The use of withdrawal among birth limiters in Iran and Turkey

By:

Amir Erfani

&

İlknur Yüksel-Kaptanoğlu

Dated: September 15, 2010

Correspondence:

Amir Erfani, PhD., Assistant Professor in the Department of Sociology, Nipissing University, 100 College Drive, Box 5002, North Bay, Ontario, Canada, P1B 8L7;
Tel.: (705)474-3450 ext. 4019
Fax: (705)474-1947
E-mail: amire@nipissingu.ca

Co-author:

İlknur Yüksel-Kaptanoğlu, PhD. , Instructor in the Institute of Population Studies (HUIPS), Hacettepe University, Main Campus D Block 06100 Sıhhiye Ankara,Turkey
Tel: (312) 305-1115 / ext. 128
Fax: (312) 311-81 41
E-mail: ilknury@hacettepe.edu.tr

To be presented in the Population Association of America (PAA), March31-April 2, 2010, Washington D.C.

The use of withdrawal among birth limiters in Iran and Turkey

Abstract

Despite a marked decline in fertility, a pronounced increase in contraceptive prevalence, and a wide expansion of family planning activities, a large proportion of birth limiters in Iran and Turkey rely on withdrawal to avoid pregnancy. Adopting a comparative approach, the study used data from the 2000 Iran Demographic and Health Survey (DHS) and the 2003 Turkey DHS to examine the determinants of withdrawal use among two representative samples of birth limiters. Multivariate logistic regression analyses were employed to estimate the likelihood of using withdrawal rather than modern contraceptives. Among other findings, higher education and economic status were strongly associated with the greater likelihood of using withdrawal rather than modern contraceptives among birth limiters in Iran, while an inverse association was found in Turkey. Moreover, women's age was positively associated with the likelihood of using withdrawal rather than modern methods, whereas number of living children was inversely related with the likelihood of using withdrawal. The results of this study have implications for Iran's and Turkey's family planning and reproductive health programs, particularly the need to work further towards encouraging the use of modern effective methods among groups that have high rates of withdrawal use.

Introduction

Withdrawal, as a main traditional method, is one of the most widely used temporary contraceptive methods in the world. Along with induced abortion, withdrawal has played an important role in the demographic transition of Western countries (Rogow and Horowitz, 1995; Goldberg and Toros, 1994; Santow, 1993, 1995) and Islamic societies (Myntti, 2002). It is also thought that withdrawal has played a similar fertility-inhibiting role in the recent fertility transition in the Islamic Republic of Iran (Aghajanian et al., 2007). Nonetheless, the high prevalence of withdrawal in certain Eastern European and Asian countries, including Iran, remains a concern for stakeholders in the field of public health, reproductive health, and population policy, as the high failure rates of withdrawal lead to a large number of unwanted pregnancies and induced abortions (Erfani, 2010b).

This concern is particularly important for countries such as Iran, where even though there is little unmet need for contraception (Abbasi-Shavazi et al., 2009), a large number of pregnancies remain unwanted, and annually about 73,000 clandestine, unsafe abortions occur outside the legal system, often carried out by unskilled practitioners or under unhygienic conditions (Erfani and McQuillan, 2008). Recent evidence shows that almost half of abortions and more than two-thirds of unwanted pregnancies in Iran occurred while women were using withdrawal (Erfani, 2010a; Erfani, 2009). Moreover, the desire to limit births is the most frequently reported reason for abortion among women in Asian countries, including Iran (Bankole et al., 1998; Erfani, 2010a).

Such facts suggest that the majority of unwanted (not mistimed) pregnancies and induced abortions occur among women who do not desire any more children and who use withdrawal. This study refers to these women as birth limiters. While most studies of contraceptive behavior focus on all married women, or ever-married women, such a focus often masks the dynamics of contraceptive use among birth limiters. In addition, looking at contraceptive behavior of women based on their fertility preferences allows an assessment of the need for contraception. Therefore, to better understand the contraceptive behavior of birth limiters and to study the net effect of the various factors influencing their contraceptive use, our analysis is limited to this sub-population.

The study compares the use of withdrawal among birth limiters in Iran with that of their counterparts in Turkey. There are three main reasons for choosing Turkey as a comparison to Iran. First, Turkey, as a neighbouring country to the northwest of Iran, is one of the Islamic countries in central Asia where withdrawal has been consistently used by more than a quarter of married women of reproductive age for a long time (Santow, 1993; Duben and Behar, 1996; Goldberg and Toros, 1994; Kulczycki, 2004). Second, the two neighbors have strong similarities in their demographic, socioeconomic, and cultural settings. Third, their abortion policies differ.

The legalization of induced abortion on socioeconomic grounds in 1983 in Turkey provided safe abortion on request during the first 10 weeks of gestation for every woman who needed the service. Induced abortion has been available to women at government hospitals for a nominal fee and from the private sector (HUIPS, 2003: 79). In contrast, induced abortion is still strictly prohibited and considered as an illegal act in Iran, despite some recent relaxation in the abortion law (Erfani and McQuillan, 2008). The differences in certain family planning indicators between

Iran and Turkey can be understood in the context of their differing abortion polices and the historical evolution of family planning programs in the two countries. Taking advantage of these similarities and difference, this study aims to examine factors that are associated with the likelihood of using withdrawal than modern contraceptive methods among birth limiters in Iran and Turkey. We hope that this study will provide further insights into the contraceptive behavior of birth limiters.

Research Settings

The socioeconomic and demographic indicators of Iran and Turkey are shown in Table 1. The countries have a similar profile, with a mainly Muslim population, high degree of urbanization, and identical female literacy rates. In each of the two countries, the total fertility rate (TFR) is almost at replacement level. Both countries have similarly low levels of unmet need for family planning (5% in Iran, 6% in Turkey), whereas rates of unwanted pregnancies and abortions are greater in Turkey than in Iran (Table 1).

Iran and Turkey also have similar overall contraceptive prevalence (74% in Iran, 71% in Turkey). However, use of withdrawal is far greater in Turkey, at 26% of currently married women, than in Iran, at 16%, while use of modern contraceptive methods is higher in Iran, at 57%, than in Turkey, at 43% (Table 2). Part of the reason for these differences in contraceptive method use and in rates of unwanted pregnancies and abortions can be attributed to the nature and evolution of family planning programs in Iran compared with Turkey.

--- Tables 1-2 about here ---

In Iran, before the enactment of the first official Population and Family Planning Program in 1967, some contraceptives, including the pill, foam, and jell, were delivered to women living in certain urban areas in clinics or obtained from pharmacies, since 1951 (MOHME, 2004: 72-74). After the 1979 Islamic Revolution in Iran, which brought with it a dramatic change in population policy (Aghajanian, 1995), the previous family planning program was terminated, and the new government enacted a strongly pro-natalist policy. The growth of religious fervour, promoted by the new government, encouraged early marriage and childbearing. The government also put in place policies designed to support larger families financially, which provided an incentive to childbearing. The late eighties and early nineties were a time of profound change in Iran. The end of the Iran-Iraq War, the success of government programs to further socioeconomic development, and, importantly, the nationwide family planning and health program implemented in 1989 all helped foster a sharp decline in fertility. The TFR plummeted from over 5 children per woman in 1989 to nearly 2 in 2000 (Table 1).

The new family planning program mainly focused on the rural and remote areas, where fertility and health-related unmet needs of women and children were exceptionally high, with an average TFR of 7, and contraceptive prevalence of 35%, in the early 1980s. A full choice of contraceptives was made freely available to all married women, including sterilization, IUDs, the pill, condoms, Norplant, and injections, through an extended network of rural health houses and urban health centers. This program has been recognized by internal and international observers as one of the most successful family planning programs in the world and particularly in the Middle-Eastern region (Erfani and McQuillan, 2009).

In Turkey, the initial policies related to population were formulated starting in 1923, when the government adopted a pro-natalist population policy to increase fertility, due to the war-induced mortalities. In 1930, contraceptive devices and abortions were illegal, and legal incentives were instituted to encourage larger families. Gürsoy has stated that these pro-natalist policies represented a continuation of the Ottoman Empire period and has pointed out that the importance of the modernization of Turkey has coincided with the decline in the influence of Islam in politics (Gürsoy, 1996).

The pro-natalist policy was replaced by an anti-natalist population policy after a series of debates surrounding high population growth rates, which led to increased numbers of illegal abortions and hence to high maternal mortality. The first Population Planning Law was ratified in 1965, which led to the implantation of the new family planning policy that provided services at state health institutions free of charge and that supported health education for couples. The second Population Planning Law, enacted in 1983, legalized abortions up to the tenth week of gestation, and also permitted voluntary sterilizations and insertion of IUDs (HUIPS, 2003: 9). Therefore, the differing abortion policy between the countries is one of the most contrasting features of their current family planning programs.

Conceptual Framework

The choice of contraception is a complex decision-making process that is influenced largely by women's contraceptive goals, competence and evaluation, and the availability of contraceptives (Bulatao, 1989). Even among women who do not desire any more children, the degree of flexibility of this goal is important in choosing an appropriate contraceptive method. Couples

who consider it imperative to terminate childbearing should feel more pressure to choose the most effective contraceptive method than those who would like to avoid further births but would not be seriously inconvenienced by another child (Retherford et al., 1988). Previous research has shown that a woman in her later reproductive years who had a child before reaching age 20, and who had more children in quick succession, with at least one son, is more likely to accept a more effective modern method than a less effective modern method or a traditional method, such as withdrawal (e.g., Mannan, 2002; Magadi and Curtis, 2003; Dahal et al., 2008; Burgard, 2004; Sadat-Hashemi et al., 2007). This may be because she may feel more pressure to avoid further births than younger cohorts who started childbearing after age 20.

In choosing a specific method, knowledge of how to use the method correctly is crucial to effective use. Some methods, whose effectiveness relies largely on the user's skills and experience, require more information, understanding, care, and spousal cooperation than others. The effective use of withdrawal, for instance, requires spousal cooperation and strong attention and care of husbands. If education means better information, it could be assumed that more educated women have greater contraceptive competence than illiterate or less educated women. Additionally, wealthier women are also assumed to have better knowledge about contraceptives, as they are more likely to be better educated than those with lower economic status.

Therefore, it can be expected that more educated and wealthier women are more likely to choose withdrawal than other women. One reason for this assumption may be that educated women with higher schooling and economic status are possibly more aware of the side effects of female and

hormonal contraception. The other reason may be that they possibly have greater spousal cooperation and understanding necessary to use withdrawal.

The method type that limiters adopt also depends on their evaluation of the method in terms of its side effects, convenience of use, and the user's moral preferences. Assuming education as a proxy for better information about side effects, it is expected that more educated women prefer to use withdrawal than hormonal methods (Bulatao, 1989). Some studies have suggested that concerns about medical safety and convenience lead to rhythm use (Laing, 1984). Moreover, regional differentials in choosing a contraceptive method within a multicultural society, such as Iran and Turkey, may reflect differences in religious or ethno-cultural evaluations, and possibly differences in contraceptive access and achieved fertility desires.

Data and Methods

The data for this study come from Demographic and Health Surveys (DHS) conducted in 2000 in Iran and in 2003 in Turkey. The details of sampling design and methods used in both surveys, have been described elsewhere (Erfani and MacQuillan, 2008; Erfani and McQuillan, 2009; HUIPS, 2003). Two sub-samples were drawn from the surveys, which include 3,086 and 2,209 birth limiters in Iran and Turkey, respectively. These sub-samples were derived from cross-tabulation of three survey questions, on marital status, current contraceptive use, and fertility preferences of women. A currently married woman who used contraception and said "don't want any more children" was identified as a *birth limiter*. However, in multivariate analyses a narrower definition of birth limiters was applied, referring to currently married women who use contraceptive methods that are commonly used by birth limiters in both countries. Besides, in the

2003 TDHS all sterilized women were considered as "birth limiters," so their fertility intentions were not asked in the survey. In our study, to be consistent, sterilized women in Iran were treated as birth limiters and therefore were included in the analyses.

Table 2 to 4 show how the two sub-samples of birth limiters were generated from samples of all married women in the two countries. Sampling weights were applied to both sub-samples to obtain representative estimates for the sub-populations. Moreover, multivariate analyses have been adjusted for the survey sampling design (two-stage stratified cluster sampling), using svy syntax in Stata software.

Contraceptive method use among birth limiters was described and explained by using bivariate and multivariate analyses. Particularly, binary logistic regression models were applied to study the net effect of factors influencing the likelihood of using withdrawal rather than modern methods. The dependent variable was current contraceptive methods used by limiters in both countries. Table 3 shows a full mix of contraceptive methods used by limiters in Iran and Turkey. To have a comparable dependent variable, however, the methods not used by birth limiters in both countries were excluded from the analyses (Table 4). The excluded methods were male sterilization, Norplant, lactational amenorrhea, diaphragm, and the category of 'others' which are unknown. After the exclusions, and based on the objectives of this study, the outcome variable was classified into two categories: modern methods and withdrawal (Figure 1 and Table 4). The category of modern methods included female sterilization, IUD, the pill, injections, and condoms.

Based on the conceptual framework, nine socioeconomic and demographic independent variables were included in the analyses. These independent variables are illustrated in Table 5. The available data did not give opportunity directly to measure flexibility in women's contraceptive goals. Therefore, a set of demographic variables, such as number of living children, number of living son(s), women's age, and age at first birth was used to measure flexibility in goals indirectly. It was assumed that women in their later reproductive years, with a large number of living children and including at least one son, have less flexibility in their desire to avoid further pregnancies.

The wealth index is a composite measure constructed of a group of dummy indictors regarding the quality and type of housing in which women live. The rationale behind constructing the wealth index for the 2003 TDHS has been described in detail elsewhere (Rutstein and Johnson, 2004). A wealth index for Iran was constructed by principle component analysis of six dummy indicators in the survey, as to whether or not a woman's house had safe pipe water, a sanitary toilet, a sanitary bathroom, a sanitary and standard garbage disposal, a standard heating system, and a telephone. The quality of housing has been proven to be an appropriate proxy for an individual's economic status, as the quality of housing principally hinges on the household's level of income (Filmer and Pritchett, 1999 and 2001; Ferguson et al., 2002). In the case of Iran, birth limiters with different scores on the wealth index were grouped into three equal categories of poor, middle, and rich. Similarly, the wealth index for Turkey was also constructed by principal component analysis of household assets, such as TV, refrigerator, and washing machine. The three categories of poor, middle, and rich were derived from collapsing the wealth quintiles (poorest with poorer, and richer with richest).

Moreover, region has been categorized into five categories in both countries: West, South, Central, North, and East, which reflect geographical, climatic, cultural, social, and economic characteristics of different parts of the countries. This regional breakdown has been frequently used in the TDHS for sampling and analysis purposes. The East region in both countries is the least developed, while the West region in Turkey and the Central region in Iran are the most developed regions (HUIPS, 2003). In Iran, the five regions were developed based on geographical locations of Iran's provinces.

Findings

Descriptive Analysis

Table 3 shows the distribution of currently married women using a contraceptive method according to their fertility intention, in Iran and Turkey. Birth limiters in both countries use a wide range of modern and traditional contraceptives. The range of modern methods used by Iranian limiters is, however, slightly wider than the range among limiters in Turkey. In particular, birth limiters in Turkey do not use male sterilization and Norplant. In contrast, limiters in Iran do not use diaphragms and lactational amenorrhea, which are used by a small portion of birth limiters in Turkey.

The results in Table 3 reveal two salient differences in contraceptive method use of limiters in Iran and Turkey. First, more than one-third of limiters in Turkey (35%) rely on traditional methods, mainly withdrawal, whereas only one-fifth of Iranian limiters (17%) use traditional methods. Second, about half of birth limiters in Iran (47%) choose either female or male

sterilization, while female sterilization is the only permanent method used by less than one-fifth of limiters in Turkey (18%). However, birth limiters in Turkey mostly use the IUD, whereas this method is more prevalent among birth spacers in Iran (Table 3). Moreover, 28% of limiters in Iran use a short-term modern method—the pill, condoms, or injections—which are used by only 18% of limiters in Turkey. Among these short-term methods, use of condoms, a less effective short-term modern method, among limiters in Turkey is two times greater than that among Iranian limiters. In contrast, use of the pill, a more effective short-term method, is over three times more prevalent among limiters in Iran than among limiters in Turkey. To summarize, birth limiters in Turkey largely use traditional, non-permanent, and less effective modern methods (i.e., condoms), whereas Iranian limiters largely use permanent or more effective modern methods (i.e., the pill).

Table 4 summarizes the results in Table 3, after excluding the methods and categories that are not matching among limiters in both countries. Multivariate analyses are based on this abridged response variable, representing two groups of methods: modern methods and withdrawal. Figure 1, based on data from Table 4, illustrates the percent distribution of birth limiters in Iran and Turkey by type of contraceptive method used. Withdrawal is the most frequently used method by limiters in Turkey, at 33%, whereas it is the third most important method, after female sterilization and the pill, used by limiters in Iran (22%).

---- Tables 3-4 and Figure 1about here ---

Table 5 shows socioeconomic and demographic differentials in withdrawal use among birth limiters in Iran and Turkey. The results show similar patterns of withdrawal use in the two countries, across categories of employment, age at first birth, region, and number of living sons.

That is, proportions of withdrawal users in both countries are higher among birth limiters who are unemployed, have no son, live in the northern region, and who had their first birth after age 19 (P value < 0.05). In contrast, the patterns of relationships between withdrawal use and other socioeconomic and demographic variables are quite different in the two countries. In Iran, birth limiters who have more than secondary education, live in urban rather than rural areas, belong to average or rich households, and have fewer living children are more likely to use withdrawal.

--- Table 5 about here ----

Multivariate Analysis

Table 6 presents the results of multivariate binary logistic analyses, representing associations between selected covariates and the likelihood of using withdrawal rather than modern methods, among birth limiters in Iran and in Turkey. Place of residence, region, and women's occupation had no significant association with withdrawal use in Turkey, whereas urban limiters in Iran were 37% more likely to use withdrawal rather than modern methods. The likelihood of using withdrawal, instead of modern methods, was lower among Iranian limiters with no schooling or primary education than among those with more than 11 years of schooling. In contrast, birth limiters in Turkey with no schooling or primary or incomplete secondary education were more likely to use withdrawal than modern methods, compared with highly educated limiters. Furthermore, Iranian women living in poor households were less likely than those in rich households to rely on withdrawal than modern methods, while an opposite relation was true among birth limiters in Turkey. Birth limiters in the North region of Iran were more likely to use withdrawal than modern methods, compared with limiters in the Eastern region. Even though levels of withdrawal use were high in the North region of Turkey, the regional differences were not significant in the multivariate model.

--- Table 6 about here ---

Among demographic factors, women's age and number of living children had the greatest effect on the probability of using withdrawal. Contrary to the bivariate results, older limiters, age 40-49, in Iran and Turkey were more likely to use withdrawal than modern methods, compared with younger women. Moreover, in Iran, relative to women whose first birth was at age 20 or older, women who began childbearing before reaching age 20 were more likely to use withdrawal than modern methods. Compared with birth limiters who had more than four living children, those with less than four children were significantly more likely to use withdrawal than modern methods, in both countries. The results on the gender of children were not statistically significant for Iran and Turkey, but in both countries limiters without a son were more likely to use withdrawal than modern methods. These results appear to confirm previous analyses (Bulatao, 1989) that found that son preference had a strong influence on contraceptive choice, even among women who expressed a desire to have no more children.

Discussion and Conclusions

As a traditional and less effective contraceptive method, withdrawal has high failure rates, which annually lead to half of induced abortions that take place in developing countries, including Iran and Turkey (Erfani, 2010a; HUIPS, 2003: 83; Bankole, 1998). To better understand the factors associated with the prevalence of withdrawal use, this study compared the contraceptive behavior of birth limiters in Iran and Turkey, two socioeconomically and demographically similar countries in which withdrawal is used widely, but with different abortion policies and family planning experiences.

The findings of this study indicated that use of withdrawal is much greater among birth limiters in Turkey than in Iran. Since withdrawal failures were found to be the key cause of unwanted pregnancies (Bankole, 1998; HUIPS, 2003; Erfani, 2010a), a higher rate of unwanted pregnancies should be expected in Turkey than in Iran. However, as shown earlier in this paper, rates of unwanted pregnancies in Turkey and Iran are nearly similar (20% vs. 16%). This anomalous finding may be due to the fact that a large number of unwanted pregnancies that take place annually in Turkey are possibly terminated by voluntary legal and safe abortions. The most recent statistics, for instance, show that, out of about 2 million pregnancies that occurred in one year in Turkey, about one-fourth were unwanted and terminated by voluntary abortions (Kavlak et al., 2006). Moreover, 11.3% of pregnancies ended in abortions in Turkey in 2003 (HUIPS, 2003:82), suggesting that in Turkey safe abortions are used as a fertility regulation method and back-up, mainly for birth limiting rather than spacing purposes (HUIPS, 2003: 79). As an alternative, therefore, safe abortions in Turkey may compensate for the many contraceptive failures associated with a high rate of withdrawal use.

It has also been documented that a large number of unwanted pregnancies that have not been reported by Iranian women are terminated by unsafe, clandestine abortions (Erfani, 2010b). However, the only indirect national estimate of the number of abortions for Iran indicates that annually about 73,000 induced abortions are performed in the country (Erfani and McQuillan, 2008). This number is clearly much smaller than the figure for Turkey, mentioned above. One implication of these results may be that, because of the illegal abortion policy and a slightly (3%) greater contraceptive prevalence rate in Iran, Iranian birth limiters may have less flexibility in avoiding further births, and hence the number of reported and unreported unwanted pregnancies are expected to be lower in Iran than in Turkey.

The decision to use withdrawal over modern methods is influenced by several factors. This study identified women's age and education, household's welfare status, and number of living children as highly related to withdrawal use in Iran and Turkey. Multivariate results showed that age has an important association with withdrawal use, with users over age 40 being more likely to have used withdrawal than modern methods. This relationship reflects the fact that, as a couple's fertility preferences and extent of exposure to the risk of pregnancy change, the probability that they will be inclined to use withdrawal as a method will also change. Therefore, one possible explanation for the greater reliance on withdrawal among older birth limiters may be that they possibly have infrequent sex and lower fecundity rates (Mackey, 2001).

The findings of this study also showed that, in Iran, birth limiters who are more educated and living in rich households are more likely to rely on withdrawal than modern methods, while in

Turkey the likelihood of using withdrawal is higher among less educated and poor limiters. Awareness and fear about the side effects of modern methods, especially the pill, among wealthier and more educated limiters in Iran and their greater spousal cooperation are among the reasons that they prefer to use withdrawal rather than modern methods (Erfani, 2010b; Rahnama et al. 2010). In contrast, as other observers (Kulczycki, 2004) also have pointed out, the husband's insistence on withdrawal use (a male imposition) among less educated women in Turkey living in the households from lower economic status, where women live with less egalitarian-minded husbands, may be part of the reason for reliance on withdrawal instead of modern methods. This is also consistent with other evidence suggesting gender discrimination in Turkey, in which the husband is dominant in the couple's fertility preference and choice of contraceptive methods (Mason and Smith, 2000).

The results on women's education level suggest that a rise in women's schooling in Turkey can reduce the likelihood of withdrawal use. This is consistent with other findings indicating that women's education in Turkey is one of the cornerstones of women's empowerment (Cindoğlu et al., 2008; Akın et al., 2006). This result may also be related to a common culture prevalent among more educated and wealthier women in Turkey, in which everything labelled "modern" rather than "traditional" is favored. Therefore, more educated and wealthier women may be reluctant to use withdrawal, since it is known as a "traditional" contraceptive method (Yüksel et al., 2010). The rationales behind this common culture need to be explored in an independent qualitative research.

Gender preference of children appears to play a role in contraceptive choice among birth limiters, though the result was not statistically significant. In both countries, limiters with no son were more likely to use withdrawal than limiters with at least one male child. This finding suggests that families having only female children may be more willing to use withdrawal and risk contraceptive failure because they would not mind having a son. This is also confirmed by other studies indicating the role of sex of couple's living children in their contraceptive method choice (Koc, 2000).

The study found that the number of living children is inversely and strongly associated with the likelihood of using withdrawal. The increasing likelihood of using a modern method rather than withdrawal among women who have more than four children in Iran and Turkey may result from the preference of couples at higher parities to stop childbearing.

Despite the great strides taken by the nationwide family planning programs in Iran and Turkey to provide couples across the countries with a range of methods to meet their diverse contraceptive needs, withdrawal remains among the most used contraceptive methods. Clearly, the widespread availability of abortion in Turkey is a factor that supports the continued use of withdrawal (Ergocmen et al., 2001). To reduce abortions, policymakers need to increase public awareness about modern effective contraceptive methods that can help couples to make an informed decision about their contraceptive needs. In Iran, in the face of the illegal abortion law, subgroups of women identified by this study need to become aware about the use of emergency contraceptive pills in the event of withdrawal failures. Recent evidence indicates that a majority of women in Iran are unaware of emergency contraceptives (Erfani, 2009; Delaram, 2007). Both

countries need to work further towards encouraging the use of modern effective methods, by improving counselling before, during, and after marriage, and diversifying family planning education in the regions and among subgroups that have high prevalence of withdrawal use.

This study faced two important limitations. First, the impact of spousal, power, and gender relationships between husband and wife on the use of withdrawal could not be measured by this study due to the lack of common data in the surveys. Second, all the information regarding contraceptive use was obtained from women. Therefore, the characteristics of men as related to withdrawal use have not been analyzed.

References

Abbasi-Shavazi, M., McDonald, P., & Hosseini-Chavoshi, M. (2009). *The Fertility Transition in Iran: Revolution and Reproduction*. New York: Springer.

Aghajanian, A., Mehryar, A.H., Delavar, B. Kazemipour, S., & Eini-Zinab, H. (2007). Continuing use of withdrawal as a contraceptive method in Iran, *Canadian Studies in Population*, 34 (2): 179-190.

Aghajanian, A. (1995). A new direction in population policy and family planning in the Islamic Republic of Iran, *Asia-Pacific Population Journal*, 10 (1): 3-20.

Akın, L., Özaydın, N., Aslan, D. (2006). Türkiye'de Evli Erkeklerin Aile Planlaması Yöntemlerini Kullanmalarını Etkileyen Faktörler, *Gülhane Tıp Dergisi*, 48: 63-69. [in Turkish]

Bankole, A., Singh, S., & Haas, T. (1998). Reasons why women have induced abortions: Evidence from 27 countries, *International Family Planning Perspectives*, 24(3): 117-127 & 152.

Bulatao, R. A. (1989). Toward a framework for understanding contraceptive method choice, in: Bulatao R., Palmore J., and Ward S., eds., *Choosing a Contraceptive: Method Choice in Asia and the United States*, Boulder, CO: Westview Press, 1989, pp. 277–304.

Burgard, S. (2004). Factors associated with contraceptive use in late- and post-apartheid South Africa, *Studies in Family Planning*, 35(2): 91–104.

Cindoğlu, D., Sirkeci, İ., Sirkeci, F. (2008). Determinants of choosing withdrawal over modern contraceptive methods in Turkey, *European Journal of Contraception and Reproductive Health Care*, 13(4): 412-421.

Dahal, G. P., Padmadas, SS., & Hinde, PRA. (2008). Fertility-limiting behaviour and contraceptive choice among men in Nepal, *International Family Planning Perspectives*, 34 (1): 6–14.

Delaram, M. 2007. Knowledge, attitude, and practice of emergency contraceptive methods among women in the city of Shahrekurd in Iran in 2006, *Journal of Medical University of Shahrekurd* , 9(2): 49-56 [in Persian].

Duben, A., Behar, C. (1996). *İstanbul Haneleri: Evlilik, Aile ve Doğurganlk 1880-1940*. İletişim Yayınları, İstanbul. [in Turkish]

Erfani, A. (2010a). The incidence of induced abortion in Tehran, Iran: current levels and correlates, presented in the European Population Conference, September 3, 2010, Vienna, Austria: session on *Sexual and reproductive health: abortion*. Available at: http://epc2010.princeton.edu/download.aspx?submissionId=100455

Erfani, A. (2010b). *Tehran Survey of Fertility, 2009*. Population Studies and Research Centre in Asia and Pacific, Ministry of Science, Research, and Technology: Tehran, Iran.

Erfani, A. (2009). Factors that determine contraceptive behaviour and knowledge of birth stoppers in Iran: implications for unwanted pregnancies and unsafe abortion, presented at the 2009 annual meeting of the Canadian Population Society (CPS), Carleton University, Ottawa 27-29 May 2009: Session on *Fertility in High Fertility Countries*.

Erfani, A., & McQuillan, K. (2009). Rapid fertility decline and the changing timing of births in Iran, presented at the annual meetings of Population Association of America (PAA), 30 May 2009, Detroit: Michigan, Session P-1: Poster Session 1. Available at: http://paa2009.princeton.edu/download.aspx?submissionId=90759

Erfani, A., & McQuillan, K. (2008). Rates of induced abortion in Iran: The roles of contraceptive use and religiosity, *Studies in Family Planning*, 39(2): 111–122.

Ergocmen-Akadli, B., Koç, I., Kurtulus Yigit, E., Senlet, P., and Roman, E. (2001). *An analytical insight into a traditional method: withdrawal use in Turkey*. Ankara, Turkey: Hecettepe University Institute of Population Studies and ORC Macro.

Ferguson, B., Tandon, A., Gakidou, E., & Murray, CJL. (2002). *Estimating permanent income using indicator variables*. Evidence and Information for Policy Cluster: World Health Organization, Geneva, Switzerland.

Filmer, D., & Pritchett, LH. (2001). Estimating wealth effects without expenditure data -- or tears: An application to educational enrollments in states of India, *Demography*, 38(1): 115-132.

Filmer, D., & Pritchett, LH. (1999). The effects of household wealth on educational attainment: Evidence from 35 countries, *Population and Development Review*, 25(1): 85-120.

Goldberg, HI., & Toros, A. (1994). The use of traditional methods of contraception among Turkish couples, *Studies in Family Planning,* 25(2):122-128.

Gürsoy, A. (1996). Abortion in Turkey: A matter of state, family or individual decision, *Social Science and Medicine*, 42 (4): 531-542.

Hacettepe University Institute of Population Studies (HUIPS). (2003). *Turkey Demographic and Health Survey, 2003.* Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, State Planning Organization and European Union. Ankara, Turkey.

Kavlak, O., Unsal Atan, S., Saruhan, A., & Sevil, U. (2006). Preventing and terminating unwanted pregnancies in Turkey, *Journal of Nursing Scholarship*, 38:1, 6-10.

Koc, I. (2000). Determinants of contraceptive use and method choice in Turkey, *Journal of Biosocial Science*, 32: 329–342.

Kulczycki, A. (2004). The determinants of withdrawal use in Turkey: A husband's imposition or a woman's choice? *Social Science & Medicine*, 59: 1019–1033.

Laing, JE. (1984). Natural family planning in the Philippines, *Studies in Family Planning*, 15(2): 49-61.

Mackey, J. (2001). Global sex: sexuality and sexual practices around the world, *Sexual and Relationship Therapy*, 16 (1): 71-82.

Magadi, MA., & Curtis, S.L. (2003). Trends and determinants of contraceptive method choice in Kenya, *Studies in Family Planning*, 34(3): 149-159.

Mannan, HR. (2002). Factors in contraceptive method choice in Bangladesh: goals, competence, evaluation and access, *Contraception*, 65 (5): 357–364.

Mason, KO., Smith, H. (2000). Husbands' versus wives' fertility goals and use of contraception: The influence of gender context in five Asian countries, *Demography*, 37(3): 299-311.

Ministry of Health and Medical Education of Iran (MOHME). (2004). *Population and family planning in the Islamic Republic of Iran*. MOHME and UNFPA: Tehran, Iran. [in Persian]

Myntti ,C., Ballan, A., Dewachi, O., El-Kak, F., & Deeb, ME. (2002). Challenging the stereotypes: Men, withdrawal, and reproductive health in Lebanon, *Contraception*, 65:165-170.

Population Reference Bureau (PRB). (2009). *The 2009 World Population Data Sheet*. Washington: Population Reference Bureau.

Rahnama, P.,Hidarnia, A., Amin Shokravi, F., Kazemnejad, A., Deborah, O. & Montazeri, A. (2010). Why Iranian married women use withdrawal instead of oral contraceptives? A qualitative study from Iran , *BMC Public Health* , 10:289

Retherford, RD., Tuladhar, J., & Thapa, S. (1988). Strength of fertility motivation and contraceptive use in Nepal, *Asian and Pacific Population Forum*, 2(1-2): 5ff.

Rogow. D., Horowitz. S. (1995). Withdrawal: A review of the literature and an agenda for research, *Studies in Family Planning*, 26(3): 140-153.

Rutstein, SO. , & Johnson, K. (2004). The DHS wealth index. DHS Comparative Reports No. 6. Calverton, Maryland: ORC Macro.

Sadat-Hashemi, SM., Ghorbani, R., Askari Majdabadi , H., & Khalajabadi Farahani, F. (2007). Factors associated with contraceptive use in Tehran, Iran, *European Journal of Contraception and Reproduction Health Care*, 12(2): 148-153.

Santow, G. (1995). Coitus interruptus and the control of natural fertility, *Population Studies*, 49: 19-43.

Santow, G. (1993). Coitus interruptus in the twentieth century, *Population and Development Review*, 19: 767-792.

Yüksel, İ., Yıldız, D., Eryurt , MA., İrez, M. (2010). Erkeklerin Kullandığı Gebeliği Önleyici Yöntemler: Geri Çekme ve Kondom kullanımının belirleyicileri (Male Contraceptives: Determinants of withdrawal and condom use), Türkiye Nüfus ve Sağlık Araştırması 2008 İleri Analiz Çalışması, Türkiye'de Doğurganlık , Üreme Sağlığı ve Yaşlılık, Ankara, Turkiye. [In Turkish]

Table 1. Socioeconomic and demographic profile of Iran and Turkey		
	Iran	**Turkey**
Family planning indicators		
Contraceptive prevalence rate (%)[f]	74.0	71.0
Unmet need for family planning (%)[b, d]	5.0	6.0
Percent of pregnancies reported as unwanted[*, a,b]	15.9	19.6
Total abortion rate (per woman)[g, b]	0.26	0.40
Percent of birth limiters [f]	65.3	79.5
Demographic indicators		
Population size in 2009 (millions) [e]	73.2	74.8
Total fertility rate (1988) [b, d]	5.5	3.02
Total fertility rate (2009) [e]	2.0	2.1
Life expectancy at birth for both sexes (years) [e]	71	72
Socioeconomic indicators		
Women's literacy rate (%)[c, a]	74.0	78.2
Urbanization (%)[e]	67	63
Religion (% Muslim population)[c,h]	99.6	98.0
GNI PPP per capita (US$) [e]	10,840	13,770

Note: [*] Based on the reports of all pregnant women at the time of the interview, excluding missing cases.
Source: [a] IDHS-2000; [b] TDHS-2003; [c] HUIPS (2003); [d] Abbasi-Shavazi et al. (2009); [e] Population Reference Bureau (2009); [f] Table 2; [g] Erfani & McQuillan (2008); [h] MOHME (2004).

Table 2. Percent distribution of currently married women by contraceptive method currently used, Iran and Turkey		
Contraceptive Method	**Iran**	**Turkey**
Any method	**74.2**	**71.0**
Any modern method	**57.4**	**42.5**
Female sterilization	19.8	5.7
Male sterilization	2.9	0.1
IUD	7.9	20.2
Pill	18.4	4.7
Male condom	5.4	10.8
Injections	2.5	0.4
Other modern methods [a]	0.5	0.6
Any traditional method	**16.8**	**28.5**
Withdrawal	16.3	26.4
Periodic abstinence	0.4	1.1
Other traditional methods [b]	0.1	1.0
Not currently using	**25.8**	**29.0**
TOTAL (number of women)	100.0 (11633)	100.0 (7672)

Note: [a] It includes Norplant in Iran, and Diaphragm in Turkey; [b] It includes lactational amenorrhea and Folk. All figures in the above table are weighted.
Source: Analysis of data from the 2000 IDHS; 2003 TDHS

Table 3. Percentage distribution of currently married women[‡] age 15-49 currently using a contraceptive by fertility intention, Iran and Turkey

Contraceptive Method	Iran 2000				Turkey 2003			
	Birth spacers	Birth limiters	Total		Birth spacers	Birth limiters	Total	
			%	N			%	N
Modern Methods								
Female sterilization	0.0	41.1	26.9	2305	0.0	18.3	14.5	436
Male sterilization	0.0	6.0	4.0	339	0.0	0.0	0.0	0.0
IUD	16.9	7.2	10.6	908	23.0	28.0	27.0	813
Norplant	1.0	0.7	0.8	66	0.0	0.0	0.0	0.0
Pill	33.2	20.1	24.7	2116	8.1	6.0	6.4	194
Condom	11.4	5.1	7.3	625	20.0	11.7	13.3	402
Injections	4.3	2.8	3.3	287	0.1	0.5	0.5	14
Diaphragm	0.0	0.0	0.0	0.0	1.1	0.8	0.9	27
Traditional methods								
Withdrawal	32.2	16.7	22.0	1888	44.1	32.2	34.7	1043
Period abstinence	0.9	0.2	0.5	39	1.8	1.3	1.4	41
Lactational amenorrhea	0.0	0.0	0.0	0	1.6	0.7	0.9	26
Others	0.1	0.1	0.1	5	0.2	0.5	0.5	14
TOTAL	**100.0**	**100.0**	**100.0**		**100.0**	**100.0**	**100.0**	
TOTAL ROW %	**34.7**	**65.3**	**100.0**		**20.5**	**79.5**	**100.0**	
Total women	**2975**	**5605**		**8580**	**617**	**2392**		**3010**

Note: [‡]A sub-sample of married women was interviewed for fertility intention in the 2003 TDHS. Women (52 cases) who either did not report their fertility intention or were infecund in Iran, and 12 cases who reported they were infecund in Turkey, were excluded from the analysis.
Source: 2000 IDHS; 2003 TDHS

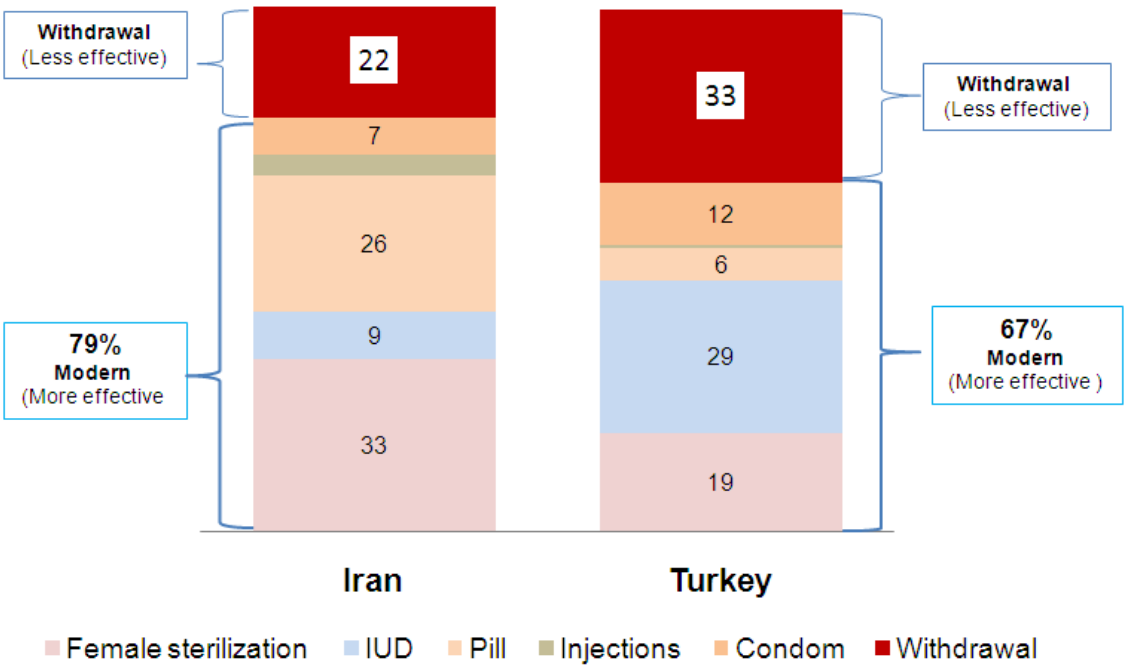
Table 4. Percent and frequency distribution of birth limiters by current contraceptive method in Turkey and Iran

Type of Method	Iran			Turkey		
	N		weighted Percent	N		weighted Percent
	unweighted	weighted		unweighted	weighted	
Modern methods	**2533**	**3398**	**78.5**	**1451**	**1543**	**66.7**
Female sterilization	1050	1421	32.8	440	436	18.8
IUD	259	405	9.4	607	671	29
Pill	863	1128	26	140	144	6.2
Injections	163	159	3.7	15	13	0.6
Condom	198	285	6.6	249	279	12.1
Withdrawal	**553**	**931**	**21.5**	**758**	**771**	**33.3**
TOTAL	**3086**	**4329**	**100**	**2209**	**2314**	**100**

Notes: To have a comparable dependent variable, the methods which have not been used by birth limiters in *both* countries were excluded from the analyses; they include male sterilization, Norplant, lactational menorrhea, diaphragm, and 'others' which are unknown. Since the focus of study is on withdrawal, as the main traditional method, periodic abstinence, with only 11 cases in Iran and 32 cases in Turkey, was also excluded from the analyses.

Source: based on Table 3.

Figure 1. Withdrawal and common modern contraceptives used by birth limiters in Iran-2000 & Turkey-2003



Source: Table 4

Table 5. Percent distribution of birth limiters by current contraceptive method and according to selected socioeconomic and demographic covariates, Iran-2000 and Turkey-2003

Covariates	Iran				Turkey			
	Modern Methods	Withdrawal	TOTAL		Modern Methods	Withdrawal	TOTAL	
			%	N			%	N
Residence								
Urban	73.9	26.1	100.0	2840	35.3	40.5	100.0	1404
Rural	87.2	12.8	100.0	1490	34.7	46.3	100.0	501
Employment status								
Unemployed	77.2	22.8	100.0	3438	34.9	42.8	100.0	1398
Employed	83.4	16.6	100.0	893	35.9	39.8	100.0	510
Years of schooling								
None	88.0	12.0	100.0	1453	29.1	52.5	100.0	265
1-5 years	80.2	19.8	100.0	1439	37.0	43.0	100.0	1177
6-11 years	68.5	31.5	100.0	787	33.2	36.4	100.0	382
12+ years	65.7	34.3	100.0	650	36.1	19.3	100.0	83
Wealth Index								
Poor	90.7	9.3	100.0	897	36.8	47.4	100.0	576
Middle	78.5	21.5	100.0	1295	36.0	44.4	100.0	372
Rich	73.3	26.7	100.0	2138	33.9	37.8	100.0	958
Region								
West	79.3	20.7	100.0	1515	34.3	41.8	100.0	819
South	84.0	16.0	100.0	326	34.6	41.2	100.0	228
Center	76.7	23.3	100.0	1254	41.6	37.1	100.0	510
North	71.6	28.4	100.0	591	21.5	61.5	100.0	130
East	83.5	16.5	100.0	644	31.2	42.7	100.0	220
Age								
< 30	78.0	22.0	100.0	591	36.9	38.2	100.0	398
30-39	79.2	20.8	100.0	1913	39.1	37.4	100.0	883
40-49	77.9	22.1	100.0	1827	28.6	51.0	100.0	626
Age at first birth								
< 20	80.1	19.9	100.0	2409	37.8	41.5	100.0	793
20+	76.5	23.5	100.0	1923	33.3	42.4	100.0	1112
Number of living children								
1-2	64.0	35.4	100.0	865	34.6	38.3	100.0	1000
3-4	76.7	23.3	100.0	1070	36.2	45.8	100.0	723
5+	86.5	13.5	100.0	984	34.4	47.0	100.0	183
Number of living son								
None	64.9	35.1	100.0	316	26.9	43.3	100.0	268
1 +	79.6	20.4	100.0	4014	36.5	39.0	100.0	846
AL	**78.5**	**21.5**	**100.0**	**4329**	**66.7**	**33.3**	**100.0**	**2314**

Notes: All figures are weighted. The Total numbers of cases for each covariate may be slightly different from the grand totals because of rounding of the weighted cell counts. Chi-square tests for all covariates are significant at 5% significant levels, expect for Age in Iran, and Employment, Age at first birth, Number of living children, and Number of living son for Turkey, which were not statistically significant at 5% significant level.

Table 6. Odds ratios and 95% confidence intervals for logistic regression models predicting withdrawal use over modern contraceptive methods among birth limiters in Iran-2000 and Turkey-2003

Covariates	Iran		Turkey	
	Odds Ratio	**95% CI**	**Odds Ratio**	**95% CI**
Residence (ref. Rural)				
Urban	1.37**	1.09 -1.73	0.91	0.73-1.13
Employment status (ref. Employed)				
Unemployed	1.52	1.23- 1.89	1.07	0.86-1.32
Years of schooling (ref. 12+ yrs)				
None	0.47***	0.35-0.64	5.11***	2.59-10.09
1-5 years	0.69**	0.54-0.89	4.02***	2.14-7.54
6-11 years	1.02	0.79-1.30	3.00***	1.56-5.63
Wealth Index (ref. Rich)				
Poor	0.73+	0.53-1.02	1.28*	1.02-1.62
Middle	1.13	0.93-1.37	1.12	0.88-1.42
Region (ref. East)				
West	1.02	0.79-1.31	0.92	0.67-1.26
South	0.86	0.59-1.25	0.85	0.58-1.23
Center	1.21	0.93-1.57	0.80	0.57-1.12
North	1.79***	1.33-2.40	1.34	0.89-2.02
Age (ref. 40-49)				
< 30	0.33***	0.24-0.45	0.79+	0.61-1.03
30-39	0.53***	0.44-0.64	0.68***	0.55-0.83
Age at first birth (ref. 20+)				
< 20	1.31**	1.10-1.56	0.92	0.77-1.12
Number of living children (ref. 5+)				
1-2	3.75***	2.80-5.01	1.58**	1.12-2.24
3-4	1.84***	1.48-2.30	1.40*	1.02-1.93
Number of living son (ref. 1+)				
None	1.22	0.93-1.59	1.25	0.96-1.62
Sample Size (weighted N)	**4329**		**2314**	

Notes: All figures are based on weighted data. (ref.) = reference category. + < 0.10, *p≤0.05, **p≤0.01, ***p≤0.001.