Intention to Use Contraceptives in Jordan:

Further Analysis of the Jordan Population and Family Health Survey 2017-18

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ABSTRACT

Intention to use contraception in the future among women in Jordan has decreased over the past 30 years. To better understand the determinants of contraceptive intention, this study uses the theory of planned behavior to identify attitudes, social norms, perceived behavioral control, and sociodemographic factors associated with contraceptive intention. We use data from 5,789 currently married, fecund women not currently using contraception from the most recent Jordan Population and Family Health Survey and estimate logistic regression models for contraceptive intention.

Over 60% of women in our sample do not intend to use contraception in the future. In multivariate analysis, variables related to all three components of the theory of planned behavior were significantly associated with contraceptive intention. Women who are undecided about having more children had lower odds of intending to use contraception compared to women who want no more children. Compared with women who wanted no children, women who want one to four children had higher odds of contraceptive intention. Women who do not know how many children their husband desires have lower odds of intending to use contraception compared to women who want the same number of children as their husbands. Women who have used contraceptives have over three times the odds of intending to use contraception in the future compared to women who have not. Joint decision making for contraceptive nonuse is associated with higher odds of contraceptive intention compared to a woman making the decision alone. Increasing age is associated with lower odds of contraceptive intention compared to younger age. Women whose husbands have higher levels of education have higher odds of intending to use contraception compared to those with husbands with no education. Compared with women who are not currently working, women who work have lower odds of contraceptive intention. Odds of intending to use contraception in the future varied in different governorates with women in Ajloun having over two times the odds of intending to use contraception, and women in Karak over 50% lower odds, compared to women in Amman.

These findings suggest that investment in demand-side interventions that promote contraceptive use through shifting social norms on gender and addressing common concerns about contraceptive use are warranted. Targeting specific groups by age and previous contraceptive use may also allow for focused messaging that addresses unique barriers within these groups.

Key words: Contraception, contraceptive intention, family planning, Jordan

ACRONYMS AND ABBREVIATIONS

AOR	adjusted odds ratio
CPR	contraceptive prevalence rate
DHS	Demographic and Health Survey
FP	family planning
JCAP	Jordan Communication and Advocacy Project
JPFHS	Jordan Population and Family Health Survey
TPB	theory of planned behavior
USAID	United States Agency for International Development

BACKGROUND

Introduction

Although women's fertility intentions, such as the desired number of children and desire for another child, have been widely studied, research on intention to use contraception has been more limited. This may be due to a perception that assessing actual contraceptive use has greater utility. However, assessment of contraceptive intention allows researchers and policymakers to understand the period prior to a woman acting on her contraceptive intention. This can be a critical time to target with additional messaging that can advance women and couples along the different stages of behavior change – from precontemplation and contemplation, where intention is a key measure, to action and maintenance, where contraceptive use can be assessed (Prochaska and Velicer 1997).

Measures of contraceptive intention are frequently used together with unmet need to understand the proportion of women with unmet need for family planning (FP) who intend to adopt contraception in the future (Cleland, Harbison, and Shah 2014; Westoff 2012). Unmet need[1] has been decreasing globally (Alkema et al. 2013) and in the Middle East (Abdelbaqy 2019), and has been stable at between 12% and 15% in Jordan since 2002 (DOS and ICF 2019). There is still a need to identify those who would like to space or limit birth for FP programming. In longitudinal studies, intention to use contraception in the future has been shown to be associated with subsequent adoption of contraception (Curtis and Westoff 1996; Sarnak et al. 2019).

Previous research from low- and middle-income countries has identified many determinants of a woman's intention to use contraception in the future. Previous contraceptive use (Babalola, John, et al. 2015; Curtis and Westoff 1996; Kridli and Newton 2005; Solanke et al. 2018; Wuni, Turpin, and Dassah 2017), higher levels of education (Solanke et al. 2018; Tiruneh et al. 2016), employment (Tiruneh et al. 2016), increasing parity (Babalola, John, et al. 2015; Solanke et al. 2018), not desiring another child (Babalola, John, et al. 2015; Curtis and Westoff 1996), FP discussions at the health facility (Kumar et al. 2020; Tiruneh et al. 2016; Wuni, Turpin, and Dassah 2017), exposure to FP mass media messages (Solanke et al. 2018), and having contraceptive decision-making power (Mboane and Bhatta 2015; Solanke et al. 2018) have all been associated with greater likelihood of intending to use contraception in the future.

Increasing age (Curtis and Westoff 1996; Solanke et al. 2018; Tiruneh et al. 2016) and a greater desired family size (Tiruneh et al. 2016) have been associated with lower odds of intending to use contraception in the future. Evidence of the association of wealth with intention to use contraception is inconsistent, with increasing wealth associated with lower odds in some cases (Babalola, John, et al. 2015) and higher in others (Tiruneh et al. 2016). A husband's desired number of children has also been found to influence intention. Women whose husbands want more children have lower odds of intending to use contraception, while women whose husbands want fewer have higher odds of intending to use contraception (Tiruneh et al. 2016).

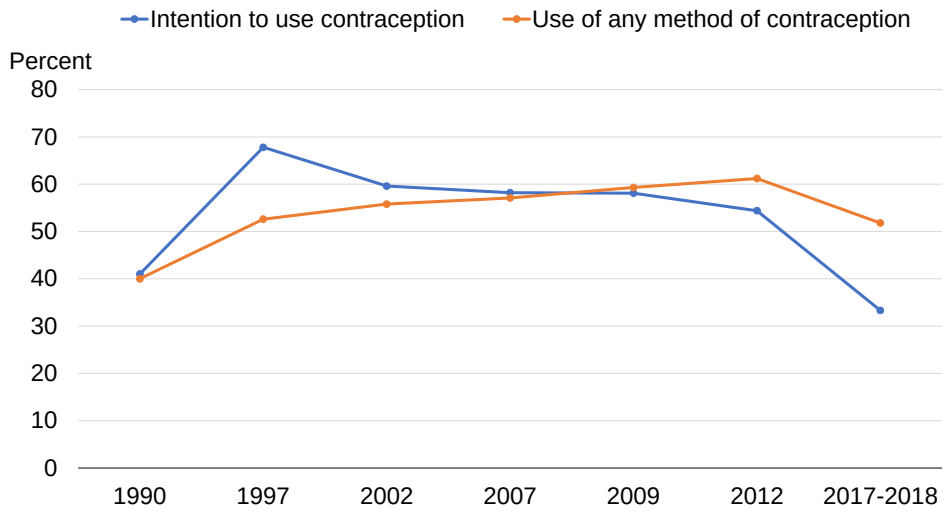
[1] Unmet need is defined as the proportion of married, fecund women age 15-49 who do not want to have a(nother) child in the next 2 years or at all, and who are not using any method of contraception, either modern or traditional (Sarah EK Bradley, Trevor Croft, and Joy Fishel 2012).

Intention to Use Contraception in Jordan

In Jordan, the proportion of married women not using any form of contraception who intend to use contraception in the future increased from 1990 to 1997, and then plateaued until the most recent Jordan Population and Family Health Survey (JPFHS) in 2017-18, when it decreased to 33% (see Figure 1).

This decrease coincides with a decrease in the actual contraceptive prevalence rate (CPR) as well. As discussed in Further Analysis Report 140, between 1990 and 2012, contraceptive prevalence among married women in Jordan increased from 40% to 61%. Then in 2017-18, the contraceptive prevalence decreased to 52% (see Figure 1).

Figure 1 Trends in contraceptive intention and prevalence, Jordan 1990-2018



In addition to the determinants of contraceptive intention cited in the previous section, there are other social and cultural factors at play in Jordan:

- *Religion.* Researchers have cited the Islamic belief that Muslims should be fruitful and that God will take care of children, regardless of the economic situation of the parents, as a primary influence on women's fertility decisions (Farsoun, Khoury, and Underwood 1996). This may be interpreted to mean that contraception for birth spacing is accepted, while contraception to limit the number of children is discouraged (Kridli and Newton 2005; Kridli and Libbus 2001; Taha and Mirghani 1991). However, more recent research has shown that most Jordanian Muslim women believe that contraceptives are permitted under Islam, and that women's perception of contraception as forbidden or allowed was not always consistent with their contraceptive use (Gharaibeh et al. 2011).

- *Social norms on family size and child sex composition.* The mean ideal number of children has remained approximately four since 1997, although there is some indication that the current economic downturn in Jordan has made smaller families more desirable (JCAP 2016a). Since it is also socially preferable to have male children, Jordanian couples report feeling pressure to continue having children until they have male children, even when they have more than their ideal number of children (JCAP 2015a; Kridli and Libbus 2001; Spindler et al. 2017).

- *Links between pregnancy, fertility, power, and authority.* Motherhood brings increased status and the potential for upward mobility within the household power structure (Maffi 2013; Spindler et al. 2017). In a 2015 survey of Jordanian women's knowledge, attitudes, and practices, the most frequent reason for a woman not using modern FP methods is "wanting more children to fulfill the maternal role" (JCAP 2015b).

Study Purpose

This study aims to examine determinants of intention to use contraception in the future among married, fecund women currently not using contraception in Jordan. The specific research questions are:

1. How do women who intend to use contraception in the future compare to those who do not intend to use contraception in the future?

2. What sociodemographic and fertility characteristics are associated with intention to use contraception in the future?

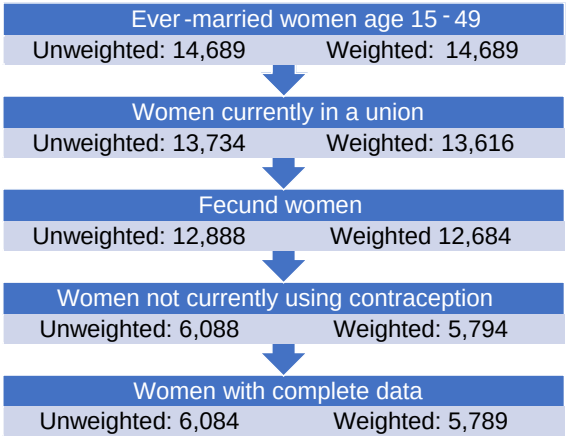
This study provides valuable information on women's intention that will support Jordan's FP programs in better meeting their FP goals. The study results can inform policy makers about the design of interventions that can increase the proportion of married Jordanian women who want to space or delay a birth who intend to use contraception in the future.

DATA AND METHODS

Data

This study uses data from the seventh, most recent DHS in Jordan, the 2017-18 JPFHS. In this analysis, the unit of analysis is individual ever-married women who are currently in a union, who are fecund (excluding women unable to get pregnant), and not currently using contraception. The survey achieved a 98% eligible woman response rate. The weighted sample size is presented in Figure 2.

Figure 2 Study sample



Methods

Outcome measure

Intention to use contraception in the future was measured by the response to the question, "Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?" Women who responded "yes" were categorized as intending to use contraception, and women who responded "no" or "unsure about use" were categorized as not intending to use contraception in the future.

Covariates

In this study, we assigned covariates to one of four categories. The first three categories were defined with the theory of planned behavior (TPB), which is frequently used as a theoretical framework for predicting a person's intention and subsequent performance of a specific behavior (Ajzen and Fishbein 1980). The TPB proposes that a person's attitude towards a behavior, the social norms around that behavior, and the person's perceived behavioral control to perform the behavior influence a person's intention to perform the behavior (Ajzen and Fishbein 1980).

Covariates that relate to attitude were:

- *Desire for another child*. Women were grouped into one of four categories. First, women who indicated that they wanted no more children were categorized as "not wanting a(nother) child." The second category identified women who indicated they wanted a(nother) child within the next 2 years. Third, those women who want a child after 2 years, or want a child but are unsure about timing, were categorized as "wants later." Finally, women who were undecided about a(nother) child were categorized as "undecided."

Two covariates related to communication and messaging that may have influenced the woman's attitude were also included. These were:

- *Discussed FP with a health care worker*. Women who visited a health facility in the previous 12 months and were told about FP at the facility were categorized as "yes," while women who visited

a health facility in the last 12 months and were not told about FP at the facility or women who did not visit a health facility in the last 12 months were categorized as "no."

- *Exposure to FP messages.* Women were categorized as "yes" if they had heard or seen FP messages on the radio or television, in newspaper/magazines, or via text messages on a mobile phone in the last few months.

Covariates related to social norms were:

- *Ideal number of children*. Women were asked to name the number of children that they would prefer if they could choose exactly the number of children to have in their entire life. These were grouped into the following "0", "1-2", "3-4", or "5+".

- *Spousal agreement on family size.* Women were asked whether their husband wants the same number of children, more children, fewer children, or don't know.

Covariates related to perceived behavioral control were:

- *Previous contraceptive use*. Women who indicated that they had ever used anything or tried to delay or avoid getting pregnant were categorized as having previous contraceptive use.

- *Decision making about contraceptive nonuse.* Women were categorized into one of four groups. They were categorized as having sole decision making if they stated that it is mainly themselves who decide to not use contraception, and categorized as having joint decision making if they state that it is mainly a joint decision with their husbands. If the main decision maker is the husband or someone else, women were categorized as having someone else make the decision to not use contraception. The final group of women were originally coded as "missing" since they were not asked the decision-making question due to a current pregnancy. Therefore, in this analysis these women are coded as "pregnant."

Sociodemographics are also hypothesized to influence intention to use contraception in the future. Selection of these variables was guided by the literature described earlier. Sociodemographic covariates included:

- *Age.* A categorical variable was created to represent women's age.

- *Education.* None, primary, and secondary or higher.

- *Husband's education.* None, primary, and secondary or higher.

- *Residence*. Urban and rural.

- *Governorate*. Women were categorized by the governorate in which they live.

- *Household wealth quintile.* Wealth quintiles are constructed with information from the household interview about household characteristics and household assets. Women in the poorest category are the reference group.

- *Employment status*. A woman is coded as currently working if she reports having done any work in the previous 7 days, other than her own housework. Women who are not currently working are the reference category.

- *Current number of children.* The number of living children a woman reported was grouped into the following "0", "1-2", "3-4", or "5+".

Before finalizing the specification of the final logistic regression model, we tested for collinearity among all potential covariates. We identified several expected correlations, specifically among age, previous contraceptive use, and number of living children; and between the woman's and her husband's education. For each, the degree of correlation was modest ($r \leq 0.6$) and all variables were retained.

Analysis

In this study, we present determinants of intention to use contraception in the future among currently married, fecund nonusers of contraception. We examine differences in covariates by intention to use contraception and assess whether such differences are statistically significant with a chi-square ($\chi 2$) test of independence. To identify factors associated with intention to use contraception in the future, we estimate multivariable logistic regression models with the outcome and covariates described earlier. All data are weighted and the svyset commands in Stata are applied to account for the complex, clustered sampling design of the survey (DOS and ICF 2019). Significant associations are defined as those with a p-value less than 0.05.

RESULTS

Sample Characteristics

Table 1 presents a sample profile. The sample is relatively evenly split among the age groups, with fewer women in the 35-39 (15%), 40-44 (13%), and 45-49 age groups (12%). Overall, the sample is predominantly urban (90%), with a secondary educational level or higher for both the women (89%) and the husbands (87%), and did not work in the past 12 months (86%). The largest proportion of women in the sample live in Amman (39%). Slightly more than one-third of women (35%) have one or two children, while over half (56%) state that three or four is an ideal number. A quarter (25%) of women state that having five or more children is ideal. Just over one-third (36%) of women want no more children, while 30% want a(nother) child within the next 2 years. Over half (58%) of women said that their husband wants the same number of children as she does. Only 19% of women discussed FP with a health worker during a health facility visit within the past 12 months. Over three-quarters (77%) of women have heard or seen FP messages in the last few months. Over half (58%) of women had never used contraceptives, and the same percentage (58%) say that the decision making about contraceptive nonuse is made jointly with their husband. Just over one-third (38%) of women intend to use contraception in the future.

Table 1 Analytic sample profile (N=5,794)

Characteristics	%	N
Intention to use contraception in the future among nonusers		
No, does not intend to use	62.4	3,617
Yes, intend to use later	37.6	2,177
Attitude		
Desire for another child		
Want no more children	36.4	2,106
Want more children within 2 years	30.3	1,754
Want more children after 2 years	23.9	1,386
Undecided	9.4	547
Discussed FP with health worker at health facility visit within the past 12 months		
No	81.3	4,711
Yes	18.7	1,083
Exposure to FP messages		
No	22.8	1,323
Yes	77.2	4,470
Social norms		
Ideal number of children		
0	4.7	271
1-2	14.5	839
3-4	55.8	3,235
5+	25.0	1,449
Husband's desire for children		
Both want same	57.9	3,357
Husband wants more	28.3	1,641
Husband wants fewer	8.1	469
Don't know	5.6	327
Perceived behavioral control		
Previous contraceptive use		
No	57.9	3,357
Yes	42.1	2,437

Continued…

Table 1—*Continued*

Characteristics	%	N
Decision maker regarding contraceptive non-use		
Self	8.5	490
Joint	58.0	3,360
Husband or other	7.9	457
Pregnant	25.6	1,486
Sociodemographic variables		
Age		
15-24	21.0	1,219
25-29	19.2	1,115
30-34	19.7	1,143
35-39	15.2	884
40-44	12.7	737
45-49	12.0	698
Woman's education		
None	2.7	156
Primary	8.0	462
Secondary	89.3	5,176
Husband's education		(N=5,789)
None	3.3	192
Primary	9.6	557
Secondary	87.1	5,040
Residence		
Urban	89.9	5,209
Rural	10.1	585
Geographic region		
Amman	39.1	2,266
Balqa	5.5	318
Zarqa	13.9	806
Madaba	2.4	141
Irbid	17.5	1,012
Mafraq	6.1	356
Jarash	2.6	149
Ajloun	1.9	109
Karak	4.1	237
Tafiela	1.4	80
Ma'an	2.3	132
Aqaba	3.2	187
Employment status		
Did not work in past 12 months	85.8	4,973
Currently working	14.2	821
Household wealth quintile		
Lowest	22.4	1,297
Second	21.4	1,240
Middle	20.1	1,164
Fourth	19.7	1,141
Highest	16.4	952
Current number of children		
0	22.8	1,318
1-2	35.4	2,051
3-4	26.2	1,517
5+	15.7	908

Intention to Use Contraception

Bivariate association

Table 2 shows the distributions of women who intend to use contraception in the future, by covariates. Among the attitude factors, intention to use contraception differs significantly by desire for another child ($p<0.001$). Women who want more children after 2 years or later intend to use contraception 56% of the time, while women who want no more children intend to use contraception 29% of the time. Among women

who are undecided about their desire for another child, 34% intend to use contraception. Women who had discussed FP with a health worker (47%) and women who had been exposed to FP messages (39%) had higher intention to use contraception than those who had not ($p<0.001$ and $p<0.05$).

Table 2 Cross-tabulation of contraceptive intention with covariates (N=5,794)

Characteristic	Intends to use contraception %	95% CI	p-value
Attitude			
Desire for another child			***
Want no more children	28.5	[25.6-31.6]	
Want more children within 2 years	35.0	[31.8-38.2]	
Want more children after 2 years	56.1	[50.9-61.1]	
Undecided	34.1	[28.5-40.2]	
Discussed FP with health worker			***
No	35.5	[33.1-37.9]	
Yes	46.7	[42.5-51.0]	
Exposure to FP messages			*
No	33.7	[29.8-37.7]	
Yes	38.7	[36.3-41.2]	
Social norms			
Ideal number of children			***
0	14.8	[9.8-21.6]	
1-2	34.8	[29.8-40.1]	
3-4	43.5	[40.7-46.3]	
5+	30.3	[27.1-33.8]	
Spousal agreement on number of children			**
Both want same	39.3	[36.7-41.9]	
Husband wants more	38.3	[34.3-42.6]	
Husband wants fewer	30.9	[24.9-37.6]	
Don't know	26.0	[19.8-33.3]	
Perceived behavioral control			
Previous contraceptive use			***
No	29.6	[27.0-32.3]	
Yes	48.6	[45.6-51.5]	
Decision maker regarding contraceptive nonuse			***
Self	19.0	[14.5-24.5]	
Joint	30.3	[27.8-32.9]	
Husband or other	19.6	[15.3-24.7]	
Pregnant	65.7	[61.3-69.8]	
Sociodemographic variables			
Age			***
15-24	52.9	[48.3-57.3]	
25-29	55.6	[51.2-60.0]	
30-34	41.4	[36.6-46.4]	
35-39	35.0	[29.8-40.5]	
40-44	14.2	[11.3-17.8]	
45-49	3.7	[2.3-5.9]	
Education			***
None	18.0	[11.7-26.5]	
Primary	29.7	[23.7-36.6]	
Secondary	38.9	[36.7-41.1]	
Husband's education (N=5,789)			***
None	9.9	[6.2-15.4]	
Primary	30.2	[25.2-35.7]	
Secondary	39.5	[37.2-41.8]	
Residence			0.93
Urban	37.6	[35.4-39.9]	
Rural	37.4	[33.1-41.8]	

Continued…

Table 2—*Continued*

Characteristic	Intends to use contraception %	95% CI	p-value
Geographic region			***
Amman	35.6	[31.4-39.9]	
Balqa	25.3	[20.6-30.6]	
Zarqa	33.7	[29.5-38.2]	
Madaba	36.1	[31.8-40.6]	
Irbid	48.3	[43.6-53.1]	
Mafraq	44.9	[39.7-50.2]	
Jarash	43.8	[38.0-49.8]	
Ajloun	50.9	[45.2-56.7]	
Karak	19.2	[14.1-25.6]	
Tafiela	44.0	[38.5-49.6]	
Ma'an	27.8	[23.0-33.2]	
Aqaba	42.9	[36.3-49.9]	
Employment status			***
Did not work in past 12 months	39.2	[37.0-41.5]	
Currently working	27.6	[23.1-32.5]	
Household wealth quintile			0.16
Lowest	39.4	[35.8-43.1]	
Second	40.5	[36.3-44.9]	
Middle	37.7	[33.9-41.6]	
Fourth	36.1	[31.9-40.6]	
Highest	32.9	[27.3-39.1]	
Current number of children			***
0	43.9	[39.6-48.4]	
1-2	40.0	[36.8-43.3]	
3-4	36.9	[33.3-40.7]	
5+	24.0	[20.3-28.1]	

*p<0.05; **p<0.01; *** p<0.001

Social norm factors were significantly associated with intention to use contraception. Intention to use contraception differed for both the ideal number of children (p<0.001) and spousal agreement on the number of children (p<0.01). Only 15% of women whose ideal number of children was zero intended to use contraception. Women who had previously used contraceptives were more likely (49%) to intend to use contraceptives in the future compared to women who had no previous contraceptive use (30%; p<0.001). Decision making was associated with intention to use contraception (p<0.001). Women who do not participate in the decision making about contraceptive nonuse (20%) had the same level of contraceptive intention as those who make the decision themselves (19%), while women who make contraceptive nonuse decisions jointly with their husband (30%) had higher contraceptive intention. Two-thirds (66%) of pregnant women intend to use contraception in the future.

Sociodemographic factors were also associated with intention to use contraception. Intention to use contraception differs by age group (p<0.001), decreasing with increasing age. The proportion of women who intend to use contraception in the future differs by education level (p<0.001), with lower education levels of both the women and their husbands having smaller proportions of women intending to use contraception. Only 18% of women who had no education said they intended to use contraception in the future, while 39% of women with secondary or more education intended to use. An even smaller proportion of women whose husbands had no education (10%) said they intend to use contraception in the future, while 40% of women whose husbands had secondary or more education intended to use. A lower proportion of women who were currently working intend to use contraception in the future compared to women who are not working (28% versus 39%; p<0.001). Intention to use contraception decreases with an increasing

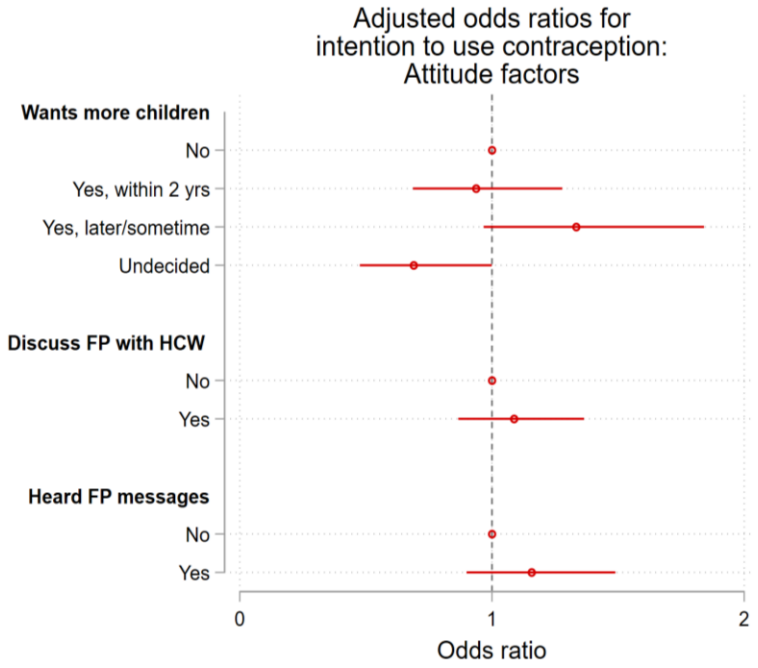
number of current children (p<0.001). Intention to use contraception ranged from 19.2% in the Karak Governorate to 51% in the Ajloun Governorate (p<0.001).

Multivariate logistic regression analysis

Coefficient plots of adjusted odds ratios (Figures 3-6) show that after adjusting for other factors, among the attitude factors, desire for another child remains statistically significant in its association with intention to use contraception in the future. Among the social norm factors, the ideal number of children and spousal agreement on number of children remain statistically significant. The perceived behavioral control factors – previous contraceptive use and decision making regarding contraceptive nonuse – are statistically significantly associated with intention to use contraception after including all other covariates. Among sociodemographic factors, women's age, husband's education, governorate, employment status, and current number of children all maintained statistical significance with intention to use contraception. For specific adjusted odds ratio (AOR) and 95% CI values, see Appendix Table 1.

As shown in Figure 3, compared to women who want no more children, women who are undecided about having a(nother) child have lower odds of intending to use contraception (AOR 0.7, CI 0.5-1.0). No significant differences in future contraceptive intention were found with having discussed FP with a health worker or exposure to FP messages, after controlling for other factors.

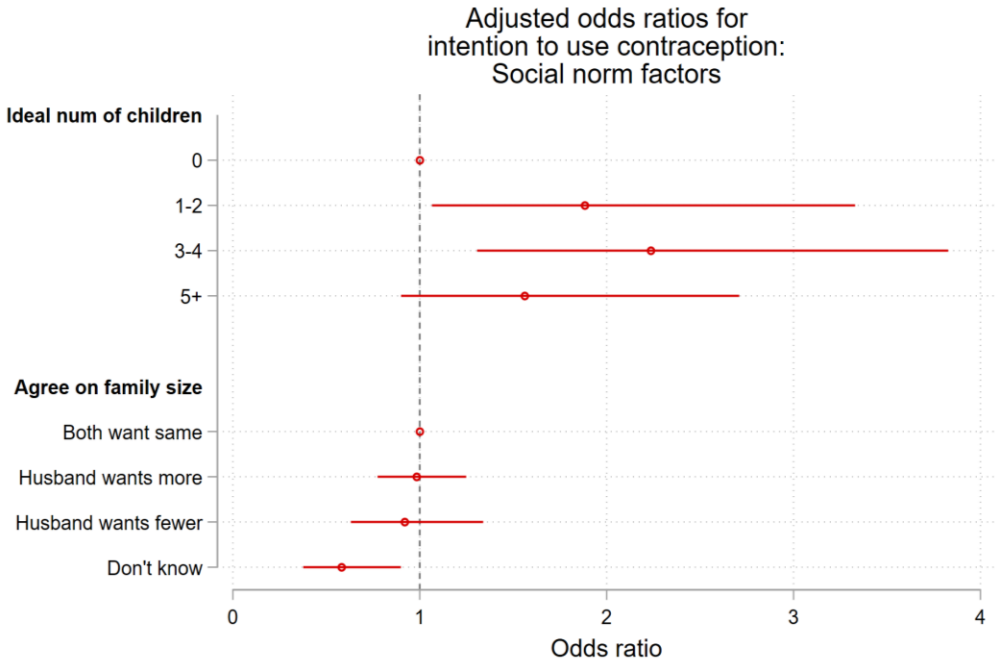
Figure 3 Coefficient plot of attitude factor results from binary logistic regression, 2017-18 JPFHS (N=5,789)



Women who declared that their ideal number of children is 1-2 (AOR 1.9, CI 1.1-3.3) or 3-4 children (AOR 2.2, CI 1.3-3.8) have significantly higher odds of intending to use contraception in the future compared with women who declared that their ideal number of children was zero. Women who do not know if their husband agrees on the ideal number of children have significantly lower odds (AOR 0.6, CI 0.4-0.9) of intending to use contraception compared with women who want the same number of children as their

husbands, while odds for women whose husbands want more or fewer children are similar to women who want the same number of children as their husbands.

Figure 4 **Coefficient plot of social norm factor results from binary logistic regression, 2017-18 JPFHS (N=5,789)**



The adjusted odds of intending to use contraception in the future are significantly higher for women with previous contraceptive use (AOR 3.3, CI 2.6-4.3) compared with those who have no previous contraceptive use. Women who make the decision not to use contraception together with their husband have significantly higher odds (AOR 1.6, CI 1.1-2.4) of future intention to use contraception compared to women who make the decision themselves. Women who are pregnant have higher odds (AOR 3.8, CI 2.5-5.8) of intending to use contraception in the future compared to women are the sole decision maker about contraceptive nonuse.

Figure 5 Coefficient plot of perceived behavioral control factor results from binary logistic regression, 2017-18 JPFHS (N=5,789)

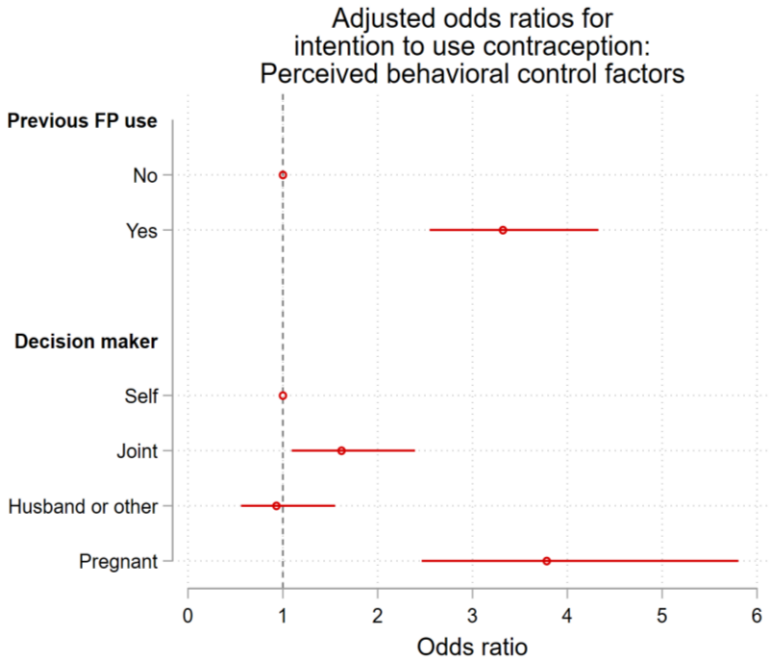
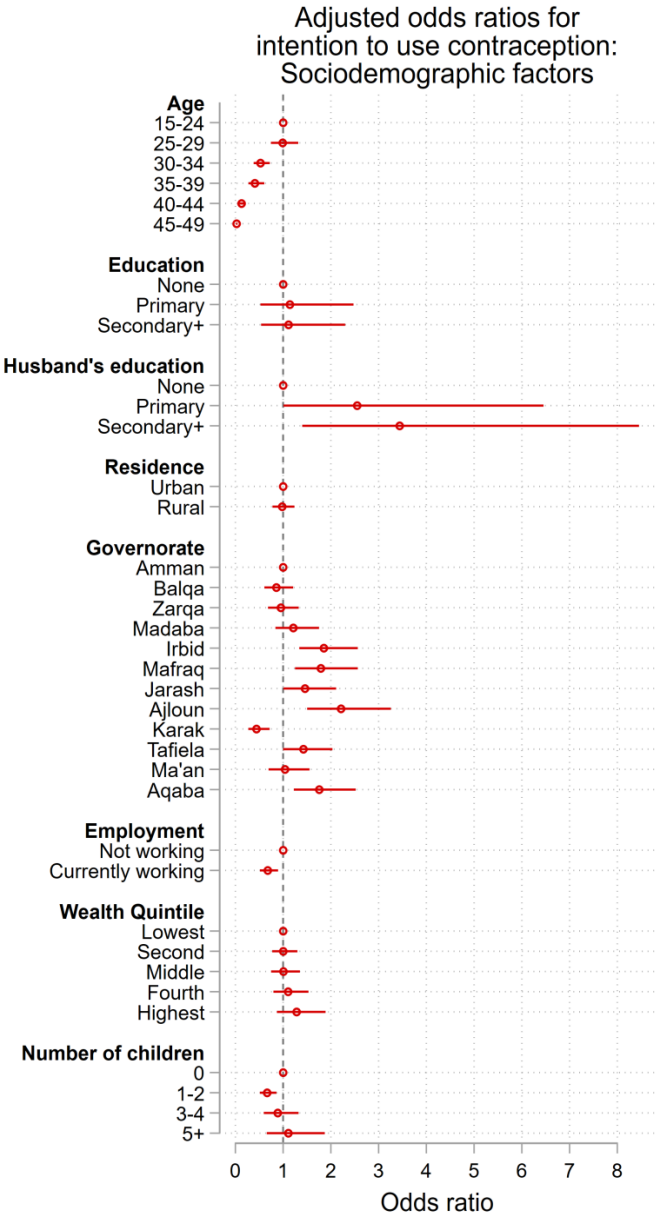


Figure 6 shows the AOR of all sociodemographic factors with contraceptive intention. Compared with women age 15-24, older women have increasingly lower odds of intending to use contraception (age 30-34: AOR 0.5, age 35-39: AOR 0.4, age 40-44: AOR 0.1, age 45-49: AOR 0.03). Women age 25-29 had similar odds of intending to use contraception as women age 15-24.

Figure 6 Coefficient plot of sociodemographic factor results from binary logistic regression, 2017-18 JPFHS (N=5,789)



Husband's education remains significantly associated with contraceptive intention. The odds of intending to use contraception systematically increase with increasing level of a husband's education, with husbands with a secondary or higher education having the highest odds (AOR 3.4, CI 1.4-8.5) compared to husbands with no education. A woman's education was not significantly associated with intention to use contraception.

With the Amman Governorate as the reference, women in Irbid (AOR 1.9, CI 1.4-2.6), Mafraq (AOR 1.8, CI 1.3-2.6), Jarash (AOR 1.5, CI 1.0-2.1), Ajloun (AOR 2.2, CI 1.5-3.3), and Aqaba (AOR 1.8, CI 1.2-2.5) had significantly higher odds of intending to use contraception, while women in Karak had significantly lower odds (AOR 0.4, CI 0.3-0.7).

Women who were currently working had significantly lower odds (AOR 0.7, CI 0.5-0.9) of intending to use contraception compared to women who did not work in the previous 12 months.

Compared with women who had no children, women with one to two children (AOR 0.7, CI 0.5-0.9) had lower odds of intending to use contraception, while there were no significant differences between women with no children and women with three or more children.

Intention to use contraception was not significantly different by urban-rural residence or wealth quintile when controlling for other factors.

DISCUSSION

Intention to use contraception has been identified as a key precedent to adoption of a contraceptive method. In Jordan, contraceptive use intention is low. Our study examined attitudes, social norms, perceived behavioral control, and sociodemographic factors among women surveyed in the 2017-18 JPFHS to measure their association with intention to use contraception. Variables in each category are associated with future contraceptive intention in Jordan. Among the attitudinal factors, being undecided about wanting a(nother) child is found to be negatively associated with intention to use contraception when compared to women who do not want any more children, while women who want more children soon or later have similar odds of contraceptive intention when compared to women who do not want any more children. This result reflects that women and couples planning their families and future fertility, including use of FP, is important and positively associated with contraceptive intention. Couples who want to space births (those who want children after 2 years) or those who have completed their families and want to limit births (want no more children) have higher odds for future intention to use contraceptives according to their planning goals, compared to those who have not decided on their planning practices and who are vulnerable to unwanted pregnancies in the future.

Previous research has shown that FP messages contribute to contraceptive use (Babalola, Folda, and Babayaro 2008; Do and Hotchkiss 2013). When we combined all types of FP messages, as shown in the main model, there is no effect on contraceptive intention. However, when we examined each type of FP message (radio, television, newspaper, or text message), women who had heard radio FP messages had higher odds (AOR 1.4) of intending to use contraception compared to those who had not (results not shown). Previous research has shown that radio was one of the most trusted sources for FP information among married women in Jordan (JCAP 2015b), although more recent data from the Jordan Communication and Advocacy Project (JCAP) have shown that television had a far greater reach than radio (JCAP 2016b). Our findings suggest that although FP radio messages may have a lower reach, those who hear them may still trust the messages more than other sources. Additional research is necessary to better understand the effect of different information channels on FP behaviors in Jordan.

A higher ideal number of children as a social norm has been found to be associated with lower odds of intention to use contraception in the future (Tiruneh et al. 2016). In this study, wanting one to four children is associated with higher odds of intending to use contraception compared to wanting no children. However, there is no difference in odds of intention to use contraception for women who want five or more children compared to those who want zero children. Women who want between one and four children may also want to space those births and therefore intend to use contraception in the future. The finding that women who want zero children have lower odds of intending to use contraception in this sample of noncontracepting women is difficult to understand. If a married woman desires not to have any children, it would seem logical that she would have high, if not the highest odds of intending to use contraception among all groups. However, among ever-married women in the 2017-18 JPFHS, among the 851 women who want zero children, 86% (737) have one or more children, and only 14% (114) actually have zero children (results not shown). Of these 114, all are not using contraception (results not shown). This finding points to other concerns, such as fear of side effects, which may play a part in women's contraceptive intention and decisions about contraceptive use.

When we examine the number of children women actually have, we see that women who have one to two children have lower odds of intending to use contraception than those with no children. Interestingly, in the study sample of currently married, fecund, noncontracepting women, women who have one to two children have higher proportions of not wanting any more children compared to women with no children (24% versus 2%) and similar proportions of wanting children in two or more years (34% versus 32%) (results not shown). In general, the proportion of women who want no more children increases with increasing number of children, and the proportion of women who want more children decreases with an increasing number of children (results not shown). It could be assumed that as the number of children increases and the proportion of women not wanting more children increases and the proportion of women wanting more children decreases, intention to use contraception would increase. Since this is not the case, we must consider that there are other factors that inhibit a woman's intention to use contraception beyond her intentions to expand her family. Since age is also highly correlated with actual number of children (results not shown), increased age and decreased perceived fertility may also be contributing to this finding.

We did not include variables on child gender in this study, which may also have an effect on future childbearing intention and intention to use contraception. Future research should explore child gender composition and preferred family gender composition associations with contraceptive intention.

Greater spousal communication has been associated with increased use of contraception in previous research (Tumlinson et al. 2013; Wegs et al. 2016). This evidence supports our finding of an association between not knowing a husband's desired number of children and lower odds of intending to use contraception in the future, which has also been found in other contexts (Tiruneh et al. 2016).

Perceived behavioral control factors, measured by previous contraceptive use and contraceptive nonuse decision making, appear to be important to contraceptive intention. In earlier research in Jordan (Kridli and Newton 2005), previous contraceptive use has been found to be associated with intention to use oral contraceptive pills. This study builds upon that evidence by showing that previous contraceptive use is associated with intention to use any contraception in the future. One of the most frequently cited reasons for not using modern contraception among Jordanian women is concern about side effects. It could be that a woman who has previously used contraception and found that the side effects did not outweigh the positive benefit of contraception is more likely to use again in the future. It is also possible that women who are more likely to initially use contraception are more likely to use it again. Future research is needed to understand the different contraceptive profiles of women in Jordan in order to further explore these differences (MacQuarrie et al. 2019).

Greater autonomy in contraceptive decision making has been frequently (Rahman, Mostofa, and Hoque 2014; Saleem and Pasha 2008) but not always associated with contraceptive behaviors (Uddin, Hossin, and Pulok 2017). Previous research has shown that women in Jordan believe or understand that their value is frequently measured by the number of children they bear and that they therefore desire to have larger families (JCAP 2015b, 2016a). In this study, women who made the decision not to use contraception jointly with their husband had higher odds of intending to use contraception when compared to women who made that decision themselves. Therefore, even when these women are making their own contraceptive decisions, they may be deciding not to use contraceptives in order to raise their own status within the family and society. Indeed, some cases have been described in which men wanted to limit family size due to economic

concerns, but women opposed this in order to improve their social status (JCAP 2016a). This finding also indicates the influence of the husband in a couple's contraceptive decision making.

While difficult to interpret, we observed that pregnancy was significantly positively associated with intending to use contraception in the future when compared with women who make their own decisions about contraceptive nonuse. In bivariate analysis, 66% of pregnant women intend to use contraception in the future, which is significantly different from the 28% of nonpregnant women (results not shown). This could be due to the fact that the pregnant women are younger and more likely to have used contraception in the past (results not shown) or differed from the nonpregnant women in other ways. It may also be that the pregnant women, who are likely to be attending antenatal care, are hearing FP messages from the providers, or that pregnant women are fulfilling their desire for children and are intending to use contraception in the future to space births to give them enough time to care for and breastfeed their baby. Although FP discussions with providers were not associated with increased odds of contraceptive intention in our analysis with a sample of pregnant and nonpregnant women, future research could explore pregnant women's contraceptive intention and how their intentions change throughout pregnancy and the postpartum period.

We find that many sociodemographic factors are associated with contraceptive intention. As women age, their odds of intending to use contraception in the future decrease compared to younger women. This aligns with women's reproductive life cycles as well, because there is lower risk of conception as a woman ages. Although a woman's education has been frequently associated with contraceptive use, in this study we found no difference in contraceptive intention by a woman's education level. This is not surprising, as previous research in Jordan has shown no association between women's education and ideal number of children or negative views of modern contraceptive methods (JCAP 2015b). The husband's education is highly associated, with increasing magnitude, with increasing level of education. This same association has been noted in Nigeria, where more educated men were more likely to have positive views of contraception (Babalola, Kusemiju, et al. 2015). This finding may reflect the primacy of the husband's decision making for woman's contraceptive behavior, which has been described previously in Jordan (JCAP 2016a).

Differences among governorates are evident in this study, although geographic differences in contraceptive intention differ from geographic differences in modern or traditional contraceptive use ((Riese and Juan 2020). Assessing the reasons for these differences is beyond the scope of this research. There may be differences in social norms or beliefs that lead to differential demand across governorates or differences in access to contraceptive services that may be contributing to the differences in contraceptive behavior. Further research on FP behavior by governorate is recommended.

Women who are currently working had lower odds of intending to use contraception in the future. The evidence on employment and intention to use contraception is inconsistent (Tiruneh et al. 2016; Wuni, Turpin, and Dassah 2017), although in Jordan, previous research has shown no difference in intention to use oral contraceptive pills by employment status (Kridli and Newton 2005). Although women have high levels of education, only 14% of women in our sample are currently working, approximating the low levels of women's labor participation nationally (Spindler et al. 2017). Previous research that explored the reasons behind the low female labor force participation has shown that 60% of nonworking women want to work, and that women seek jobs with flexibility and generous maternity and family leave policies (Assaad et al. 2020; The World Bank 2018). Women and their husbands/families frequently have differing views on

appropriate employment for women. If men's decisions are seen as more valued, as discussed earlier, they may take precedence over the woman's desires. Qualitative research is needed to explore how employment status affects women's thinking about contraception intention in Jordan.

Although wealth is frequently associated with contraceptive use (Adebowale et al. 2014; Osmani et al. 2015; Tiruneh et al. 2016), in this study, we did not find evidence of an association between household wealth quintile and contraceptive intention. There are likely to be other cultural factors, such as the value of a large family or religious influence, which permeate socioeconomic classes in Jordan (Kridli and Libbus 2001). These other factors appear to be stronger contributors to contraceptive behaviors and may account for the null findings.

Our findings are not without limitations. This study is based on a cross-sectional survey, and therefore cannot establish causality. Instead, we show associations between the variables in the analysis.

In addition, we identified variables in the 2017-18 JPFHS that fit into the TPB framework. However, these variables may not adequately capture aspects of attitudes, social norms, or perceived behavioral control. The choice of this framework and the availability of variables may have resulted in omitted variable bias. Finally, asking questions about contraceptive intentions, especially in a society with more conservative views around contraception, creates the possibility for social desirability bias.

The findings of this study suggest that the constructs at play in the TPB contribute to contraceptive intention among women in Jordan. At least one measure from each construct – attitudes, social norms, and perceived behavioral control – was statistically significantly associated with intention to use contraception in the future. Previous use of contraception had the largest magnitude effect of any of the TPB constructs. However, sociodemographic factors, particularly pregnancy, age, and husband's education, had the largest magnitude of effect on intention to use contraception in the future.

Additional research is required to gain a deeper understanding of the TPB constructs and their influence on contraceptive intention, as well as how contraceptive intention translates into the contraceptive use in Jordan.

RECOMMENDATIONS AND CONCLUSION

Our study has policy and programming implications. FP discussions with a health care worker did not have an effect on a woman's intention to use contraception. More research is needed to assess how the content and crafting of FP messages from health care providers is received by women and why it is not translating into contraceptive intention. Health care workers believe that correcting misperceptions about contraception is difficult (Böttcher, Abu-El-Noor, and Abu-El-Noor 2019). Jordan is one of the only WHO Eastern Mediterranean Region Member States that does not include FP in pre-service as well as in-service training programs for health care providers (Shrestha et al. 2019). Therefore, one potential policy change to increase the effect of health care worker discussions on contraceptive intention would be to begin FP training earlier, during the pre-service period.

On the program side, the findings that indicate the important role of husbands in contraceptive decision making, as well as the strong effect of husband's education, suggest that programs that include counseling for men on FP and FP social and behavior change communication activities targeted to men are warranted. These programs could target men with community interventions that can improve their knowledge and attitudes toward FP, as well as facility-based interventions that improve FP counseling skills to ensure that this service also includes interested men.

In addition, uncertainty about wanting more children and not knowing if you agree with your spouse on family size were both associated with lower odds of contraceptive intention. Programs could develop skill-building interventions for couples on FP and decision making in order to minimize uncertainty and vulnerability to unwanted pregnancies.

This research suggests that in order to meet Jordan's FP goals, segmented messaging may be necessary. For example, since women who have previously used contraception have greater odds of intending to use contraceptives in the future, focused messaging could target women with no previous contraceptive use and address key knowledge and attitude barriers. Although it may be more difficult to change, more entrenched sociocultural beliefs about a woman's value being linked to motherhood will need to be addressed if Jordan is to achieve its FP goals.

In summary, the specific recommendations emerging from this research are:

- Include FP earlier in health care worker training, during pre-service training.
- Strengthen counseling for men on FP and create male-targeted FP social and behavior change communication activities.
- Develop skill-building interventions for couples on FP and decision making.
- Target women with no previous contraceptive use in order to overcome key knowledge and attitude barriers.

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APPENDIX

Appendix Table 1 Adjusted odds ratio of intention to use contraception, JPFHS 2017-18 (N=5,789)

Variable	Adjusted odds ratio	CI
Attitude factors		
Desire for another child		
Want no more children	ref.	
Want more children within 2 years	0.94	0.69 - 1.28
Want more children after 2 years	1.33	0.97 - 1.84
Undecided	0.69*	0.48 - 1.00
Discussed FP with health worker		
No	ref.	
Yes	1.09	0.87 - 1.36
Exposure to FP messages		
No	ref.	
Yes	1.16	0.90 - 1.49
Social norm factors		
Ideal number of children		
0	ref.	
1-2	1.88*	1.07 - 3.33
3-4	2.24**	1.31 - 3.83
5+	1.56	0.90 - 2.71
Spousal agreement on number of children		
Both want same	ref.	
Husband wants more	0.98	0.77 - 1.25
Husband wants fewer	0.92	0.63 - 1.34
Don't know	0.58*	0.38 - 0.90
Perceived behavioral control factors		
Previous contraceptive use		
No	ref.	
Yes	3.32***	2.55 - 4.33
Decision maker regarding contraceptive non-use		
Self	ref.	
Joint	1.62*	1.09 - 2.39
Husband or other	0.93	0.56 - 1.55
Pregnant	3.78***	2.46 - 5.80
Sociodemographic factors		
Age		
15-24	ref.	
25-29	0.99	0.74 - 1.32
30-34	0.52***	0.38 - 0.72
35-39	0.41***	0.27 - 0.61
40-44	0.13***	0.08 - 0.20
45-49	0.03***	0.01 - 0.05
Woman's education		
None	ref.	
Primary	1.14	0.53 - 2.47
Secondary	1.11	0.54 - 2.30
Husband's education		
None	ref.	
Primary	2.55*	1.01 - 6.45
Secondary	3.44**	1.40 - 8.45
Residence		
Urban	ref.	
Rural	0.98	0.78 - 1.24

Continued…

Appendix Table 1—*Continued*

Variable	Adjusted odds ratio	CI
Geographic region		
Amman	ref.	
Balqa	0.86	0.61 - 1.21
Zarqa	0.95	0.68 - 1.33
Madaba	1.21	0.84 - 1.75
Irbid	1.85***	1.34 - 2.56
Mafraq	1.79**	1.25 - 2.56
Jarash	1.46*	1.01 - 2.11
Ajloun	2.21***	1.50 - 3.26
Karak	0.44***	0.27 - 0.72
Tafiela	1.42	1.00 - 2.03
Ma'an	1.04	0.70 - 1.55
Aqaba	1.76**	1.22 - 2.52
Employment status		
Did not work in past 12 months	ref.	
Currently working	0.68**	0.51 - 0.89
Household wealth quintile		
Lowest	ref.	
Second	1.00	0.77 - 1.30
Middle	1.01	0.75 - 1.35
Fourth	1.10	0.80 - 1.53
Highest	1.28	0.87 - 1.89
Current number of children		
0	ref.	
1-2	0.66**	0.51 - 0.86
3-4	0.89	0.59 - 1.32
5+	1.11	0.66 - 1.87

*p<0.05; **p<0.01; *** p<0.001

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