Descriptive Finding

Religiosity and marital fertility among Muslims in Israel

Jona Schellekens

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Contents

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Abstract

BACKGROUND
Mounting evidence suggests that religious couples tend to have an above-average preference for children. Most of the evidence comes from studies of Christian and Jewish populations. Much less is known about the relationship between religiosity and fertility among Muslims. So far, only a few studies have reported a positive relationship between religiosity and fertility among Muslims. None of these control for marital duration. Thus, it is not clear to what extent the relationship is a result of early marriage among more religious women.

OBJECTIVE
This article tries to show that there is a relationship between religiosity and marital fertility among Muslims after controlling for marital duration.

METHODS
Using survey data from Israel we model the relationship between religiosity and marital fertility in a discrete-time repeated events history analysis.

RESULTS
We report a positive relationship between an objective measure of religiosity and marital fertility. If they tend to have an above-average preference for children, then we expect to observe less parity-dependent fertility control among religious couples. Our results confirm this. The effect of religiosity increases with parity.

CONCLUSIONS
As has been shown for Christians and Jews before, there also is a positive relationship between religiosity and marital fertility among Muslims.

CONTRIBUTION
To the best of our knowledge, this is the first study to present evidence for a

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relationship between an objective measure of religiosity and marital fertility among Muslims, which controls for marital duration.

1. Introduction

Mounting evidence suggests that there is a positive relationship been religiosity and fertility. Most of the evidence comes from studies of Christian and Jewish populations (Adserà 2006; Baudin 2015; Hayford and Morgan 2008; Mosher and Hendershot 1984; Neuman 2007; Neuman and Ziderman 1986; Okun 2017; Sander 1992; Zhang 2008). Fewer studies on the relationship been religiosity and fertility have been conducted among Muslims (Hleihel 2011; Kaufmann 2009; Westoff and Frejka 2007). None of these control for marital duration. Thus, it is not clear to what extent the relationship is a result of early marriage or opposition to family planning among more religious women.

Family planning is permitted by all four major schools of Islamic law (Husain 2000; Obermeyer 1992; Sachedina 1990). However, people may be ignorant of 'official' religious rulings. Knodel et al. (1999) and Iyer (2002), for example, observed that most Muslims believe their religion opposes contraception.

Using a local fertility survey from Israel, we investigate the relationship between religiosity and marital fertility among Muslims. Unlike previous studies, we use an objective measure of religiosity, adherence to all Five Pillars of Islam. We report a positive relationship between our measure of religiosity and marital fertility. If they are more likely to oppose contraception, then we expect to observe less parity-dependent fertility control among religious couples. Our results confirm this. The effect of religiosity increases with parity.

Of course, a correlation between religiosity and marital fertility does not constitute sufficient evidence for a causal relationship. A third variable might influence religiosity as well as marital fertility. We show that women's education attenuates the relationship. However, the correlation remains significant.

2. Data and variables

In 2007, Muslims constituted 16.7% of the population of Israel (State of Israel 2010: 87–88). Almost all Muslims in Israel belong to the Sunni branch of Islam and speak Palestinian dialects of Arabic. In 1960–1969, the total fertility rate (TFR) among Muslims in Israel was among the highest in the world, reaching a level of 9.2 (for an

explanation see Schellekens and Eisenbach 2002). Fertility started to decline towards the middle of the 1970s. Until 1986 the TFR declined by about 50%. Then fertility stalled until resuming its decline in the beginning of the 21st century (Nahmias and Stecklov 2007). In 2016, the TFR was 3.3, only slightly higher than the TFR of 3.2 among Jews (compare Lipka and Hacket 2017).

Our data comes from Tamra in the western Galilee, which received the status of a town in 1996. At the time of the 2008 Census, the town had a total population of 28,100 (State of Israel 2010: 130). Almost all inhabitants are Muslims. In 2007, the Yafa Institute Ltd., Nazareth, conducted a fertility survey among 888 women aged 25–55 and currently in their first marriage, constituting a random systematic sample of approximately 20% of the town's households.[3] The women were asked about their reproductive histories, socioeconomic status, work, and religiosity.

Table 1 presents estimates of the total marital fertility rate (TMFR) of Muslim women aged 20–49 in Tamra for three consecutive five-year periods. For comparison, we estimated the TMFR of Muslim women who were still in their first marriage for the same years, using the 'own-children' method in the 20% sample of the 1995 and 2008 Israeli census. Table 1 shows that the TMFR in Tamra was below the national average.

Table 1: **Estimates of the total marital fertility rate of Muslim women aged 20–49 who were in their first marriage in Tamra, and in the 20% samples of the 1995 and 2008 Israeli censuses by five-year period, 1990–2004**

Period	Tamra	Israel
1990–1994	4.65	5.79
1995–1999	4.32	5.39
2000–2004	4.27	5.16

Religiosity is a complex concept and difficult to define. Islam generally stresses orthopraxis over orthodoxy (El-Menouar 2014). Hence, the survey not only asked the women to define themselves on a subjective scale of religiosity but also on a scale of religious behavior (orthopraxis). Previous studies used measures of religious behavior that included non-obligatory practices (e.g., Aksoy and Billari 2018). Following Khraim (2010), we use a measure of religious behaviour that is based on obligatory practices only. The women in the survey were asked about the extent to which they adhere to the Five Pillars of Islam or duties incumbent on every Muslim: the confession

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[3] The survey is available from the Social Science Data Center (ISDC) at the Hebrew University, Mount Scopus, Jerusalem, Israel.

of faith, praying five times a day, alms-giving, fasting during the month of Ramadan, and making a pilgrimage to Mecca.

Goldscheider (2015: 129) warns that "Moslems who say they are 'religious' do not necessarily mean the same thing as Israeli Jews." Subjective religiosity measures, such as those used in the ISS, may not distinguish well enough between religiosity and religious identity. Thus, it may not be possible to distinguish between an individual with a high level of religiosity in terms of religious practice and an individual with a high level of religious identity but a low level of religious practice (Abu-Rayya, Abu-Rayya, and Khalil 2009). By using a measure of religious behaviour, we tried to circumvent this problem.

Tables 2a and 2b present estimates of the percentage religious on a scale of orthopraxis and on a subjective scale, respectively. Women were asked to define their religiosity on a scale from 1 (not religious) to 7 (very religious). Most women defined themselves as being traditional (3–5). Almost 19% of the women put themselves in the two highest categories, which is slightly higher than the percentage of women who answered that they adhere to all Five Pillars of Islam (15%).

Table 2a: **Orthopraxis among married women aged 25–55 in Tamra, 2007**

Orthopraxis	Percent
Does not adhere to Pillars of Islam	1.6
Partial adherence	62.1
As much as possible	21.0
Adheres to all Pillars of Islam	15.3
Number of women	857

Table 2b: **Self-defined religiosity among married women aged 25–54/55 in Tamra and in the Israel Social Survey, 2007**

	Percent	
Self-defined religiosity	**Tamra**	**Social Survey**
1 / not religious	1.5	3.8
2	1.9	
3 / not so religious	8.4	28.3
4	40.6	
5 / religious	28.8	62.9
6	13.1	
7 / very religious	5.7	5.1
Number of women	857	237

The Israel Social Survey (ISS) is a major source for national data on religiosity. Respondents were asked to define their religiosity on a scale from 1 (very religious) to 4 (not religious at all). In the 2007 ISS, 68% of married Muslim women aged 25–54 reported being religious or very religious (see Table 2b). In the Tamra Survey, on the other hand, only 19% of the women were in the top two categories of self-defined religiosity. Thus, the percentage of respondents in the ISS who defined themselves as being religious may be inflated.

Spearman's rho between our measures of self-defined religiosity and orthopraxis is 0.394. Thus, the two appear to measure different dimensions of religiosity (see also El-Menouar 2014). Preliminary analyses indicated that the relationship of marital fertility with an objective measure of religiosity is slightly stronger than with a subjective measure (compare Philipov and Berghammer 2007; Westoff and Frejka 2007). Therefore, we only present results for the relationship with orthopraxis. We have omitted 31 women (3.5%) from the analysis who did not answer the question on adherence to the Five Pillars of Islam.

Only 14 women stated that they do not adhere at all to the Five Pillars of Islam. Preliminary analyses indicated that the difference between women who answered that they adhered as much as possible and those who only partially adhered to the Five Pillars of Islam is very small and very insignificant. Therefore, the measure of religiosity used in the final analysis is a variable indicating whether a woman adheres to all Five Pillars of Islam or not.

The analysis includes the following demographic variables: age of the woman, marital duration, and parity. A set of seven age dummies is used to model the effect of the woman's age. In the absence of parity-dependent marital fertility control, the age pattern of marital fertility closely follows a standard schedule, a fact that led Coale and Trussell (1974) to propose to use the deviation of the age pattern of marital fertility from such a schedule as a measure of parity-dependent fertility control. However, fertility control is a function not only of age but also of marital duration. For this reason, Page (1977) proposed a model of marital fertility incorporating both age and marital duration. Later Van Bavel (2003) introduced the number of children or parity into the model in order to determine whether the effect of marital duration on marital fertility is primarily attributable to parity-dependent control or to declining coital frequency. The inclusion of parity is essential in order to control for fecundability and secondary sterility. There is a positive correlation between parity and fecundability, while there is a negative correlation between parity and secondary sterility. Parity is measured in the previous year.

In the survey there are no questions on infant and child mortality. Infant and early childhood mortality among Israeli Palestinians, however, is now so low that this omission should not influence our results to any extent.

The education of the woman and that of her husband may attenuate the relationship between religiosity and marital fertility. We constructed two distinct education vectors for each woman from information on the number of years of schooling. The first – educational status – charts yearly enrollment in education. The second vector – educational level – reflects actual attainment. The analysis does not include additional socioeconomic variables, such as income. However, measures of the education of the husband may serve as a proxy for lifetime income (Ben-Porath 1973). In preliminary analyses, the coefficient of the husband's years of education was very small and very insignificant. Hence, we have omitted this variable from the final analysis.

Labor-force participation may also influence fertility decisions (Brewster and Rindfuss 2000). However, the coefficient of women's labor-force participation (in the previous year) was very small and very insignificant in preliminary analyses, perhaps, because relatively few married women were employed (Lavy and Zablotsky 2015). Hence, this variable has also been omitted from the final analysis.

Muslims in Israel entered the third phase of the Demographic Transition toward the middle of the 1970s. Our analysis follows the birth histories of women from 1977 until 2006. To control for the changing context of marital fertility, we added period dummy variables to the analysis.

3. Methodology

We used multilevel binomial regression models, in which women are the second level, to assess the effects of religiosity and other covariates on the probability of giving birth in a specific year. This approach allows considerable flexibility in handling time-varying covariates, such as marital duration and parity, and censored observations (Allison 2010: 236–240). Random effects were added to control for unobserved heterogeneity between women (Bell and Jones 2015). We used the lme4 package in R to estimate mixed logistic regression coefficients.

The dependent variable is the log odds of a woman giving birth in a specific calendar year. The unit of analysis is the 'woman-year'; that is, each woman contributes as many units to the analysis as the number for which she is observed. We have omitted the first birth interval, that is, years when parity was zero. Thus, the analysis is based on 830 women who contributed 11,757 person-years.

4. Results

A trained religious teacher in Israel explained that the belief Islam forbids contraception "is actually a very common misconception" (Kanaaneh 2002: 145). Evidence for this 'misconception' can also be found in Tamra: A third of the respondents think that Islam opposes family limitation.

The completed fertility of women who were born in the 1950s and adhered to all Five Pillars of Islam is 5.9 births compared with 5.0 births among less religious women. Part of the difference is the result of early marriage among religious women. The average age at first marriage among religious women is 18.3, while that among less religious women born in the 1950s is 20.1. However, differences remain after controlling for age at marriage, as shown by the TMFR of women aged 20–49 by level of religiosity. The largest difference in TMFR by level of religiosity is to be found among women who married after their 20th birthday (see Table 3).

Table 3: **Total marital fertility rate of Muslim women aged 20–49 by level of religiosity and age at first marriage (AFM) in Tamra, 1977–2006**

	Adherence to all Five Pillars of Islam	
Age at first marriage	Yes	No
AFM < 20	3.9	3.8
AFM ≥ 20	5.5	5.1
Total	4.6	4.5

Table 4 presents descriptive statistics of the variables included in the multivariate analysis. Note that these statistics are for women-years.

Table 4:   Descriptive statistics of variables in the multivariate analysis

Variable	Mean/Percent	SD
Birth	0.175	0.380
Parity in *t*–1	3.309	1.682
Marital duration	12.186	7.511
Age group (percentages)		
15–19	1.1	0.104
20–24	16.3	0.369
25–29	26.6	0.442
30–34	22.0	0.414
35–39	16.4	0.370
40–44	11.3	0.317
45–49	6.3	0.243
Adherence to Pillars of Islam	0.199	0.399
Woman's education in *t*–1:		
Enrollment	0.023	0.150
Years of education	9.722	3.301
Period (percentages)		
1977–1979	2.3	0.151
1980–1984	7.0	0.255
1985–1989	11.1	0.314
1990–1994	15.9	0.365
1995–1999	21.8	0.413
2000–2004	29.2	0.455
2005–2006	12.7	0.333
Number of women-years	11,757	
Number of women	830	

Table 5 presents logistic regression models of the probability of giving birth as a function of female religious practice. Coefficients are presented as odds ratios or exponents of the raw logistic coefficients. The odds ratios are multiplicative effects on the odds of marrying in any one-year interval. A coefficient of 1.00 represents no statistical effect, a coefficient greater than 1.00 represents a positive effect, and a coefficient less than 1.00 represents a negative effect on the odds.

The first model includes a variable indicating strict adherence to all Five Pillars of Islam at the time of the survey and demographic variables. The second model adds the

interaction between the religiosity variable and parity. The third model adds the educational variables, whereas the fourth model adds period dummy variables.

Table 5:   **Logistic regression models of the odds of giving birth in Tamra, 1977–2006**

Covariates:	Model 1		Model 2		Model 3		Model 4	
	e^b	*p*-value	e^b	*p*-value	e^b	*p*-value	e^b	*p*-value
Demographic variables								
Birth (*t*–1)	0.476	0.000	0.473	0.000	0.468	0.000	0.465	0.000
Parity in *t*–1	0.696	0.000	0.653	0.000	0.618	0.000	0.609	0.000
Marital duration	0.921	0.000	0.925	0.000	0.919	0.000	0.922	0.000
Age group								
15–19	1.064	0.754	1.052	0.798	0.916	0.658	0.820	0.322
20–24	1.000	–	1.000	–	1.000	–	1.000	–
25–29	0.822	0.007	0.828	0.010	0.882	0.089	0.920	0.262
30–34	0.946	0.571	0.949	0.596	1.029	0.776	1.130	0.230
35–39	0.817	0.156	0.813	0.152	0.888	0.406	1.046	0.758
40–44	0.318	0.000	0.309	0.000	0.337	0.000	0.425	0.000
45–49	0.095	0.000	0.089	0.000	0.096	0.000	0.130	0.001
Religiosity								
Adherence to Pillars of Islam	1.345	0.000	0.863	0.341	0.815	0.188	0.748	0.062
Interaction with parity in *t*–1			1.178	0.001	1.170	0.001	1.181	0.001
Woman's education in *t*–1:								
Enrollment					0.828	0.217	0.816	0.184
Years of education					0.919	0.000	0.946	0.000
Period								
1977–1979							1.885	0.000
1980–1984							1.725	0.000
1985–1989							1.274	0.046
1990–1994							1.530	0.000
1995–1999							1.085	0.441
2000–2004							1.011	0.911
2005–2006							1.000	–
Constant	1.843	0.000	2.069	0.000	5.795	0.000	3.425	0.000
SD random effect	0.357		0.383		0.365		0.348	

Religiosity has a very significant positive effect on the odds of giving birth. The first model shows that the odds of a religious woman giving birth are more than a third higher than the odds of other women. However, the first model assumes that the effect

of religiosity is independent of the number of children already born. A more realistic assumption is that the effect of religiosity is parity-dependent, the effect increasing with the number of children already born. Hence, the second model adds the interaction between religiosity and parity. Parity now has a slightly larger negative effect, because in the second model it reflects the effect of parity among less religious women only. The effect of parity among religious women with only one child is similar to that of other women, because the effect of religiosity (0.863) and its interaction with parity (1.178) almost cancel each other out ($0.863 \times 1.178 = 1.017$). At higher parities, however, religiosity modifies the effect of parity among religious women. Thus, among religious women the odds of giving birth decline more slowly with parity, suggesting that they are less likely to use parity-dependent fertility control.

A correlation between religiosity and marital fertility does not constitute sufficient evidence for a causal relationship. The most common approach is to control for social and economic characteristics that might influence religiosity as well as marital fertility. Hence, the third model adds the education variables. Enrollment of the woman does not have a significant effect, perhaps because very few married women are enrolled in school after marriage (see Table 4). Years of education, on the other hand, has a negative and significant effect on the odds of giving birth. Moreover, this variable attenuates the combined effect of religiosity and its interaction with parity. For example, if parity is two, then the combined effect is 1.116 ($= 0.815 \times 1.170^2$), instead of 1.198 ($= 0.863 \times 1.178^2$) in the second model. Thus, level of education explains part of the relationship between religiosity and marital fertility.

To control for the changing context of marital fertility, the fourth model adds six period dummy variables. The period dummies attenuate the combined effect of religiosity and its interaction with parity even further, but the effect remains significant. For example, if parity is three, then the combined effect is 1.232 ($= 0.748 \times 1.181^3$), instead of 1.305 ($= 0.815 \times 1.170^3$) in the third model.

5. Conclusion

Among Israeli Palestinian Muslims, religiosity has a positive effect on marital fertility, even after controlling for marital duration. Thus, the relationship is not simply the result of earlier marriage among religious women. Moreover, we show that the relationship is parity-dependent. Religious women tend to stop at later parities than other women.

Using ISS data linked to information on births from vital registration, Hleihel (2011) estimated the TFR of Muslims in Israel by level of religiosity. His results show that women who define themselves as religious or very religious tend to have higher fertility than those who define themselves as not so religious or not religious, at least in

the 1990s (Okun 2013: 467). Hleihel (2011), however, did not control for marital status. Our results show that differences remain after controlling for marital status.

Correlations do not constitute sufficient evidence for a causal relationship. A third variable might influence religiosity as well as marital fertility. Our results show that socioeconomic characteristics and period effects attenuate the effect of religiosity on marital fertility, but the effect remains significant.

But there are also caveats. Some argue that family formation may actually lead to greater religiosity (Hout and Greeley 1987: 331–332; Marcum 1988; Stolzenberg, Blair-Loy, and Waite 1995; Thornton, Axinn, and Hill 1992). Berghammer (2012) investigated the issue of reverse causality among Christians in the Netherlands. She has shown that the level of church attendance impacts future childbearing, but having a child does not lead to a change in church attendance. The meaning of religiosity among Muslims, however, may differ from that among European Christians (González 2011). Hence, it may not be possible to generalize Berghammer's results from Christians to Muslims.

Religiosity is a complex concept and difficult to define. Thus, the reliability of our measures of religiosity may be limited. However, differences in marital fertility by level of religiosity are more likely to increase than to decrease with a more reliable measure of religiosity.

Another drawback of our analysis concerns the data. We used a local fertility survey, which may not be representative of all Israeli Muslims, let alone of Sunni Muslims elsewhere.

Relatively few studies have been conducted on the relationship been religiosity and fertility among Muslims. One reason for this may be the paucity of data on religiosity in fertility surveys. Another reason may be that differences in fertility by level of religiosity were found to be small and, hence, unworthy of publication. Our results show that even if differences are not large, statistical models with proper controls for marital duration and parity may reveal differences in marital fertility by level of religiosity among Muslims. Whether differences by level of religiosity will increase or decrease, as the marital fertility decline draws to an end, remains to be seen.

References

Abu-Rayya, H.M., Abu-Rayya, M.H., and Khalil, M. (2009). The multi-religion identity measure: A new scale for use with diverse religions. *Journal of Muslim Mental Health* 4(2): 124–138. doi:10.1080/15564900903245683.

Adserà, A. (2006). Marital fertility and religion in Spain, 1985 and 1999. *Population Studies* 60(2): 205–221. doi:10.1080/00324720600684817.

Aksoy, O. and Billari, F.C. (2018). Political Islam, marriage, and fertility: evidence from a natural experiment. *American Journal of Sociology* 123(5): 1296–1340. doi:10.1086/696193.

Allison, P.D. (2010). *Survival analysis using the SAS® system: A practical guide*. Cary: SAS Institute.

Baudin, T. (2015). Religion and fertility: The French connection. *Demographic Research* 32(13): 397–420. doi:10.4054/DemRes.2015.32.13.

Bell, A. and Jones, K. (2015). Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data. *Political Science Research and Methods* 3(1): 133–153. doi:10.1017/psrm.2014.7.

Ben-Porath, Y. (1973). Economic analysis of fertility in Israel: Point and counterpoint. *Journal of Political Economy* 81: S202–S233. doi:10.1086/260162.

Berghammer, C. (2012). Church attendance and childbearing: Evidence from a Dutch panel study, 1987–2005. *Population Studies* 66(2): 197–212. doi:10.1080/0032 4728.2012.655304.

Brewster, K.L. and Rindfuss, R.R. (2000). Fertility and women's employment in industrialized nations. *Annual Review of Sociology* 26: 271–296. doi:10.1146/ annurev.soc.26.1.271.

Coale, A.J. and Trussell, T.J. (1974). Model fertility schedules: Variations in the age structure of childbearing in human populations. *Population Index* 40(2): 185–258. doi:10.2307/2733910.

El-Menouar, Y. (2014). The five dimensions of Muslim religiosity: Results of an empirical study. *Methods, Data, Analyses* 8(1): 53–78.

Goldscheider, C. (2015). *Israeli society in the 21st century: Immigration, inequality, and religious conflict*. Waltham: Brandeis University Press.

González, A.L. (2011). Measuring religiosity in a majority Muslim context: Gender, religious salience, and religious experience among Kuwaiti college students: A research note. *Journal for the Scientific Study of Religion* 50(2): 339–350. doi:10.1111/j.1468-5906.2011.01571.x.

Hayford, S.R. and Morgan, S.P. (2008). Religiosity and fertility in the United States: The role of fertility intentions. *Social Forces* 86(3): 1163–1188. doi:10.1353/sof.0.0000.

Hleihel, A. (2011). Fertility among Jewish and Muslim women in Israel, by level of religiosity, 1979–2009 [in Hebrew]. Jerusalem: Israel Central Bureau of Statistics (Working Paper Series No. 60). http://cbs.gov.il/www/publications/pw60.pdf.

Hout, M. and Greeley, A. (1987). The center doesn't hold: Church attendance in the United States, 1940–1984. *American Sociological Review* 52(3): 325–345. doi:10.2307/2095353.

Husain, F. (2000). Reproductive issues from the Islamic perspective. *Human Fertility* 3(2): 124–128. doi:10.1080/1464727002000198831.

Iyer, S. (2002). *Demography and religion in India*. New Delhi: Oxford University Press.

Kanaaneh, R.A. (2002). *Birthing the nation: Strategies of Palestinian women in Israel*. Berkeley: University of California Press.

Kaufmann, E. (2009). *Islam, religiosity and fertility in the Muslim world*. Paper presented at the ISA Annual Convention, New York, USA, February 15–18, 2009.

Khraim, H. (2010). Measuring religiosity in consumer research from Islamic perspective. *International Journal of Marketing Studies* 2(2): 166–179. doi:10.5539/ijms.v2n2p166.

Knodel, J., Gray, R.S., Sriwatcharin, P., and Peracca, S. (1999). Religion and reproduction: Muslims in Buddhist Thailand. *Population Studies* 53(2): 149–164. doi:10.1080/00324720308083.

Lavy, V. and Zablotsky, A. (2015). Women's schooling and fertility under low female labor force participation: Evidence from mobility restrictions in Israel. *Journal of Public Economics* 124(C): 105–121. doi:10.1016/j.jpubeco.2015.02.009.

Lipka, M. and Hackett, C. (2017). Why Muslims are the world's fastest growing religious group [electronic resource]. Washington, D.C.: Pew Research Center. http://www.pewresearch.org/fact-tank/2017/04/06/why-muslims-are-the-worlds-fastest-growing-religious-group.

Marcum, J.P. (1988). Religious affiliation, participation and fertility: A cautionary note. *Journal for the Scientific Study of Religion* 27(4): 621–629. doi:10.2307/1386953.

Mosher, W.D. and Hendershot, G. (1984). Religion and fertility: A replication. *Demography* 21(2): 185–191. doi:10.2307/2061038.

Nahmias, P. and Stecklov, G. (2007). The dynamics of fertility amongst Palestinians in Israel from 1980 to 2000. *European Journal of Population* 23(1): 71–99. doi:10.1007/s10680-006-9113-3.

Neuman, S. (2007). Is fertility indeed related to religiosity? A note on: 'Marital fertility and religion in Spain, 1985 and 1999', Population Studies 60(2): 205–221 by Alícia Adserà. *Population Studies* 61(2): 219–224. doi:10.1080/00324720701300354.

Neuman, S. and Ziderman, A. (1986). How does fertility relate to religiosity: Survey evidence from Israel. *Sociology and Social Research* 70(2): 178–180.

Obermeyer, C.M. (1992). Islam, women, and politics: The demography of Arab countries. *Population and Development Review* 18(1): 33–60. doi:10.2307/1971858.

Okun, B.S. (2013). Fertility and family behavior in Israel: Diversity, change and stability. *Demographic Research* 28(17): 457–504. doi:10.4054/DemRes.2013.28.17.

Okun, B.S. (2017). Religiosity and fertility: Jews in Israel. *European Journal of Population* 33(4): 475–507. doi:10.1007/s10680-016-9409-x.

Page, H.J. (1977). Patterns underlying fertility schedules: A decomposition by both age and marriage duration. *Population Studies* 31(1): 85–106. doi:10.1080/00324728.1977.10412749.

Philipov, D. and Berghammer, C. (2007). Religion and fertility ideals, intentions and behavior: A comparative study of European countries. *Vienna Yearbook of Population Research* 5: 271–305. doi:10.1553/populationyearbook2007s271.

Sachedina, Z. (1990). Islam, procreation and the law. *International Family Planning Perspectives* 16(3): 107–111. doi:10.2307/2133308.

Sander, W. (1992). Catholicism and the economics of fertility. *Population Studies* 46(3): 477–489. doi:10.1080/0032472031000146466.

Schellekens, J. and Eisenbach, Z. (2002). The predecline rise in Israeli Moslem fertility. *Economic Development and Cultural Change* 50(3): 541–555. doi:10.1086/342264.

State of Israel (2010). *Statistical abstract of Israel*. Jerusalem: Central Bureau of Statistics.

Stolzenberg, R.M., Blair-Loy, M., and Waite, L.J. (1995). Religious participation in early adulthood: Age and family life cycle effects on church membership. *American Sociological Review* 60(1): 84–103. doi:10.2307/2096347.

Thornton, A., Axinn, W.G., and Hill, D.H. (1992). Reciprocal effects of religiosity, cohabitation, and marriage. *American Journal of Sociology* 98(3): 628–651. doi:10.1086/230051.

Van Bavel, J. (2003). Does an effect of marriage duration on pre-transition fertility signal parity-dependent control? An empirical test in nineteenth-century Leuven, Belgium. *Population Studies* 57(1): 55–62. doi:10.1080/0032472032000061721.

Westoff, C.F. and Frejka, T. (2007). Religiousness and fertility among European Muslims. *Population and Development Review* 33(4): 785–809. doi:10.1111/j.1728-4457.2007.00197.x.

Zhang, L. (2008). Religious affiliation, religiosity, and male and female fertility. *Demographic Research* 18(8): 233–262. doi:10.4054/DemRes.2008.18.8.