a birth history. Nutritional status of children and women is determined through anthropometry, and anemia status is measured by use of portable hemoglobinometers.

The DHS surveys have interviewed between 3,500 and 90,000 households, with a sample size of 5,000 to 8,000 being typical. On average, approximately one woman per household is found to be of reproductive age, and in most surveys, all such women are interviewed. However, in surveys undertaken in the Middle East region, such as Jordan, only ever-married women are eligible for interview.

The data used in this study are drawn from a nationally representative sample of ever-married women, collected for the Jordan Population and Family Health Survey between July and September 2002. The sample was designed to be reliably representative of the country as a whole, of urban and rural areas, of each of the three regions of Jordan, and for each of the three major governorates of Amman, Irbid, and Zarqa. A stratified two-stage cluster design was employed, such that 7,907 households were sampled; of those, 7,825 households were interviewed, for a 99 percent household response rate. Only ever-married women between the ages of 15 and 49 were eligible for interview; 6,151 were selected, and 6,006 were interviewed, for an individual response rate of 98 percent.

Women were selected for this analysis on the basis of having had a live birth in the five years preceding the survey, or having been pregnant at the time of the interview; this subsample comprises 3,881 women, or 65 percent of the total sample. Only the most recent pregnancy ending in a live birth, or a woman's current pregnancy, is included in the analysis, to control for multiple pregnancies for the same

woman during the five years preceding the survey. Eighteen percent of the women in the study were pregnant at the time of the survey.

3.2 Weaknesses of the Analyses

One weakness of this analysis is that it is possible to know the wantedness status only for the current pregnancy or the most recent pregnancy that resulted in a live birth—women were not asked about the wantedness of pregnancies that did not result in a live birth. However, pregnancies that are unwanted are more likely to end in induced abortion, or a miscarriage, because the evidence is strong that women who do not intend to become pregnant are less likely to seek timely antenatal care. The fact that abortion is not freely available in Jordan is likely to mitigate some of the bias introduced by the limitations of the data.

Another potential weakness of this analysis is that of recall bias: women may not remember their feelings about their pregnancy upon learning of it; they may also rationalize away any prior feelings of unwantedness once the child is born and becomes a beloved member of the family. To limit recall bias, only the most recent pregnancy resulting in a live birth within the five years preceding the survey is included in this analysis, or, if the woman is currently pregnant, she is asked about her feelings about the current pregnancy, in which case both recall bias and postbirth rationalization become less important (for more discussion, see Petersen and Moos, 1997). For those pregnancies for which it is not possible to mitigate postbirth rationalizations, it is assumed that some small proportion of women will not report accurately the feelings that they had about the pregnancy at the time that they became pregnant, so that an unintended pregnancy would be reported as wanted. A measurement error of this type would bias the results such that there would be an underestimation of pregnancies that were either mistimed or unwanted.

A final possible weakness of this analysis is that the concept of intendedness or wantedness of pregnancy may not be viable for some of the respondents. For example, when a woman believes that the number of children she has, and the circumstances of their arrival, are up to God, questions on the timing of a pregnancy or its wantedness may be irrelevant. However, the degree to which fertility control is espoused in Jordan—81 percent of currently married women in Jordan have done something in an effort to contracept—mitigates the influence of this problem.

3.3 Analytical Approach

This analysis intends to discern the odds of a woman having a pregnancy that is wanted at the time of conception, a pregnancy that is wanted but mistimed, or a pregnancy that occurred at a time when the woman did not want any more children. Because the circumstances of women who report planned, mistimed, or unwanted pregnancies have been shown to differ (Eggleston, 1999) and because the bivariate results of this analysis supported an approach that treated each category of intendedness as distinct, such that factors associated with mistimed pregnancies differed from those associated with unwanted pregnancies, multinomial logistic regression was determined to be the most appropriate method of multivariate analysis. For bivariate analysis, chi-square tests of independence were implemented.

Only the results of the reduced multivariate models are shown and discussed here; covariates were removed from the full models on the basis of the likelihood ratio test, which describes the relationship of each independent variable to the dependent variable. Various combinations of the independent variables were entered into the models in both forward and backward sequences to ensure that the best-fitting subset of covariates remained in the final reduced models.

Proportional by chance accuracy is a criterion that may be used with multinomial logistic regression, to support the utility of the final model. The model can be characterized as useful, or not, by comparing the predicted group membership (based on the logistic model) to the actual, known group

membership (the values for the dependent variable). A model may be considered useful if it produces a 25-percent improvement in accuracy in predicting group membership over that which could be achieved by chance alone. For this study, proportional by chance accuracy exceeds the 25-percent criteria for all multivariate models presented; that is, the proportional by chance accuracy rates of the models exhibit at least a 25-percent improvement in predicting group membership (whether the pregnancy was wanted then, mistimed, or unwanted) over the rate of accuracy achievable by chance alone.

3.4 Dependent Variable

The outcome of interest for these analyses, pregnancy intention status, is a retrospective measure of a woman's feelings about her pregnancy at the time that she learned she was pregnant. Women who were pregnant at the time of the survey were asked, "At the time you became pregnant did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?" Women who were not pregnant at the time of the survey, but had had a birth in the five years preceding the survey, were asked almost the same question: "At the time you became pregnant with (NAME), did you want to become pregnant *then*, did you want to wait until *later*, or did you *not want* to have any (more) children at all?"

3.5 Explanatory Variables

The covariates included in this analysis can be categorized into a few broader groupings: basic demographic indicators, economic indicators, and social context indicators. A geographic indicator is also included.

The demographic indicators include urban-rural residence, age, and the number of children a woman has borne, exclusive of the index pregnancy or birth. These variables are important in their own right as potentially being able to distinguish among intendedness categories; they are also important as control variables in these models.

Economic status indicators include the education levels of the husband and wife, the long-term economic status of the household (as measured by the DHS wealth index⁵), and the acute economic status of the respondent, as measured by the response to a question on whether having money to pay for her own health care was a big problem or not. Note that the degree to which paying for health care is problematic likely reflects both the acute economic status of the household as well as the degree to which the respondent herself has control over funds for her own health care costs.

⁵ Recent advances in the use of survey-based household assets data allow researchers to evaluate the distribution of poverty in populations (Filmer and Pritchett, 2001). The wealth index used here is one recently developed and tested in a large number of countries with regard to inequities in household income, use of health services, and health outcomes (Rutstein, Johnson, and Gwatkin, 2000). It is an indicator of wealth that is consistent with, though different from, expenditure and income measures (Rutstein, 1999). It is best interpreted as an indicator of a household's permanent income status. The wealth index was constructed using household asset data (including country-specific assets) and principle components analysis. The asset information was collected through the DHS household questionnaire and concerns household ownership of a number of consumer items ranging from a television to a bicycle or car, as well as dwelling characteristics such as type of drinking water available, sanitation facilities used, roofing, and flooring. Each asset was assigned a weight (factor score) generated through principle components analysis, and the resulting asset scores were standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one (Gwatkin et al. 2000). Each household was then assigned a score for each asset, and the scores were summed by household. The sample was weighted by number of members in each household and then divided into population quintiles. Each quintile was designated a rank, from one (poorest) to five (wealthiest), and individuals were ranked according to the total score of the household in which they resided.

Indicators of the social context in which decisions about contraception are made, and in which pregnancies occur, are important in order to obtain a more comprehensive understanding of unintended pregnancy. The social context indicators used in this study are broken into two subcategories: women's autonomy indicators and contraceptive decisionmaking indicators. To that end, variables reflecting a woman's ability to exercise a degree of autonomy, such as employment status, whether she has the final say in making decisions about her own health care, and whether she has a say (either solely or jointly) in making financial expenditure decisions for the household are included. Similarly, variables indicating social aspects of fertility-related decisionmaking have been included: the degree to which the fertility preferences of the husband and wife are consonant, whether the husband approves of the use of contraception, and whether the woman herself has ever used a modern contraceptive method.

Finally, a geographic measure was included of the distance in kilometers to a public health facility from the center of the sampling cluster from which the respondent's household was selected.⁶ Including this measure should allow an assessment of whether proximity to a health facility influences the likelihood of unintended pregnancy; it is believed that proximity to a public health facility, which is expected to be a source of both contraceptive information as well as modern contraceptive methods, should decrease the probability of having an unplanned pregnancy.

4 RESULTS

The results of the analyses will be presented separately. The first set of results will present the findings for the analysis of the risk factors for unintended pregnancy for all women who have had a birth in the five years preceding the survey. The second set of results will present the findings for the analysis of unintended pregnancy for women who had a birth before which they used a contraceptive method in the five years preceding the survey.

4.1 Risk Factors for Unintended Pregnancy among Women Who Had a Birth in Five Years Before the Survey

4.1.1 Background Characteristics

Among currently married Jordanian women who had recently been pregnant, 78 percent lived in an urban setting, while the remainder lived in rural areas (Table 1). Most women were between the ages of 25 and 34, with 16 percent of women in age group 20-24 and 17 percent in age group 35-39; there were very few teenage mothers in this sample. The education level of women and their husbands was fairly high, with more than 60 percent having secondary or higher education. Respondents fell disproportionately into households ranked at the lower end of the wealth index, although most women (72 percent) reported that paying for health care was not a big problem for them. The majority of women were not employed at the time of the survey (91 percent).

In terms of women's ability to negotiate personal and household matters of importance, 61 percent of women reported that they had the final say in matters of their own health care, and 78 percent of women reported that they had at least joint input into making either large or small household purchases. More than half of women (53 percent) said that they agreed with their husbands on how many children they wished to have, while 29 percent of women report that their husband wants more children

⁶ This measure was calculated "as the bird flies" rather than according to road networks because the road network data were not comprehensive, because in most urban areas it is shorter to walk to your destination than to drive, and because in rural areas, where the distance between cluster and facility is greater but the terrain is fairly flat, little information is lost by using straight-line estimations of distance as opposed to estimations based on distance traveled by road. Also note that these are measures only of distances to public or government health facilities; private facilities also exist, but global information systems (GIS) datapoints for these were not available.

than they do, and 13 percent report that their husband wants fewer. The majority of women (89 percent) report that their husbands approve of contraceptives, and 76 percent of women have used a modern method of contraception. The women in this sample have an average of 3.9 children. The average distance a woman must travel to get from her neighborhood to a public health facility is 1.1 kilometers.

4.1.2 Pregnancy Intention Status-Bivariate Analysis

About 60 percent of women reported that their most recent pregnancy was wanted at the time, 20 percent reported that the index pregnancy was mistimed, and 20 percent reported that it was unwanted (Table 1). Pregnancy intention varied significantly by most variables (Table 2); only those with significant relationships in the bivariate will be discussed here. It is important to note that the bivariate results indicate distinctions between women with mistimed pregnancies and those with unwanted pregnancies.

Table 1 Percent distribution of currently married women age 15-49 who have had a birth in the five years before the survey or who are currently pregnant, by selected characteristics, JPFHS 2002 (n = 3,881)			
Characteristic	%	Characteristic	%
Intendedness of most recent birth or current pregnancy		Ever used modern contraceptive method	
Wanted pregnancy then	60.6	No	24.3
Mistimed but wanted	19.6	Yes	75.7
Wanted no more	19.9	Difficulty paying for health care	
Age		Small problem	72.0
15-19	2.8	Big problem	28.0
20-24	16.2	Employment	
25-29	26.3	Not currently working	90.5
30-34	28.8	Currently working	9.5
35-39	17.3	Has final say on own health care	
40-49	8.7	No	39.1
Residence		Yes	60.9
Urban	78.4	Has say in economic decisions	
Rural	21.6	No	21.8
Woman's education		Yes	78.2
No education	3.8	Consonance of fertility preferences	
Basic	31.7	Both want the same	53.1
Secondary	37.4	Husband wants more	28.9
Higher	27.1	Husband wants fewer	12.7
Husband's education		Don't know/missing	5.2
No education	1.9	Husband approves of contraceptives	
Basic	35.7	No/don't know	11.5
Secondary	33.1	Yes	88.5
Higher	29.3	Wealth quintile	
Lowest	23.1		
Second	25.2		
Third	21.2		
Fourth	17.4		
Highest	13.1		

Table 2 Percent distribution of currently married women age 15-49 who have had a birth in the five years before the survey or who are currently pregnant, by intention status of most recent pregnancy, JPFHS 2002 (n = 3,881)

Characteristic	Wanted then	Mistimed	Unwanted	Total
Age ***				
15-19	75.7	19.6	4.7	100.0
20-24	66.5	24.8	8.7	100.0
25-29	63.4	25.1	11.5	100.0
30-34	62.2	19.2	18.6	100.0
35-39	53.4	13.1	33.5	100.0
40-49	44.2	7.4	48.4	100.0
Residence ***				
Urban	62.1	18.3	19.6	100.0
Rural	54.7	24.3	21.0	100.0
Woman's education ***				
No education	50.3	16.1	33.6	100.0
Basic	57.6	20.0	22.4	100.0
Secondary	62.2	19.0	18.8	100.0
Higher	63.0	20.5	16.5	100.0
Husband's education ***				
No education	50.7	14.7	34.7	100.0
Basic	57.0	20.3	22.7	100.0
Secondary	62.7	20.0	17.3	100.0
Higher	62.9	18.7	18.5	100.0
Wealth quintile ***				
Lowest	59.4	21.2	19.3	100.0
Second	60.6	21.9	17.5	100.0
Third	59.9	19.9	20.2	100.0
Fourth	62.6	18.0	19.4	100.0
Highest	60.3	14.1	25.5	100.0
Difficulty paying for health care ***				
Small problem	62.9	18.8	18.3	100.0
Big problem	54.3	21.8	24.0	100.0
Employment				
Not currently working	60.2	19.8	20.0	100.0
Currently working	63.2	17.4	19.3	100.0
Has final say on own health care *				
No	63.0	18.9	18.1	100.0
Yes	58.9	20.1	21.0	100.0
Has say in economic decisions				
No	61.6	17.5	20.9	100.0
Yes	60.2	20.2	19.6	100.0
Consonance of fertility preferences ***				
Both want the same	63.9	18.1	18.0	100.0
Husband wants more	55.3	22.1	22.6	100.0
Husband wants fewer	60.8	19.8	19.4	100.0
Don't know/missing	54.2	20.7	25.1	100.0
Husband approves of contraceptives				
No/don't know	61.3	18.4	20.2	100.0
Yes	60.4	19.8	19.9	100.0
Ever used modern contraceptive methods ***				
No	75.0	14.9	10.1	100.0
Yes	55.8	21.1	23.1	100.0
All women	60.5	19.6	19.9	100.0
*P < 0.05, **P < 0.01, ***P < 0.005				

Urban women were more likely to report that their pregnancy was wanted than were rural women (62 percent compared with 55 percent). Rural women were much more likely than urban women to report a pregnancy as mistimed (24 percent compared with 18 percent), but were only marginally more likely than urban women to report a pregnancy as unwanted.

Age has a monotonic relationship with wantedness: as age increases, the proportion of women reporting their pregnancy as wanted then decreases, from 76 percent at age 15-19 to 44 percent at age 40-49. The reverse is true for unwantedness, so that unwantedness increases with age, from 5 percent among those age 15-19 to 48 percent among those age 40-49. Mistimed pregnancy has an inverted U-shaped relationship with age: 20 percent of those age 15-19 reported that their most recent pregnancy was mistimed, 25 percent of those age 25-29 reported mistiming, while 7 percent of women age 40-49 reported their last pregnancy as mistimed. Women below the age of 30 were much more likely to say that their pregnancies were mistimed as opposed to unwanted; women 35 or above were more likely to say that their pregnancies were unwanted as opposed to mistimed. Women in the age group 30-34 were equally likely to say that their pregnancy was mistimed as they were to say that it was unwanted.

Wantedness varies directly with both men's and women's education, so that those with no education were much less likely to report their pregnancy as wanted than those with secondary or higher education; the converse is true for unwantedness, so that unwantedness decreases monotonically with education. Only those with no education were less likely than other educational groups to say that their last pregnancy was not mistimed.

There is little relationship between the long-run economic status of the household in which a woman lives, as reflected by the wealth index, and the wantedness of her most recent pregnancy. However, there is a negative and monotonic relationship between wealth and the reporting of mistimed pregnancy: Only 14 percent of the women in the wealthiest quintile reported their most recent pregnancy as mistimed, whereas about 21 percent of those in the two poorest quintiles reported their pregnancy as mistimed. As far as unwantedness, only the wealthiest quintile was distinctly more likely than the others to report a pregnancy as unwanted; quintiles 1 through 4 range from 18 to 20 percent reporting that their last pregnancy was unwanted, compared with 25 percent for those in the fifth, or wealthiest, quintile. Those who said that paying for health care is a big problem were more likely to report a mistimed or unwanted pregnancy, and were less likely to report a wanted pregnancy: 54 percent of those who said that paying for health care was a big problem said that their pregnancy was wanted then, while 63 percent of those for whom paying for health care was not a problem said that their pregnancy was wanted.

Women who reported that they have the final say on their own health care were somewhat more likely to report mistimed or unwanted pregnancies. Women whose fertility preferences matched those of their husbands were most likely to report their last pregnancy as wanted (64 percent); those women whose husbands want more children than they do, or who do not know their husband's fertility preferences, were least likely to say that their pregnancy was wanted (about 54 percent). Those who don't know their husband's fertility preference were also the most likely to report an unwanted pregnancy (25 percent).

The variable that distinguishes women most clearly by wantedness status is that of ever use of modern contraceptive methods. Women who have ever used modern contraceptive methods were much less likely than those who never have used them to report their last pregnancy as wanted then: 56 percent of ever-users reported their last pregnancy as wanted, compared with 75 percent of those who have never used modern contraception. Although users of modern contraceptive methods were more likely to report a mistimed pregnancy than nonusers (21 percent compared with 15 percent), they were even more likely to report an unwanted pregnancy (23 percent compared with 10 percent).

Increased parity was significantly associated with unwanted pregnancies: The mean number of previous births among women reporting their last pregnancy as unwanted was 4.7, while the

corresponding averages for mistimed and wanted pregnancies were 2.8 and 2.3, respectively (table not shown).

4.1.3 Multivariate Analysis

As stated previously, only the reduced multivariate models are discussed here; many of the variables that showed significance in the bivariate failed to show a significant overall relationship to the dependent variable in the multivariate analysis, and were therefore dropped from the final models. Variables that remained in the model include area of residence, age, woman's education, difficulty of paying for health care, whether or not the respondent has a say in household economic decisions, whether the husband approves of contraceptives, whether the woman has ever used modern contraception, and the number of previous births a woman has had. Results for the first multivariate analysis are shown in Table 3.

Unwanted versus wanted then. Women with no education were about 40 percent less likely than women with more than secondary education to say that their most recent birth or current pregnancy was unwanted as opposed to wanted then. Those who said that paying for health care was not a big problem were one-third less likely than those who had trouble paying for health care to say that the index pregnancy was unwanted. Women who said that their husbands do not approve of contraception were 35 percent less likely than women whose husbands do approve of contraceptive use to say that the index pregnancy was unwanted, while women who have never used modern contraception were also 35 percent less likely to say that their most recent pregnancy was unwanted as opposed to wanted then. Every additional birth increased the likelihood that a woman reported her most recent pregnancy as unwanted rather than wanted at the time by almost 60 percent.

Mistimed versus wanted then. The relationship between age and mistimed pregnancy, as opposed to wanted pregnancy, is negative. Compared with women age 40-49, those age 15-24 and age 25-29 were about 12 and 9 times, respectively, more likely to say that a pregnancy was mistimed, rather than wanted then; women age 30-34 and 35-39 were respectively about five times and two times more likely to say that their more recent pregnancy was mistimed as opposed to wanted then. These age-related results correspond with those achieved by Eggleston (1999) in a similar analysis.

With regard to education, all education groups were 57 (no education) to 34 percent (secondary) less likely than women with higher than secondary education to report that a pregnancy was mistimed as opposed to wanted at the time. Those who said that paying for health care was not a big problem were one-fifth less likely than those who said paying for health care was a big problem to say that the index pregnancy was mistimed. Women who have never used modern contraception were 41 percent less likely to say that their most recent pregnancy was mistimed as opposed to wanted then, and every additional birth that a woman has had increased the likelihood that she reported her most recent pregnancy as mistimed rather than wanted at the time by 37 percent.

Mistimed versus unwanted. Women living in urban areas were 22 percent less likely than women living in rural areas to report the index pregnancy as mistimed, as opposed to unwanted. The relationship of age to planning status of the index birth is such that the youngest women (age 15-24) were about 10.5 times more likely than the oldest women to say that their pregnancy was mistimed, as opposed to unwanted. As women increased in age, they were less likely than younger women to characterize their pregnancies as mistimed rather than unwanted, but still much more likely to do so compared with women in the reference category age group 40-49. Only women who had secondary education were significantly less likely than women with higher than secondary education to characterize their most recent pregnancy as mistimed, rather than unwanted. Women who said that they do not have input into household spending decisions are 30 percent less likely than women who do have economic decisionmaking power to report the index pregnancy as mistimed, as opposed to unwanted, while women who said that their husbands do

Table 3 Odds ratios from multinomial logistic regressions showing the likelihood that a woman's most recent pregnancy in the five years preceding the survey was either mistimed or unwanted, among ever-married women who have had a birth in the past five years or are currently pregnant, controlling for selected characteristics, JPFHS 2002

Characteristic	Reduced model		
	Unwanted versus wanted	Mistimed versus wanted	Mistimed versus unwanted
Age			
15-19	1.08	11.17***	10.32***
20-24	1.18	12.85***	10.90***
25-29	1.05	8.76***	8.35***
30-34	0.87	4.60***	5.30***
35-39	0.86	2.05***	2.40***
40-49 ®	1.00	1.00	1.00
Residence			
Urban	0.96	0.75***	0.78*
Rural ®	1.00	1.00	1.00
Education			
No education	0.61*	0.43***	0.70
Basic	0.78	0.63***	0.81
Secondary	0.96	0.66***	0.68**
Higher ®	1.00	1.00	1.00
Difficulty paying for health care			
Not a big problem	0.67***	0.79**	1.17
A big problem ®	1.00	1.00	1.00
Has say in economic decisions			
No	1.20	0.84	0.70***
Yes ®	1.00	1.00	1.00
Husband approves of contraceptives			
No/don't know	0.65***	0.95	1.45*
Yes ®	1.00	1.00	1.00
Ever used modern contraceptive methods			
No	0.65***	0.59***	0.90
Yes ®	1.00	1.00	1.00
Number of previous births			
	1.59***	1.37***	0.86***
-2 log likelihood		3713.642	
*P < 0.05, **P < 0.01, ***P < 0.005			
® Reference category			

not approve of contraception were 45 percent more likely than women whose husbands approve of contraceptive use to report that a pregnancy was mistimed, rather than unwanted. Every additional birth that a woman has had decreased the probability that she would characterize the index pregnancy as mistimed, rather than unwanted.

4.2 Risk Factors for Unintended Pregnancy among Women Who Had a Birth, Before Which they Used a Contraceptive Method, in the Five Years Before the Survey

4.2.1 Background Characteristics

The women in the subsample selected for the second analysis, for which inclusion was determined on the basis of both having had a birth in the five years preceding the survey and having used contraception prior to that birth (but within the five-year period), are similar to those in the sample used for the first analysis for all characteristics except for age—the women in the second analysis are more concentrated in the 25-34 age group—and indicators of women’s empowerment (Table 4). Women in this subsample were somewhat more likely to have the final say on their own health care (64 percent have the final say) and to have input on decisions about making household purchases (80 percent have input on purchases). The finding of an association between autonomy and contraceptive use supports existing evidence in the literature (Schuler and Hashemi, 1994). These respondents were also more likely to report that their husbands approve of contraceptive use, but this finding is to be expected given that the subsample was selected on the basis of recent use of contraception.

It was possible to include three additional variables for the second analysis: the last source for the contraceptive method used before the most recent pregnancy, the last contraceptive method used before the most recent pregnancy, and the reason for discontinuing contraceptive method use before the most recent pregnancy. The inclusion of these variables provides the opportunity to examine the effects of contraceptive method providers and of contraceptive methods themselves on a woman’s probability of having a timely pregnancy. It also allows for an examination of the wantedness status of a pregnancy in light of the reasons women gave for contraceptive discontinuation before pregnancy.

The majority of women report that they obtained the contraceptive method they used before becoming pregnant from friends or relatives (31 percent). This finding reflects the usage of traditional methods of contraception such as periodic abstinence, withdrawal, and the reported use of LAM.⁷ Nineteen percent of women obtained their contraceptive method from a government or public facility, with private health care providers (11 percent), pharmacies (11 percent), and JAFPP⁸ (9 percent) also serving as significant sources of contraceptives.

As reflected by the source of contraceptive method, the most frequently reported methods used, as a group, were traditional methods: 24 percent of women used withdrawal, 14 percent used periodic abstinence, and 11 percent reported using LAM. The pill and the IUD were the most frequently reported modern methods (21 percent each), while 9 percent of women reported condoms as the last contraceptive method used before the most recent pregnancy.⁹

⁷ Most women who reported that they were using LAM were not in fact using the method; rather, they were simply breastfeeding.

⁸ JAFPP is the Jordanian Association of Family Planning and Protection.

⁹ Note that the category “pill” includes 28 cases of injectable use; the category “condom” includes 1 case of diaphragm use, 2 cases of “other” method use, and 28 cases of foam or jelly use.

Table 4 Percent distribution of currently married women age 15-49 who have had a birth before which they used a contraceptive method in the five years before the survey, by selected characteristics, JPFHS 2002 (n = 2,030)			
Characteristic	%	Characteristic	%
Intendedness of most recent birth or current pregnancy		Has say in economic decisions	
Wanted pregnancy then	53.8	No	19.8
Mistimed but wanted	24.0	Yes	80.2
Wanted no more	22.2	Consonance of fertility preferences	
Age		Both want the same	53.7
15-19	0.9	Husband wants more	28.3
20-24	12.8	Husband wants fewer	13.2
25-29	30.9	Don't know/missing	4.8
30-34	32.6	Husband approves of contraceptives	
35-39	15.8	No/don't know	8.7
40-49	7.0	Yes	91.3
Residence		Last source for contraceptive method	
Urban	79.1	Public/government facility	19.4
Rural	20.9	Private hospital/clinic/doctor	10.8
Woman's education		Pharmacy	10.7
No education	3.2	JAFPP	9.2
Basic	30.1	UNRWA or other NGO	4.9
Secondary	37.7	Friends/relatives	31.1
Higher	29.0	Other	13.9
Husband's education		Last contraceptive method used	
No education	1.4	Pill	21.0
Basic	33.7	IUD	20.7
Secondary	34.1	Condom	8.5
Higher	30.7	Periodic abstinence	14.3
Wealth quintile		LAM	11.2
Lowest	22.0	Withdrawal	24.4
Second	26.7	Reason for discontinuation of method prior to pregnancy	
Third	21.9	Became pregnant while using	35.4
Fourth	17.3	Other social reasons	3.2
Highest	12.1	Side effects/health concerns	11.8
Difficulty paying for health care		Method-related reasons	4.5
Small problem	71.0	Wanted to be pregnant	45.2
Big problem	29.0		
Employment			
Not currently working	89.6		
Currently working	10.4		
Has final say on own health care			
No	36.1		
Yes	63.9		

JAFPP = Jordanian Association of Family Planning and Protection
LAM = Lactational amenorrhea method
UNRWA = United Nations Relief and Works Agency

Although the majority of women in this subsample cited their desire to become pregnant (45 percent) as the reason for discontinuation of contraception, a significant proportion of women (35 percent) reported that they became pregnant while using a contraceptive method. Other reasons for contraceptive discontinuation included side effects and health concerns (12 percent); method-related

reasons, such as a desire to use a more effective method, the cost of the method, or the inconvenience of the method (5 percent); and other social reasons¹⁰ (3 percent).

4.2.2 Pregnancy Intention Status-Bivariate Analysis

Women in this subsample were less likely than those in the first analysis to report their most recent pregnancy as wanted (54 percent compared with 61 percent); 24 percent reported that the index pregnancy was mistimed, and 22 percent reported that it was unwanted (Table 5). Pregnancy intention varied significantly by 8 of the 13 variables included in the analysis.

Urban women were more likely than rural women to say that the reference pregnancy was wanted then and less likely to say that it was mistimed. There was no regional difference according to unwantedness—both urban and rural women were equally likely to report their pregnancy as unwanted. The relationship of age to wantedness takes the shape of an inverted U: 41 percent of women in the youngest age group (15-19) said that their most recent pregnancy was wanted then, about 57 percent of women age 25-29 and 30-34 said their pregnancy was wanted, and 35 percent of women in the oldest age group (40-49) reported the same. The relationship of age to unwantedness is U-shaped: 24 percent of women age 15-19 said that their last pregnancy was unwanted, 10 percent of those age 20-24 and 13 percent of those age 25-29 said that their last pregnancy was unwanted, and almost 60 percent of those age 40-49 reported their most recent pregnancy as unwanted. Mistimed pregnancies have a negative and monotonic relationship to age, with the youngest women being most likely to say that their pregnancy was mistimed (35 percent) and the oldest women being the least likely to say this (6 percent).

Wantedness and unwantedness have monotonic relationships with education level, in opposite directions: Women with no education were the least likely to say that their last pregnancy was wanted (37 percent), while women with higher than secondary education were the most likely to say so. In turn, the most-educated women were least likely to report their pregnancy as unwanted, while the least-educated women were the most likely to do so. There is little variation in mistimed pregnancy by education level. The relationship of wealth and difficulty of paying for health care to the intendedness of the index pregnancy is the same in this subsample as it was for the original sample.

Women who obtained the contraceptive method that they used before the index birth from a private hospital, clinic, or doctor were far more likely to say that their pregnancy was wanted (65 percent), while those who got their method from friends or relatives, from some “other” provider, from a pharmacy, or from a government facility were among the least likely to say that their pregnancies were wanted (50-53 percent). Mistimed pregnancies were also least reported among those who acquired their contraceptive method from a private medical provider (12 percent), and greatest among those who obtained their method from friends, relatives, or other sources (28-30 percent). Women who obtained their method from the United Nations Relief and Works Agency (UNRWA) were most likely to report an unwanted pregnancy (28 percent), while those who obtained their method from some other source were least likely to say their pregnancy was unwanted (20 percent).

With regard to the contraceptive methods themselves, 70 percent of women using IUDs reported a wanted pregnancy, while 55 percent of withdrawal users and 50 percent of pill users reported the same. Periodic abstinence was the method least likely to be associated with a wanted pregnancy (44 percent). IUD users were also the least likely to report either a mistimed or an unwanted pregnancy. Those who said they were using LAM were the most likely to report a mistimed pregnancy, while those who were using the pill were the most likely to report an unwanted pregnancy.

¹⁰ The category “other social reasons” includes disapproval of the husband, infrequent sexual activity, fatalistic attitudes toward fertility, lack of access to a source for contraceptive methods, and other unspecified reasons.

Table 5 Percent distribution of currently married women age 15-49 who have had a birth before which they used a contraceptive method in the five years before the survey, by selected characteristics, JPFHS 2002 (n = 2,030)

Characteristic	Wanted then	Mistimed	Unwanted	Total
Residence*				
Urban	55.2	22.6	22.2	100.0
Rural	48.6	29.2	22.2	100.0
Age ***				
15-19	41.2	35.3	23.5	100.0
20-24	55.0	35.0	10.0	100.0
25-29	56.8	29.9	13.2	100.0
30-34	57.6	21.3	21.0	100.0
35-39	48.6	15.9	35.5	100.0
40-49	34.5	6.3	59.2	100.0
Education ***				
No education	36.5	25.4	38.1	100.0
Basic	51.5	23.4	25.1	100.0
Secondary	55.1	23.5	21.4	100.0
Higher	56.6	25.1	18.3	100.0
Wealth quintile *				
Lowest	51.3	28.3	20.4	100.0
Second	55.2	24.5	20.3	100.0
Third	53.7	24.7	21.6	100.0
Fourth	56.0	21.6	22.4	100.0
Highest	52.8	17.1	30.1	100.0
Difficulty paying for health care***				
Small problem	56.5	23.5	20.1	100.0
Big problem	47.4	25.3	27.3	100.0
Employment				
Not currently working	59.6	23.0	17.4	100.0
Currently working	53.2	24.1	22.7	100.0
Has final say on own health care				
No	55.3	23.5	21.3	100.0
Yes	53.0	24.3	22.7	100.0
Has say in economic decisions				
No	50.4	23.2	26.4	100.0
Yes	54.7	24.2	21.1	100.0
Consonance of fertility preferences				
Both want the same	56.1	22.8	21.1	100.0
Husband wants more	50.3	25.0	24.7	100.0
Husband wants fewer	55.2	23.1	21.6	100.0
Don't know/missing	46.9	32.7	20.4	100.0
Husband approves of contraceptives				
No/don't know	52.0	22.0	26.0	100.0
Yes	54.1	24.1	21.8	100.0
Source for contraceptive method before pregnancy***				
Public/government facility	53.4	24.1	22.5	100.0
Private hospital/clinic/doctor	64.5	12.1	23.4	100.0
Pharmacy	52.8	22.5	24.8	100.0
JAFPP	59.4	19.3	21.4	100.0
UNRWA or other NGO	54.5	17.2	28.3	100.0
Friends/relatives	50.7	28.4	20.9	100.0
Other	50.0	30.1	19.9	100.0
Type of method used before pregnancy***				
Pill	49.1	22.5	28.4	100.0
IUD	70.1	13.4	16.5	100.0
Condom	45.8	28.2	26.0	100.0
Periodic abstinence	44.2	31.0	24.8	100.0
LAM	46.6	33.3	20.1	100.0
Withdrawal	54.8	25.4	19.8	100.0
Reason for discontinuation of method before pregnancy***				
Became pregnant while using	17.2	43.3	39.5	100.0
Other social reasons	46.2	23.1	30.8	100.0
Side effects/health concerns	31.4	34.7	33.9	100.0
Method-related reasons	38.5	41.8	19.8	100.0
Wanted to be pregnant	90.4	4.5	5.1	100.0
All women	53.8	24.0	22.2	100.0

*P < 0.05; **P < 0.01; ***P < 0.005
 JAFPP = Jordanian Association of Family Planning and Protection
 LAM = Lactational amenorrhea method
 UNRWA = United Nations Relief and Works Agency

In terms of reasons for contraceptive method discontinuation before the index pregnancy, 43 percent of those who became pregnant while using a method reported the resultant pregnancy as mistimed, 40 percent reported it as unwanted, and 17 percent said that their pregnancy was wanted then.

Those who discontinued their contraceptive method use for other social reasons were more likely to report their pregnancy as wanted then (46 percent) compared with unwanted (31 percent) or mistimed (23 percent) pregnancies. Those who stopped using a contraceptive method because of side effects or health concerns are fairly evenly distributed across intendedness status: 35 percent say their pregnancy was mistimed, 34 percent say it was unwanted, and 31 percent report the pregnancy as wanted at that time.

Women who stopped using their method for method-related, nonhealth reasons were most likely to report the index pregnancy as mistimed (42 percent) or wanted then (39 percent), rather than unwanted (20 percent). The overwhelming majority of women who stopped using contraception because they wanted to become pregnant reported that they wanted their pregnancy then (90 percent), while 5 percent of women reported the pregnancy as mistimed and another 5 percent reported it as unwanted.

As before, increased parity was significantly associated with unwanted pregnancies: The mean number of previous births among women reporting their last pregnancy as unwanted was 4.6, while the corresponding averages for mistimed and wanted pregnancies were 2.8 and 2.7, respectively (table not shown).

4.2.3 Multivariate Analysis

Because the variable indicating the source of contraceptive method is highly correlated with the variable indicating the type of method used, two multinomial logistic regressions were run that were exactly the same, except that the first regression included the source of the method and excluded the method type. The second regression included the method type, while excluding the source of the method. Results are shown in Table 6.

Table 6 Odds ratios from multinomial logistic regressions showing the likelihood that a woman's most recent pregnancy in the five years preceding the survey was either mistimed or unwanted, among ever-married women who have had a birth in the past five years and used contraception before that birth, controlling for selected characteristics, JPFHS 2002

Characteristic	Reduced Model: Source			Reduced Model: Method		
	Unwanted versus wanted	Mistimed versus wanted	Mistimed versus unwanted	Unwanted versus wanted	Mistimed versus wanted	Mistimed versus unwanted
Age						
15-19	4.47	19.24***	4.30	4.75	18.31***	3.85
20-24	0.90	11.38***	12.67***	0.96	11.47***	12.01***
25-29	0.74	7.86***	10.57***	0.78	8.06***	10.40***
30-34	0.76	4.91***	6.48***	0.79	5.02***	6.34***
35-39	0.63	2.30	3.67***	0.67	2.31	3.48***
40-49 ®	1.00	1.00	1.00	1.00	1.00	1.00
Education						
No education	0.40*	0.45	1.12	0.37*	0.44*	1.19
Basic	0.72	0.57**	0.79	0.72	0.58***	0.81
Secondary	1.08	0.77	0.72	1.06	0.79	0.75
Higher ®	1.00	1.00	1.00	1.00	1.00	1.00
Difficulty paying for health care						
Not a big problem	0.62***	0.78	1.25	0.62***	0.78	1.25
A big problem ®	1.00	1.00	1.00	1.00	1.00	1.00
Woman has final say on own health care						
Does not have sole final say	0.88	0.70*	0.79	0.88	0.70*	0.79
Has sole final say ®	1.00	1.00	1.00	1.00	1.00	1.00
Last source for contraceptive method						
Public/government facility	1.43	1.13	0.79			
Private hospital/clinic/doctor	1.60	0.52*	0.33***			
Pharmacy	1.54	1.03	0.67			
JAFPP	1.35	1.02	0.76			
UNRWA or other NGO	1.56	0.61	0.39*			
Other	0.65	0.80	1.22			
Friends/relatives ®	1.00	1.00	1.00			
Last contraceptive method used						
Pill				1.88**	1.04	0.55**
IUD				1.15	0.65	0.57*
Condom				1.29	1.43	1.11
Periodic abstinence				1.07	1.12	1.05
LAM				0.70	0.98	1.40
Withdrawal ®				1.00	1.00	1.00
Reason for stopping contraception						
Became pregnant while using	44.71***	59.22***	1.33	41.69***	52.92***	1.27
Other social reasons	10.04***	11.36***	1.13	10.13***	10.45***	1.03
Side effects/health concerns	12.67***	21.61***	1.71	12.40***	24.22***	1.95*
Method-related reasons	9.01***	18.60***	2.07*	9.73***	17.42***	1.79
Wanted to be pregnant ®	1.00	1.00	1.00	1.00	1.00	1.00
Number of previous births						
	1.51***	1.23***	0.83***	1.52***	1.24***	0.82***
-2 Log Likelihood		2493.06			2495.99	

Note: Shaded areas indicate that variable was omitted from the model.

*P < 0.05, **P < 0.01, ***P < 0.005

® reference category

JAFPP = Jordanian Association of Family Planning and Protection

LAM = Lactational amenorrhea method

UNRWA = United Nations Relief and Works Agency

4.3 Women Who Had a Birth, Before Which They Used a Contraceptive Method, in the Five Years Before the Survey: Source of Method

Unwanted versus wanted then. Women with no education were less likely than women with more than secondary education to say that a pregnancy was unwanted. Women who said that paying for health care is not a big problem were less likely to report an unwanted pregnancy than those for whom paying for health care is a big problem. Women who became pregnant while using contraception were 45 times more likely than women who intentionally stopped using contraception to get pregnant to report their most recent pregnancy as unwanted, rather than wanted then. Those whose most recent contraceptive use before pregnancy ended because of other social reasons, side effects, or method-related reasons were 9 to 13 times as likely to report their most recent pregnancy as unwanted, compared with women who stopped using contraception because they wanted to become pregnant. For each additional previous birth, women were 51 percent more likely to say that the pregnancy was unwanted.

Mistimed versus wanted then. Women age 15-19 were 19 times more likely than the oldest women to say that a pregnancy was mistimed, while women age 20-24 were 11 times more likely than the oldest women to say that a pregnancy was mistimed rather than wanted. Women with basic education were 43 percent less likely to report a pregnancy as mistimed, rather than wanted, than women with more than secondary education. Those who do not have the final say over their own health care are 30 percent less likely than those who do to report a pregnancy as mistimed rather than wanted. Compared with those who obtained their method from friends or relatives (all of which are traditional methods, except for three instances of condom use and one IUD), only women who got their method from a private hospital, clinic, or doctor were less likely to report a mistimed, as opposed to a planned, pregnancy. Women who became pregnant while using a contraceptive method were almost 60 times more likely than women who stopped using contraception in order to become pregnant to report their most recent pregnancy as mistimed, rather than wanted. Those who stopped using contraception because of side effects or health concerns were 22 times more likely than those who stopped because they wanted to become pregnant to report their pregnancy as mistimed rather than wanted. Those who stopped contraceptive use for method-related reasons or for other social reasons were also significantly more likely to report their pregnancy as mistimed rather than wanted (19 times and 12 times more likely, respectively), as compared with the reference category. For each additional previous birth, women were 23 percent more likely to say that the pregnancy was mistimed, as opposed to wanted then.

Mistimed versus unwanted. Women age 20-24 were almost 13 times more likely than women ages 40-49 to say that their most recent pregnancy was mistimed, as opposed to unwanted. Women age 25-29 were 11 times more likely, women age 30-34 were 6.5 times more likely, and women age 35-39 were 3.7 times more likely than women in the oldest age category to say that their most recent pregnancy or birth was mistimed rather than unwanted. Compared with those who got their methods from friends or relatives, those who got their methods from a private medical provider or from UNRWA were significantly less likely to say that the pregnancy was mistimed as opposed to unwanted. Those who stopped using contraception before their most recent pregnancy for method-related reasons were twice as likely as those who stopped to become pregnant to say their pregnancy was mistimed rather than unwanted. For each additional previous birth, women were 17 percent more likely to say that the index pregnancy was unwanted.

4.4 Women Who had a Birth, Before Which They Used a Contraceptive Method, in the Five Years Before the Survey: Type of Method

When method type was substituted in the equation for source of method, the relationships of the other independent variables to the dependent variable changed negligibly. Therefore, only the findings associated with the method variable will be discussed here.

Unwanted versus wanted then. Women who used the pill before their most recent pregnancy were 88 percent more likely than women who used withdrawal to say that the index pregnancy was unwanted as opposed to wanted. No other contraceptive method was significantly different from withdrawal in its relationship to the dependent variable.

Mistimed versus wanted then. No contraceptive method was significantly different from withdrawal in its relationship to the dependent variable.

Mistimed versus unwanted. Women who reported that they used the pill or an IUD were about 45 percent less likely than women who used withdrawal to say that their pregnancy was mistimed as opposed to unwanted.

5 DISCUSSION AND CONCLUSIONS

These results identify opportunities for interventions that could substantially improve women's ability to achieve their desired fertility. The overall picture seen from these results is that, interestingly, it is the most educated women and women who are most accepting of the idea and practice of fertility control who are most likely to report a pregnancy as mistimed or unwanted. This finding alone may narrow the scope for action: Jordan may make the largest strides in terms of reducing unwanted fertility as well as overall national levels of fertility by strengthening or improving the services and resources available to those who already are using a contraceptive method (c.f. Jain, 1999).

The analysis of all Jordanian women who had a current pregnancy or live birth in the five years preceding the survey showed that while urban women were less likely to report a pregnancy as mistimed rather than wanted, they were also more likely to report a pregnancy as unwanted rather than mistimed. This finding indicates that although urban women may have improved access to contraceptive services and are generally more likely to achieve their fertility preferences, when they do have an unintended pregnancy, it is more likely to be identified as unwanted rather than mistimed. Therefore, while service provision to rural women should be improved, the continuing needs of urban women should not be overlooked.

The bivariate data on the relationship of age to pregnancy indicate that the oldest women rarely report their pregnancies as mistimed—they are split almost evenly between reporting them as wanted or as unwanted. This finding sheds some light on the multivariate relationship, showing that as age group decreases, the probability of reporting a pregnancy as mistimed, rather than wanted, increases. Younger women are also more likely than older women to say that a pregnancy is mistimed, rather than unwanted; the older a woman is, the more likely she is to say that her pregnancy is unwanted. These data indicate a real need for services to address the timing and spacing needs of younger women, while also addressing the limiting needs of older women.

Women for whom paying for health care is problematic are more likely to have a mistimed or unwanted pregnancy than those who say that paying for health care is not a big problem. This finding indicates a need to ensure that quality contraceptive services are reaching the women who may not be able to pay for appropriate reproductive health care on their own.

Women who have never used contraception, or who have husbands who do not approve of contraception, are more likely to say that their pregnancies are wanted. Or, if their pregnancies are unintended, they are more likely to say that they are mistimed than women who have used modern contraceptive methods or have husbands who approve of contraception. Conversely, it is the women who have ever used modern contraception, and who have husbands who approve of its use, who are the most likely to report their most recent birth or current pregnancy as mistimed or unwanted. These results highlight two kinds of social perspectives on fertility and family building—one being more traditional and less likely to espouse the idea of being able to control the number or timing of the children one will

bear, and the other being more modern in terms of an acceptance of the idea of fertility control to space and/or limit children. It is encouraging to note, in the context of these two apparently incompatible ideologies, that fertility in Jordan can be significantly reduced by providing more effective services to those women who already express a desire to limit their fertility, without impinging on the rights of couples who choose not to subscribe to the practice of contraception at this time.

Finally, it is clear that the number of previous children a woman has had is a distinct determinant of whether or not the index pregnancy is mistimed, unwanted, or wanted at the time of conception. Additional births increase the likelihood that a pregnancy will be unwanted as opposed to wanted, and also increase the likelihood that a pregnancy will be mistimed as opposed to wanted. Furthermore, the number of previous births increases the likelihood of unwantedness as opposed to mistiming. It may therefore be effective to focus family planning campaigns more intensively on those families that already have two or more children.

The analysis of the Jordanian women who had used a method of contraception before their most recent pregnancy within the five years before the survey revealed information about the relationship of contraceptive methods and services to the wantedness of pregnancies that should be useful for planning and programmatic efforts.

The results indicate that the source of the contraceptive method used is a significant risk factor for unintended pregnancy. Compared with women who obtained their (largely traditional) contraceptive method from friends or relatives, only women who were served by private hospitals, clinics, or doctors were less likely to report a mistimed pregnancy. However, women who obtain their methods from private hospitals, clinics, doctors, or UNRWA were also more likely to report an unwanted, as opposed to a mistimed, pregnancy. This result may be due to an association between modern method use and high expectations for the efficacy of modern methods of fertility control: We have already seen that women who have ever used modern methods are the most likely to report unwanted pregnancies. Women who obtain their modern methods from an ostensibly reliable source may have higher expectations of the efficacy of their method. If those expectations are not met because of, for example, method failure, the pregnancy is more likely to be defined as unwanted, rather than mistimed.

The results showing the effect of the source of contraception are further elucidated when the effect of the type of contraceptive method is taken into consideration. Most women in this sample were using withdrawal as a method before their most recent pregnancy. It is sobering to note that the use of the pill increases the probability of unwanted pregnancy by 88 percent as compared with the use of withdrawal. This finding raises the possibility that the contraceptive pill, which is highly dependent on user education and user compliance for its effectiveness, is being distributed without the necessary education; users need to understand how the pill works and how it must be taken for maximum effectiveness. Another potential explanation for the poor performance of the contraceptive pill in preventing unwanted pregnancy is the possibility of supply stock-outs, which result in the inability of women who normally use pills to purchase them from their usual source, thus leaving them susceptible to unintended pregnancy. Thirty-eight percent of pills are distributed through public or government facilities, and 33 percent of pills are obtained from pharmacies (see Appendix A). These sites could be primary targets for interventions to improve the delivery of contraceptive information and supplies.

Overall, there is a substantial demand among Jordanian women for effective contraceptive methods. However, the evidence presented here suggests that the level of distribution of contraceptive methods (particularly more reliable modern methods), along with appropriate education on contraceptive use, is lagging behind the demand, resulting in excess fertility at the national level, and in unintended pregnancy at the individual level. Unintended pregnancy is clearly a public health issue, a gender issue, and a population issue; effectively addressing such a problem will result in multidimensional improvements for Jordanian women and Jordan as a whole.

REFERENCES

- Barber, J. S., W.G. Axinn, and A. Thornton. 1999. Unwanted childbearing, health, and mother-child relationships. *Journal of Health and Social Behavior* 40(September): 231-257.
- Bitto, A., R.H. Gray, J.L. Simpson, J.T. Queenan, R.T. Kambic, A. Perez, P. Mena, M. Barbato, C. Li, and V. Jennings. 1997. Adverse outcomes of planned and unplanned pregnancies among users of natural family planning: A prospective study. *American Journal of Public Health* 87(3): 338-343.
- Bustan, M.N. and A.L. Coker. 1994. Maternal attitude toward pregnancy and the risk of neonatal death. *American Journal of Public Health* 84(3): 411-414.
- Campbell, J.C., L.C. Pugh, D. Campbell, and M. Visscher. 1995. The influence of abuse on pregnancy intention. *Women's Health Issues* 5(4): 214-223.
- d'Angelo, D., B.C. Gilbert, R. Rochat, J. Herold, and J. Santelli. 2001. Measuring unintended pregnancy: Are women who report mistimed and unwanted pregnancies different? Powerpoint presentation downloaded from <http://www.uic.edu/sph/cade/mchept2001/slides/dangelo/index.htm>.
- Eggleston, E. 1999. Determinants of unintended pregnancy among women in Ecuador. *International Family Planning Perspectives* 25(1): 27-33.
- Eggleston, E. 2000. Unintended pregnancy and women's use of prenatal care in Ecuador. *Social Science and Medicine* 51:1011-1018.
- Eggleston, E., A.O. Tsui, and M. Kotelchuck. 2001. Unintended pregnancy and low birth weight in Ecuador. *American Journal of Public Health* 91(5): 808-810.
- Filmer, D. and L. Pritchett. 2001. Estimating wealth effects without expenditure data-or tears: An application to educational enrollments in states of India. *Demography* 38(1): 115-132.
- Gazmararian, J.A., M.M. Adams, L.E. Saltzman, C.H. Johnson, F.C. Bruce, J.S. Marks, C. Zahniser, and the PRAMS Working Group. 1995. The relationship between pregnancy intendedness and physical violence in mothers of newborns. *Obstetrics and Gynecology* 85(6): 1031-1038.
- Gwatkin, D.R., S. Rutstein, K. Johnson, R.P. Pande, and A. Wagstaff. 2000. Socioeconomic differences in health, nutrition and population. Washington, D.C.: Poverty Thematic Group of the World Bank.
- Jain, A. 1999. Should eliminating unmet need for contraception continue to be a program priority? *International Family Planning Perspectives* 25(supplement): S39-S43 and S49.
- Joyce, T.J. and M. Grossman. 1990. Pregnancy wantedness and the early initiation of prenatal care. *Demography* 27(1): 1-17.
- Joyce, T.J., R. Kaestner and S. Korenman. 2000. The effect of pregnancy intention on child development. *Demography* 37(1): 83-94.
- Kallan, J.E. 1993. Race, intervening variables, and two components of low birth weight. *Demography* 30(3): 489-506.

- Marston, C. and J. Cleland. 2003. Do unintended pregnancies carried to term lead to adverse outcomes for mother and child? An assessment in five developing countries. *Population Studies* 57(1): 77-93.
- Myhrman, A., P. Olsén, P. Rantakallio, and E. Läärä. 1995. Does the wantedness of a pregnancy predict a child's educational attainment? *Family Planning Perspectives* 27: 116-119.
- Petersen, R. and M.K. Moos. 1997. Defining and measuring unintended pregnancy: Issues and concerns. *Women's Health Issues* 7(4): 234-240.
- Petro-Nustas, Wasileh, and R. Al Qutob. 2002. Jordanian men's attitudes and views of birth-spacing and contraceptive use (a qualitative approach). *Health Care for Women International* 23: 516-529.
- Rutstein, S. 1999. Wealth versus expenditure: Comparison between the DHS wealth index and household expenditures in four departments of Guatemala. Unpublished.
- Rutstein, S. and K. Johnson. 2004. *The DHS wealth index*. DHS Comparative Reports No. 6. Calverton, Maryland, USA: ORC Macro.
- Rutstein, S., K. Johnson and D. Gwatkin. 2000. Poverty, wealth inequality and its health and demographic effects. Paper presented at the Population Association of America Annual Meeting, March 23-25, 2000, Los Angeles, California.
- Sable, M.R., J.C. Spencer, J.W. Stockbauer, W.F. Schramm, V. Howell, and A.A. Herman. 1997. Pregnancy wantedness and adverse pregnancy outcomes: Differences by race and Medicaid status. *Family Planning Perspectives* 29: 76-81.
- Sawhill, I.V. 1999. Non-marital births and child poverty in the United States. Presented at House Committee on Ways and Means, Subcommittee on Human Resources, June 29, 1999.
- Schuler, S.R. and S.M. Hashemi. 1994. Credit programs, women's empowerment, and contraceptive use in rural Bangladesh. *Studies in Family Planning* 25(2): 65-76.
- Underwood, C. 2000. Islamic precepts and family planning: The perceptions of Jordanian religious leaders and their constituents. *International Family Planning Perspectives* 26(3): 110-117 and 136.
- United Nations Population Division. 2002. *Abortion policies: A global review*. New York, New York: Population Division, United Nations.

Appendix A

Table A.1 Percent distribution of women who had a birth or a pregnancy, before which they used a contraceptive method, in the five years before the survey by source where contraceptive method was obtained, according to type of method, Jordan 2002 HPFHS

Source	Pill ¹	IUD	Condom ²	Periodic abstinence	LAM	Withdrawal	Total
Public/government facility	38.4	31.1	35.4	4.0	4.8	1.0	19.4
Private hospital/clinic/doctor	10.5	30.8	2.2	7.6	0.0	1.9	10.9
Pharmacy	32.6	0.4	42.7	0.0	0.0	0.0	10.7
JAFPP	7.3	31.5	3.9	1.0	0.5	0.4	9.2
UNRWA or other NGO	11.0	5.5	13.5	0.3	0.5	0.2	4.9
Other	0.2	0.7	0.0	25.7	31.2	29.2	13.8
Friends/relatives	0.0	0.0	2.2	61.4	63.0	67.2	31.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	427	454	178	303	189	479	2,030

¹ The category "pill" includes 28 cases of injectable use.

² The category "condom" includes 1 case of diaphragm use, 2 cases of 'other' method use, and 28 cases of foam/jelly use.

JAFPP = Jordanian Association of Family Planning and Protection

LAM = Lactational amenorrhea method

UNRWA = United Nations Relief and Works Agency

