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contraceptive prevalence country, Iran: Correlates and
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Abstract

Since its establishment in 1989, the FP program of Iran has taken great strides in raising contraceptive prevalence rate and reducing fertility. National surveys conducted since 2000 indicate a mean contraceptive prevalence rate of 74⁺ and a TFR of about 2.1 for the country as a whole. Traditional urban-rural gap in contraceptive prevalence rates has also been all but eliminated. The main reason for the success of the program would seem to rest in the easy availability of a wide mix of modern contraceptives offered by a community level delivery system integrating FP with other elements of maternal and child health and reproductive health services. Despite the explicit promotion and ready availability of modern methods, however, almost one-fifth of all couples continue to rely on the traditional method of withdrawal.

This paper reviews the latest data on the extent of use of withdrawal by Iranian couples and identifies major social and demographic characteristics of women relying on this method. It is shown that women using this traditional method are more likely to be urban, come from the better-developed provinces, and have higher levels of education. With regard to correlates or consequences of withdrawal use, it is found that provinces with higher rates of withdrawal use have in fact lower fertility rates and the contribution of withdrawal use to unintended pregnancies is not markedly different from that of such other commonly used modern methods as pill or condom.

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Continuing use of a traditional method (withdrawal) in a high contraceptive prevalence country, Iran: correlates and consequences

1. Introduction

Withdrawal or coitus interruptus is one of the oldest methods of contraception which would seem to have been known and used by couples in almost all societies throughout the recorded history of mankind (Himes, 1936). It has a well recorded history in Islamic world where discussions of the use of this method (referred to as *azl*) can be traced back to the time of prophet Mohammad (; Mehryar, 2005; Musallam, 1983; Omran, 1992; <http://www.nikahsearch.com>). In addition to repeated references to its wide use by Islamic jurists and physicians writing in Arabic (Himes, 1936; Musallam, 1983), philosophical and medical texts written by Iranian physicians in Persian bear witness to the widespread practice of the method in this part of the Islamic world (Elgood, 1949). In fact, Al-Ghazali's famous book in Persian *Alchemy of Happiness Kimyaye Saadat* includes one of the most detailed and best argued discussions on contraception in general and coitus interruptus ("*azl*") in particular written by classic Islamic thinkers on the subject (Mehryar, 2005). A story told by the great Iranian sufi poet Jalal-uddin Mowlavi Rumi (1207-1273 AD) provides further evidence regarding the widespread use of this method by ordinary people. Rumi's story is also important for indicating that girls were deliberately taught this method by their parents (in this case the father) who were not happy with their marriage and thus did not want them to become pregnant.

Until mid-1950s when population and family planning became matters of national concern and public discourse in Iran, the method would seem to have been practiced widely by Iranian couples. Until late 1960s there was no national family planning program in Iran and the government was tacitly following a pronatalist policy. In fact, in 1962 Iranian government was among the governments that voted against the UN resolution proposing birth control as a responsibility of national governments. A few years later, however, the Shah was persuaded to change his stand and a national family planning program was established (1967). By 1978 when the Islamic revolution succeeded, the program had managed to cover just over a third (37%) of eligible couples, most of them living in urban areas (Aghajanian & Gross, & Lewis, 1993; Nortman, D, & Hofstatter, E. 1976; 1979; 1980). Surveys carried out in early 1970s (e.g., Gillespie, 1972) showed that almost one-third of contracepting couples were relying on withdrawal.

During the first decade after the revolution (1979-1988) the family planning program was suspended and government propaganda and policy stressed early marriage and reproduction as basic Islamic values. Nevertheless, the Ministry of Health continued to offer such classic contraceptives as pill, IUD, and condom through its MCH clinics. Motivated couples were also able to obtain contraceptives from the private health sector. Condoms were in fact easily available through drugstores or even major supermarkets. These services were however far from sufficient to meet the needs of all couples. Thus coitus interruptus must have played a major role during this period.

2. Aim of Study

The aim of this paper is to review available data on the use of withdrawal in Iran, to document the share of this method of all contraceptives used by Iranian couples, to describe socio-demographic characteristics of women using this method, to estimate role of withdrawal in fertility decline in Iran, and to compare rate of unintended pregnancies experienced by women using this method with those of women using contraceptive pill and other methods.

3. Sources of Data

The paper is partly based on surveys conducted between 1976 and 2002. The bulk of data used is, however, taken from the DHS-type survey (DHSI2000) conducted by the Ministry of Health and Medical Education (MOHME) and Statistical Center of Iran (SCI) in October 2000. Data collected since 2000 is mainly taken from the first phase of the three-round panel survey on the "Socio-economic Characteristics of Iranian Households" conducted by the SCI in 2001 and 2002. Thus the main source of data presented here is a carefully designed, large-scale nationwide survey conducted jointly by the Ministry of Health and Medical Education and the Statistical Center of Iran. The survey covered a sample of 114,000 households with a total population of 450,000 and interviewed over 90,000 currently married women aged 15-49 years. It was designed to provide data on both urban and rural population of all 28 provinces of Iran plus the metropolitan area of Tehran. Using sampling frames and maps prepared by the SCI for the 1996 census and following a cluster sampling strategy, a random sample of 2000 urban and 2000 rural households was taken in each province. Tehran Metropolitan Area (TMA), which is officially part of Tehran province, was represented by an independently selected sample of 2000 households.

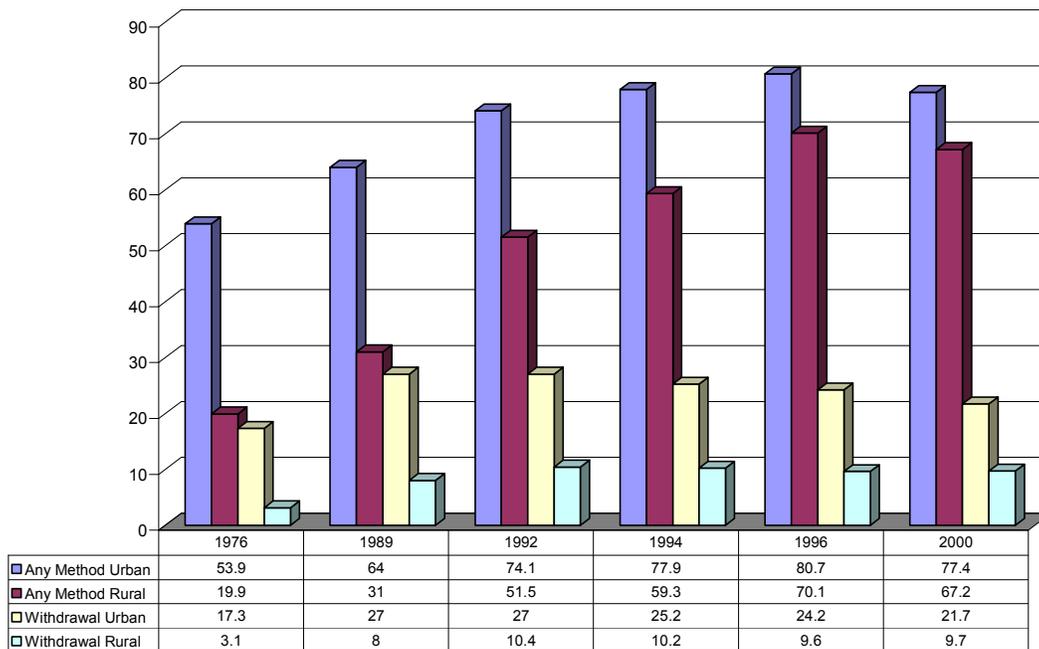
The instrument of data collection was a detailed questionnaire adapted from the standard questionnaire used in the Demographic and Health Surveys carried out in such Islamic countries as Egypt and Indonesia. Because of this basic similarity to the DHS surveys, the results of the study are often referred to as the DHS Iran (Mehryar, 2003; MOHME, 2003). The instrument consists of two main parts. Part I dealing with household characteristics and socio-demographic information on all household members is filled by interviewing the head or another adult member of the household. The second part deals with various aspects of maternal, child and reproductive health and is filled by interviewing all currently married women aged 10-49 years in the household. Interviews were conducted by health workers with previous experience of community work supervised by well experienced professional staff of the SCI. The design and implementation of the survey were supervised by a technical committee including academic demographers and senior staff from the SCI and the Population and Family Health Division of the MOHME. The study was funded jointly by the UNFPA and UNICEF offices in Iran.

4.0 Findings

4.1 Historical Trend of Contraceptive Use and Prevalence of Withdrawal, 1976-2000

According to the Iran Fertility Survey, by 1976, that is a decade after the establishment of the pre-revolutionary family planning program (1967) only about a third of the eligible married couples were using any contraceptive. The rate was much higher (54%) in urban areas than the rural (20%) which at that time accounted for over half of the population of Iran. Close to one-fifth (17.3%) of urban but only three percent of rural couples reported using withdrawal as their may means of protection. Nevertheless, almost one-third (32%) of urban and 15.5% of rural couples using any method were relying on withdrawal (Figures 1 & 2).

Figure 1. Changes in the Proportion of Married Couples Using Any Contraceptive and Withdrawal, by Urban-Rural Residence 1976-2000.

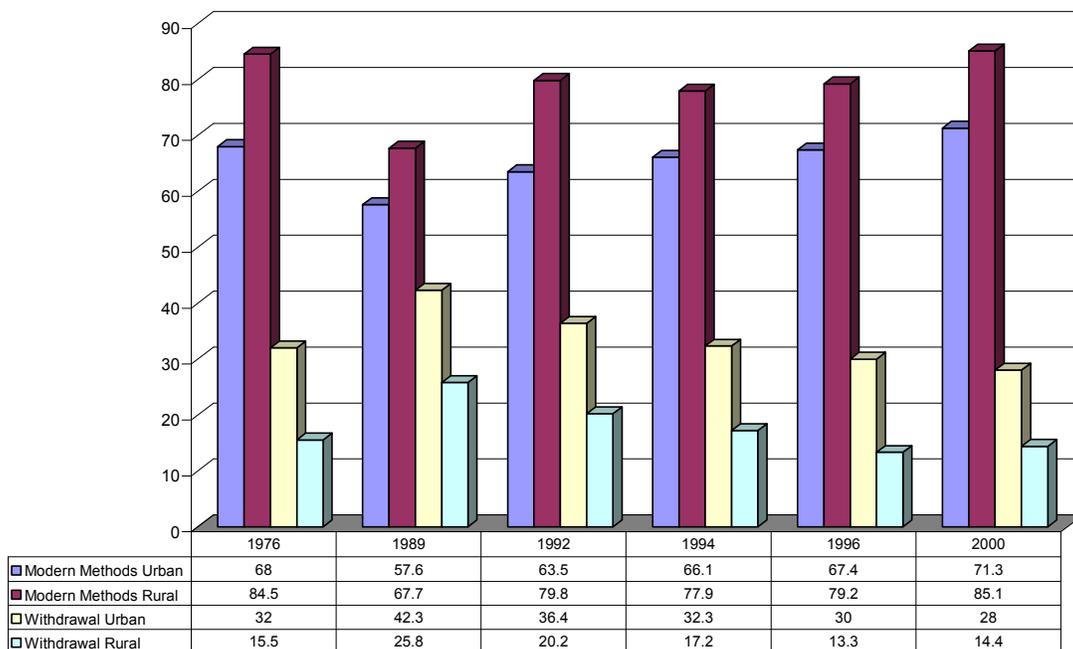


The first national survey on contraceptive prevalence conducted by the MOHME in 1989, that is shortly before the revival of the family planning program, revealed a surprisingly high rate of contraceptive prevalence. Despite a decade of no official family planning program, almost two-thirds (64%) of urban and one-third (31%) of rural couples interviewed reported using contraceptives. The survey also revealed a significant rise in the proportion of couples relying on withdrawal in both urban (from 17.3% to 27%) and rural areas (from 3.1% to 8%). In other words, over two-fifths (42.3%) of urban and a quarter (25.8%) of rural couples using any method were relying on withdrawal. These figures might be taken as an indication of the high demand for family planning and the important role played by withdrawal during the period when other methods were not readily available.

Thanks to the high demand for family planning, the revived program was received with unexpected public enthusiasm and in less than three years, by 1992, three quarters of urban and half of rural couples interviewed reported using a contraceptive. The

proportion of rural women using withdrawal had gone up to 10.4% while that of the urban couples had stayed constant at 27%. Thus, more than one-third (36.4%) of urban and one-fifth (20.2%) of rural couples were still depending on withdrawal. The relatively large-scale KAP survey carried out in 1994 indicated that 77.9% of urban and 59.3% of rural women were using a contraceptive, with a slight decline in proportion of couples using withdrawal (from 27.0% and 10.4% to 25.2% and 10.2% in urban and rural areas, respectively). The KAP survey conducted in 1996 revealed even higher contraceptive prevalence rates in both urban (80.7%) and rural areas (70.1%), with only a slight decline in the proportion of couples using withdrawal (24.2% and 9.6% in urban and rural areas).

Figure 2. Share (%) of Modern Methods and Withdrawal of All Users by Urban-Rural Status, 1976-2000.

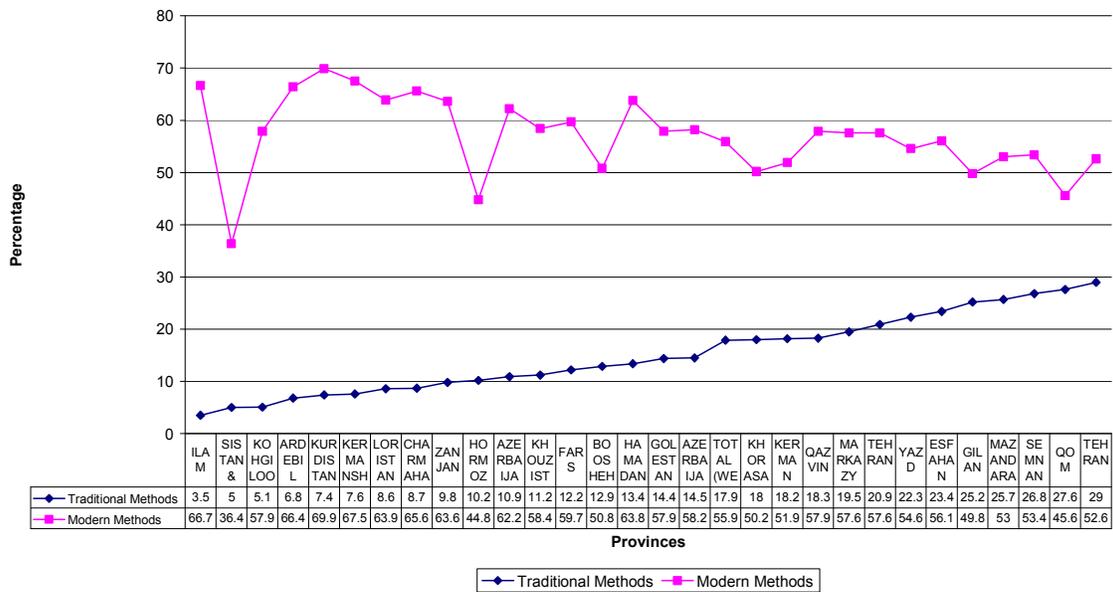


The DHS-type survey carried out in October 2000 has provided a sound basis for evaluating achievements of Iranian family planning program during the first decade of its existence. According to this survey, at the threshold of the 21st century, almost three quarters of married women aged 10-49 (77.4% in urban and 67.2% in rural areas) were using contraceptives. Although the majority of couples were using modern methods promoted and provided by the national family planning program, a sizeable minority (17.9% of all, 21.7% of urban and 9.7% of rural couples) were still relying on the traditional method of withdrawal not endorsed or encouraged by the national program. By this time, users of withdrawal accounted for 24.2% (28.7% of urban and 14.9% of rural) of women using any contraceptive. The relatively small-scale (N=6,960 households) but nationally representative survey conducted by the SCI in 2001 revealed an overall CPR of 76.5%, 11.42% of eligible couples (and 14.9% of those using any contraceptives) relying on withdrawal.

4.2 Regional Variations in Prevalence of Withdrawal

A major achievement of the revived family planning program of Iran is that it has raised contraceptive prevalence across all areas of Iran. This is clearly reflected in Figure 3 which demonstrates the prevalence rates of modern and traditional methods across all provinces. As indicated in Figure 3, the proportion of modern method users in different provinces varies within the rather narrow range of 55-70%. Only in one province (Sistan-Baluchestan) it falls below 40% and in two other provinces (Hormozgan and Qum) below 50%. Proportion of couples relying on the traditional method of withdrawal vary more widely, from 3.5% (in Ilam province) to 29% in Tehran Metropolitan Area. It is less than 10% in nine provinces but rises above 20% in seven other provinces and Tehran Metropolitan Area. In terms of the proportionate share of contracepting couples, women relying on withdrawal account for 5.3% (in Ilam province) to 38.8% (in Gilan province)

Figure 3. Proportion of Women Using Modern and Traditional Methods of Contraception by Province, DHS Iran 2000



4.3 Urban-Rural Differences

Urban couples as a group are twice as likely (21.7%) as the rural (9.7%) to rely on withdrawal (Figure 4). This difference is observable across all 28 provinces. In urban areas, the proportion of couples relying on withdrawal varies from 4.8% (in Ilam) to 31.7% (in Semnan), 13 of the 29 provinces falling above 20% and only 4 provinces under 10%. In rural areas, the proportion of couples relying on withdrawal varies from 1.1% (in Sistan-Baluchestan) to 20.8% (in Mazandaran). It is below 5% in 9 provinces and below 10% in another 8 provinces. In only three provinces (Mazandaran, Qum and Gilan) around 20% of rural couples rely on withdrawal and in only two other provinces (Semnan

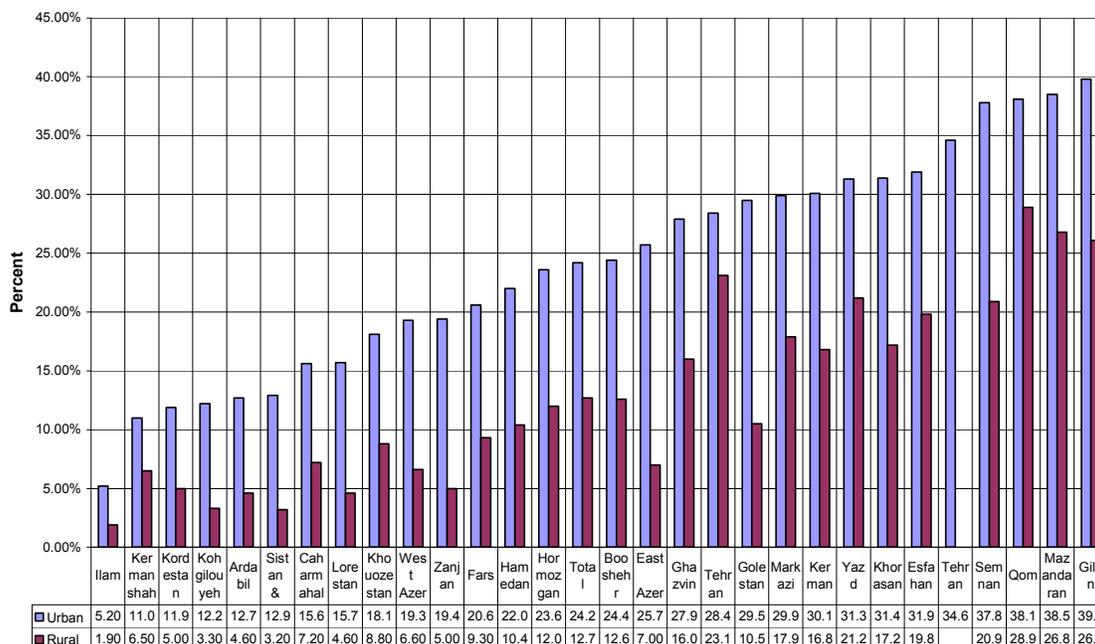
and Esfahan) the rate exceeds 15%. Thus, in urban areas of 14 provinces (and rural areas of only three provinces), couples relying on withdrawal account for over 25% of all users.

Despite these differences, there is an extremely high positive correlation ($r = 0.90$) between the proportion of couples relying on withdrawal in urban and rural areas of different provinces. Corresponding correlation between proportion of modern method users in urban and rural areas of different provinces ($r = 0.64$) is much weaker. Provinces with the highest withdrawal use rates (Tehran MPA, Qum, Semnan, Mazandaran, Gilan, Esfahan, Yazd, Tehran, Qazvin, Markazi and Kerman) are among the most developed provinces of Iran. In contrast, provinces with the lowest withdrawal use rates (Ilam, Sistan-Baluchestan, Kohgiluyeh, Ardebil, Kurdistan, Kermanshah, Loristan, Chaharmahal and Zanjan) are among the least developed. A common characteristic of the latter group is their close association with certain well known ethnic-tribal groups. The association between withdrawal use and development is clearly indicated by significant correlations between withdrawal use rates and such indicators of provincial level of development as the Human Development Index ($r = 0.62$), Female Literacy Rate ($r = 0.60$), Infant Mortality Rate ($r = -0.70$), Life Expectancy at Birth ($r = 0.73$) and proportion of women with higher education ($r = 0.60$).

Figure 4. Proportion of Couples Relying on Withdrawal by Province and Urban-Rural Status, Iran, 2000.



Figure 4b. Share (%) of Withdrawal of All Contraceptive Users in Iran by Province and Urban-Rural Status (DHSI-2000).



4.4 Characteristics of Couples Using Withdrawal

4.4.1 Age

As indicated in Figure 5, the proportion of couples relying on withdrawal has a negative and slightly curvilinear relationship with age of women in both urban and rural areas. In both urban and rural areas, the highest rates belong to women aged 10-14 and 15-19 while women aged 35-39 and 40-44 have the lowest rates of withdrawal use. Aside from the very small group of women aged 10-14, urban women have considerably higher rates of withdrawal use than the rural. While in rural areas only young women under 20 have withdrawal use rates exceeding 20%, over 20% of urban women have reported withdrawal use in all age groups.

4.3.2 Duration of Marriage.

A quite similar pattern is observed with regard to duration of marriage. While one-third of urban and one-fifth of rural women married for less than 5 years have reported using withdrawal, the proportion of women relying on withdrawal falls below 20% and 10% of urban and rural women who have been married for 30+ years. Urban women have higher rates of withdrawal use at all levels of duration of marriage.

Figure 5. Prevalence of Withdrawal by Age and Area of Residence; DHSI-2000

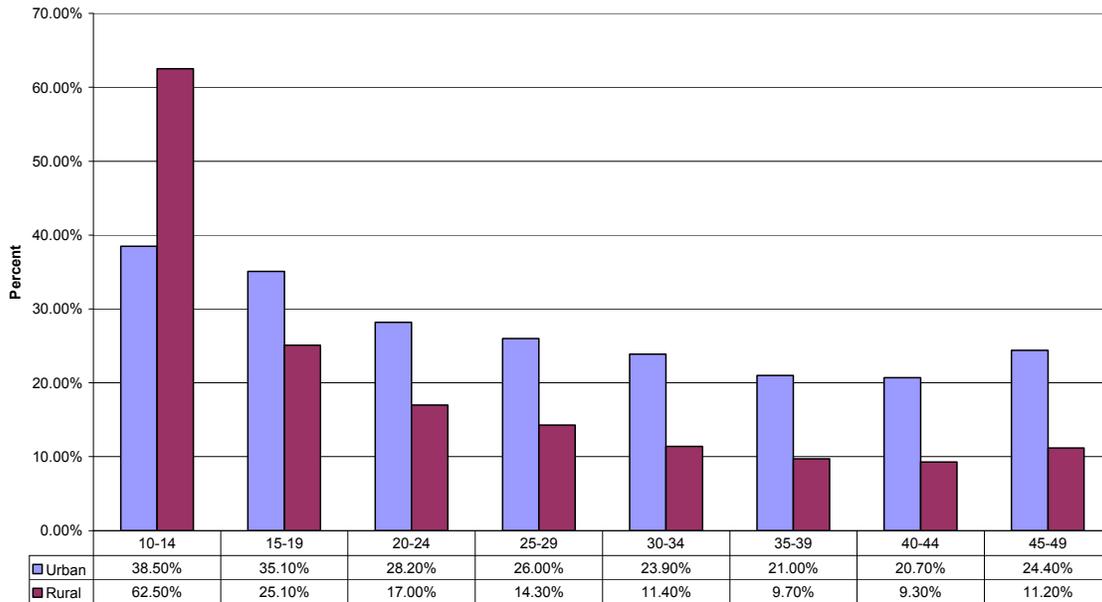
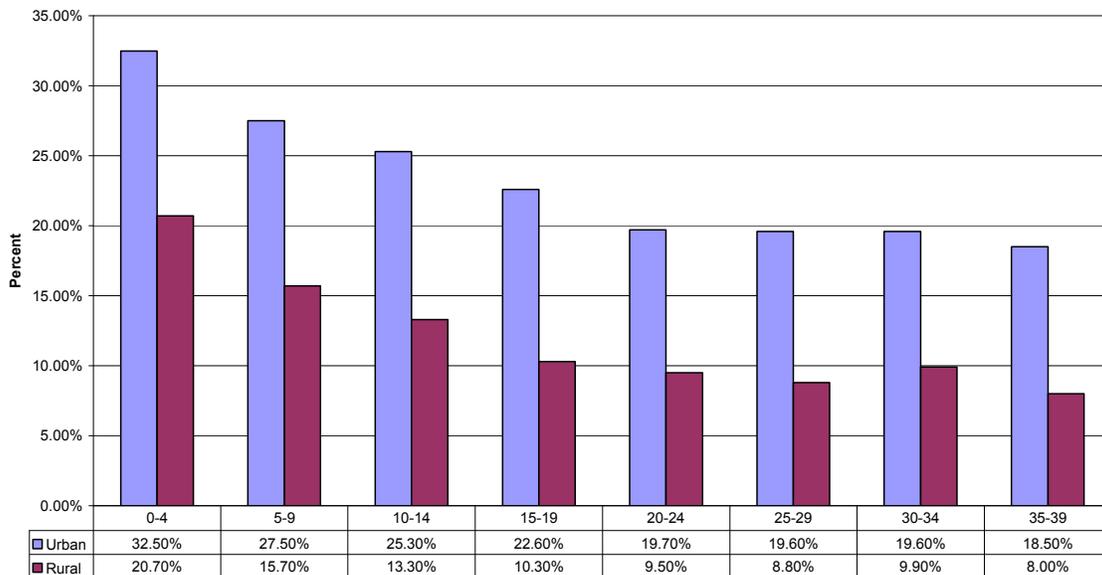


Figure 6. Prevalence of Withdrawal by Duration of Marriage and Area of Residence; DHSI-2000

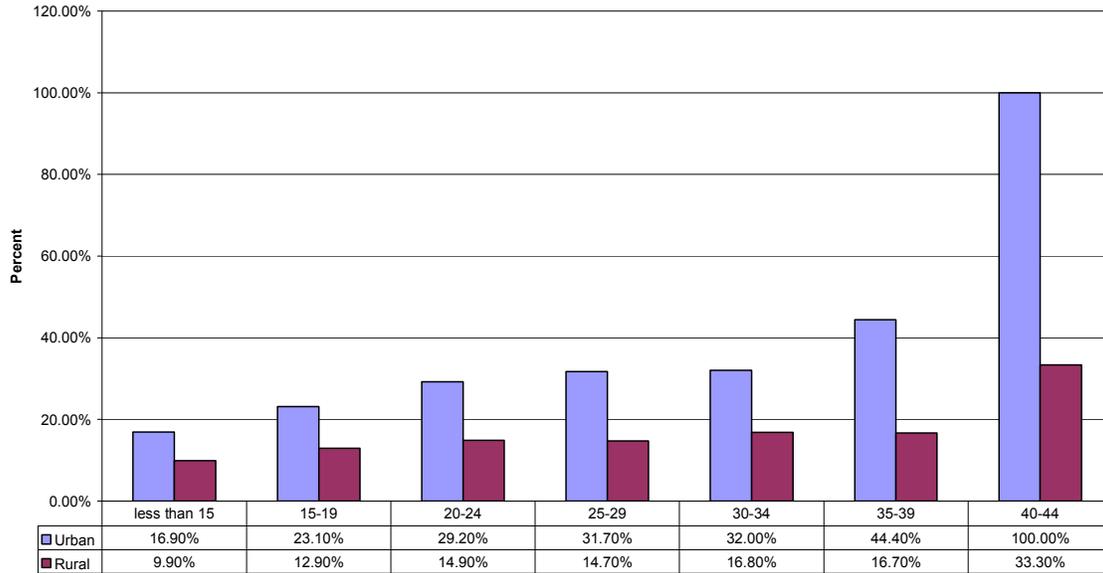


4.3.3 Age at Marriage of Wife

The reverse of the above trend is seen in the case of age of marriage of wife (Figure 7). The proportion of couples using withdrawal is much lower among women married before

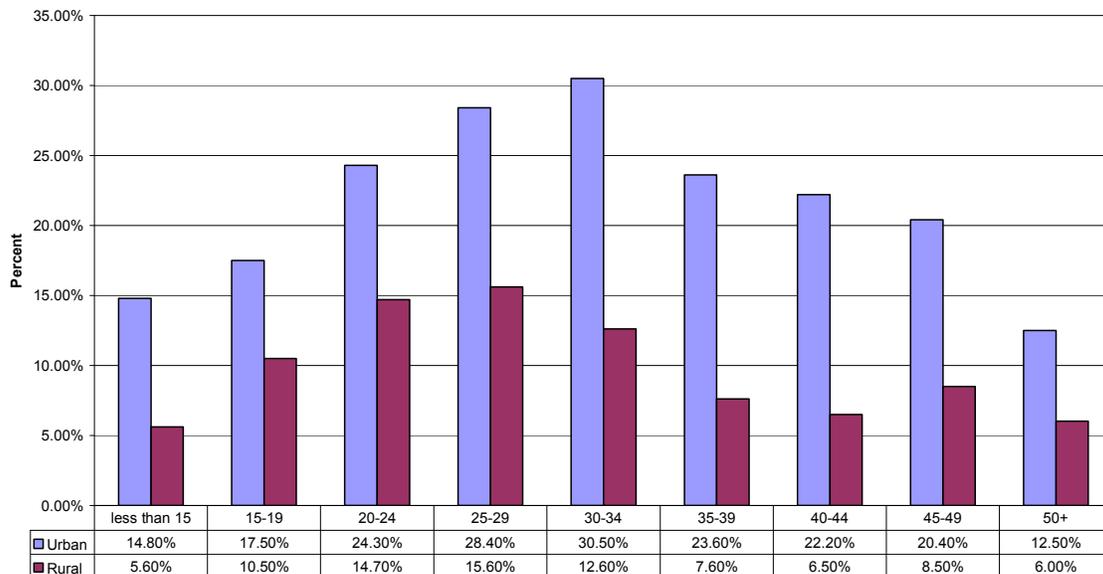
age 15 in both urban and rural areas. It rises steadily among women married at later ages and attains its highest value among those married after age 34 in both urban and rural areas. Almost all of urban and over one-third of rural women married at the exceptionally late age of 40-44 report relying on withdrawal for family planning.

Figure 7. Prevalence of Withdrawal by Age at Marriage and Area of Residence; DHSI-2000



4.3.4 Age at Marriage of Husband

Figure 8. Prevalence of Withdrawal by Husband's Age at Marriage and Area of Residence; DHSI-2000

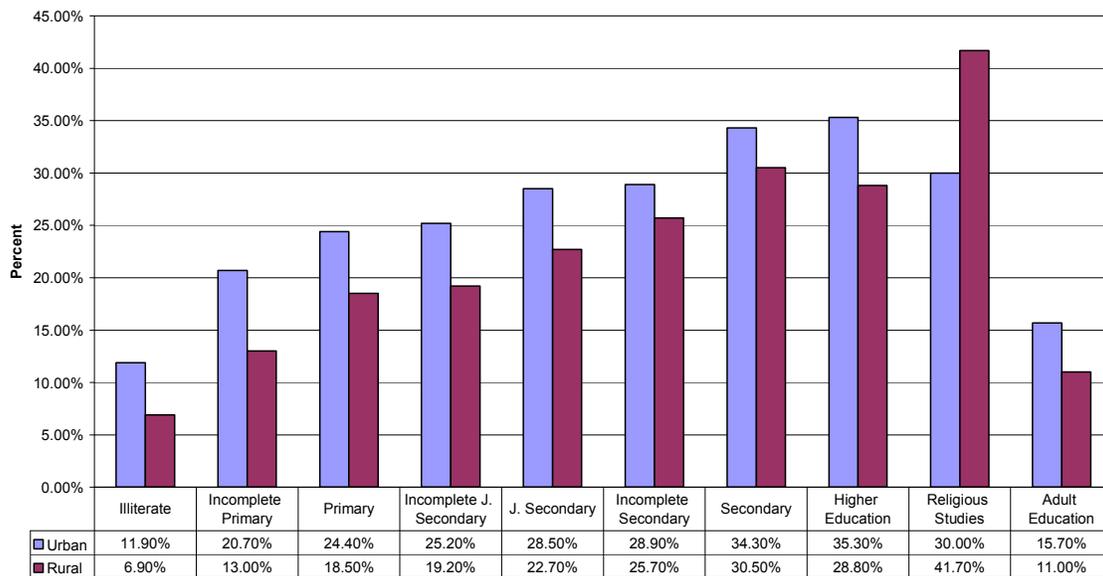


A surprisingly curvilinear relationship is found in the case of age at marriage of husband (Figure 8). The proportion of couples using withdrawal rises steadily with a rise in the age at marriage of husband until ages 25-29 (in rural areas) and 30-34 (in urban areas). It drops steadily as age of marriage of husband rises above 30 (in rural areas) and 35 (in urban areas).

4.3.5 Education

In both urban and rural areas, the proportion of couples relying on withdrawal rises steadily with level of education of women (Figure 9). The lowest rates belong to illiterate (6.5% and 11.9% in rural and urban areas) or semiliterate women, that is those who have attended adult literacy classes only (15.7 and 11.0% in urban and rural areas). In contrast, over 30% of women with secondary and higher education have reported using withdrawal in both urban and rural areas. It is worth noting that the urban-rural difference (in favor of urban women) observed across all age groups and most other demographic characteristics is reversed in the case of women with religious studies. This is rather surprising and hard to explain in view of the fact that rural women with religious studies usually attend Quranic schools and can only be regarded as semiliterate whereas urban women classified under this rubric have usually attended Shiite seminaries which admit students with some measure of secondary or higher education.

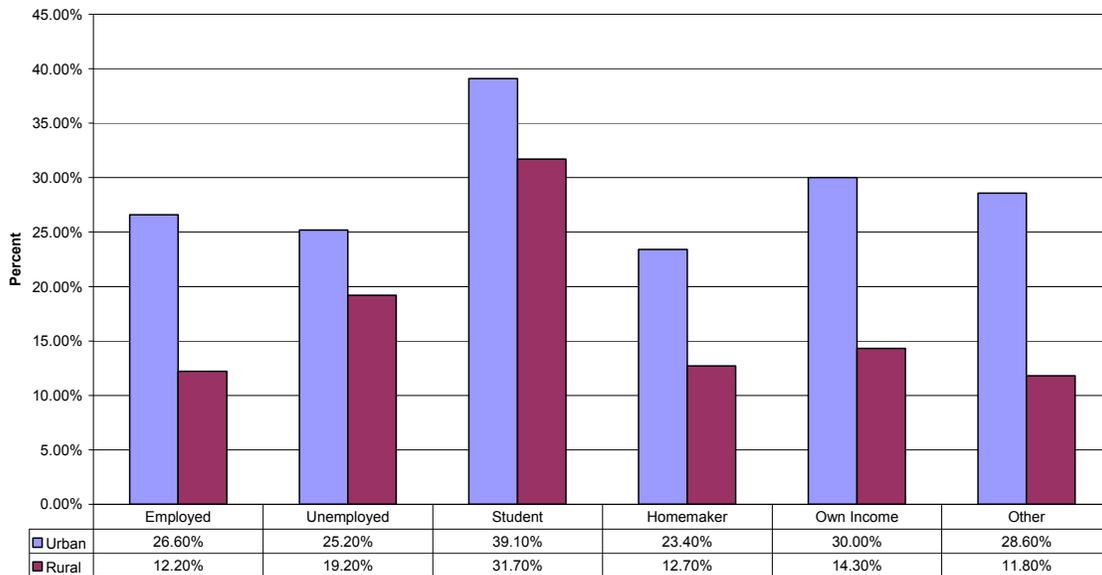
Figure 9. Prevalence of Withdrawal by Level of Education and Area of Residence; DHSI-2000



4.3.6 Labor Force participation of Women

Labor force participation rate of Iranian women is still very low. According to the national census taken in 1996, less than 10% of women aged 10+ years were economically active, that is employed or looking for a job (unemployed). The DSHI2000 has revealed a slightly higher rate of economic activity (17.28, 23.24% of rural and 13.96% of the urban). In both urban and rural areas, the highest rate of withdrawal use belongs to economically non-active women classified as "students" who are known to be the youngest of the married women (Figure 10). The very high withdrawal use rate of rural women identified as "student" (31.7%) is particularly worth noting. The next highest rates of withdrawal use belong to women identified as "Own-income" and "Other" both of which are known to be relatively older women covered by some kind of retirement benefit. Women identified as "Housewife" who account for over 50% of women have the lowest rate of withdrawal use in urban (23.4%) and the third lowest rate (12.7%) in rural areas.

Figure 10. Prevalence of Withdrawal by Labor Force Participation and Area of Residence; DSHI-2000

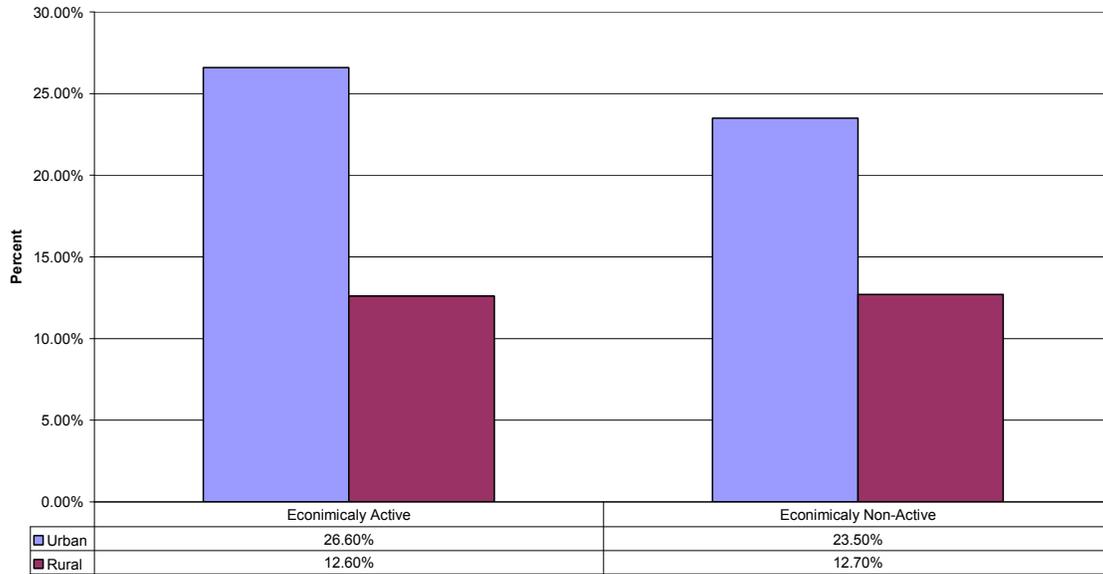


4.3.7 Home-based Economic Activity

Some 17.2% of households (9.4% in urban and 31.2% in rural areas) report having some kind of home-based economic activity ranging from dressmaking and hairdressing (in urban areas) to poultry farming (in rural areas). In addition to supplementing family income, such home-based economic activity may also have behavioral and attitudinal implications that are worth exploration. As indicated in figure 11, urban couples from households with home-based economic activity have higher withdrawal rates (26.6%)

than those without such activity (23.5%). No difference is seen in the case of rural couples.

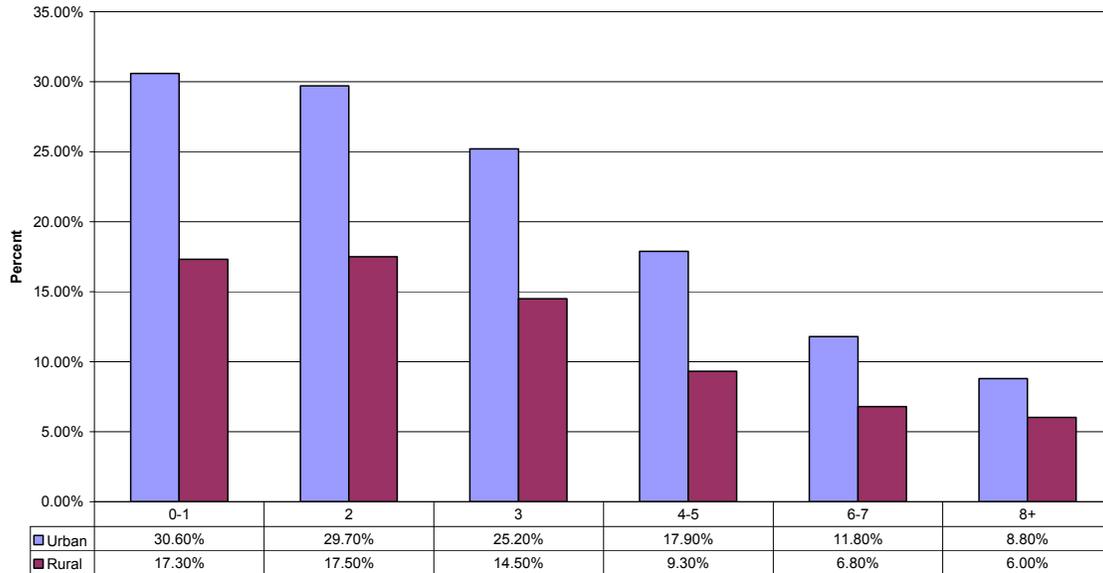
Figure 11. Prevalence of Withdrawal by Home-Based Economic Activity and Area of Residence; DHSI-2000



4.3.8 Number of Pregnancies

In both urban and rural areas, rate of withdrawal use declines consistently with number of pregnancies (Figure 12). The highest rates belong to women with 0-2 pregnancies while those with 8+ pregnancies have the lowest rates of withdrawal use. At all levels of parity, rural women have much lower withdrawal use rates than their urban counterparts.

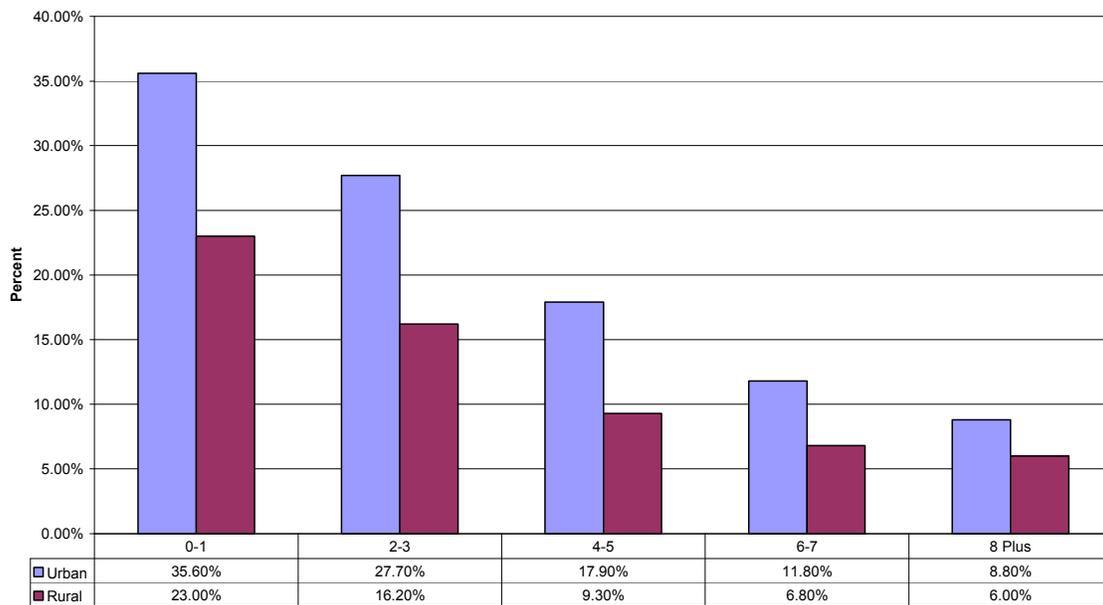
Figure 12. Prevalence of Withdrawal by Number of Pregnancies and Area of Residence; DHSI-2000



4.3.9 Number of Children Ever Born

A quite similar trend is observed with regard to number of children ever born (Figure 13).

Figure 13. Prevalence of Withdrawal by CEB and Area of Residence; DHSI-2000



4.3.10 Miscarriage & Stillbirth

Urban women who have reported any experience of miscarriage/abortion do not differ from those without such experience in terms of withdrawal use. Rural women with experience of miscarriage/abortion are, however, slightly more likely (13.3%) than those without such experience (12.6%) to rely on withdrawal (Figure 14). Women reporting experience of stillbirth have markedly lower rates of withdrawal use than those without such experience in both urban (18.5% vs. 24.5 %) and rural areas (8.8% vs. 13.0%) (Figure 15).

Comparing the four groups formed in terms of experience of miscarriage/abortion and stillbirth (Figure 16), it is found that in both urban and rural areas the highest rates of withdrawal use belong to women with experience of miscarriage/abortion only (24.30% vs. 13.5%) followed by those with no experience of miscarriage/abortion or stillbirth (22.8% vs. 11.4%). In contrast, urban women with experience of miscarriage/abortion and stillbirth have the lowest rate of withdrawal use (17.4 %) followed by those with experience of stillbirth alone (19.0%). Among rural women the lowest withdrawal use rate belongs to women with experience of stillbirth alone (8.4%) followed by those with joint experience of abortion/miscarriage and stillbirth (9.7%).

Figure 14. Prevalence of Withdrawal by Experience of Miscarriage/Abortion and Area of Residence; DHSI-2000

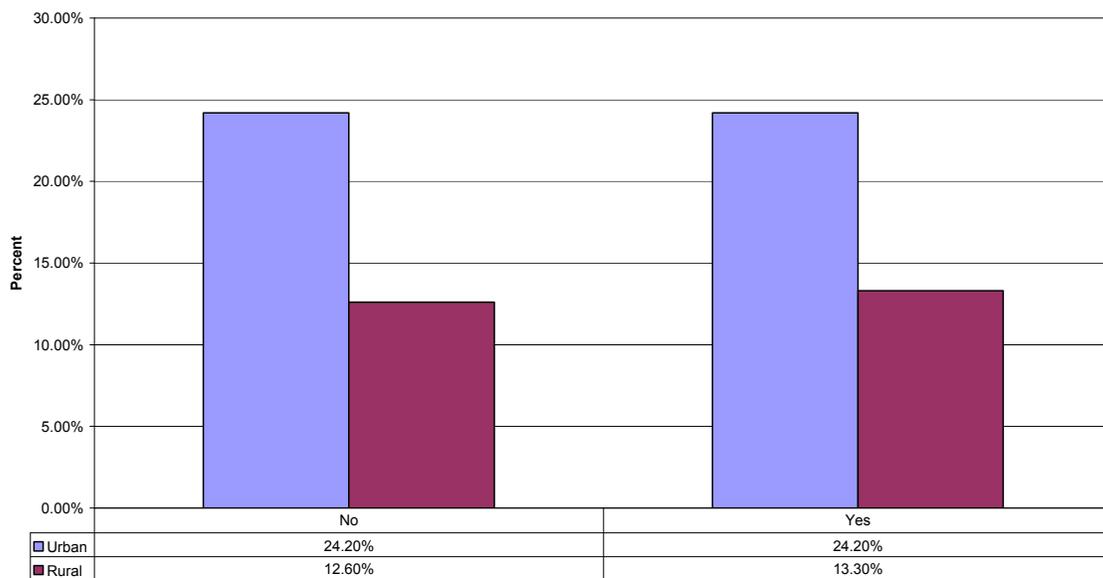


Figure 15. Prevalence of Withdrawal by Experience of Stillbirth and Area of Residence; DHSI-2000

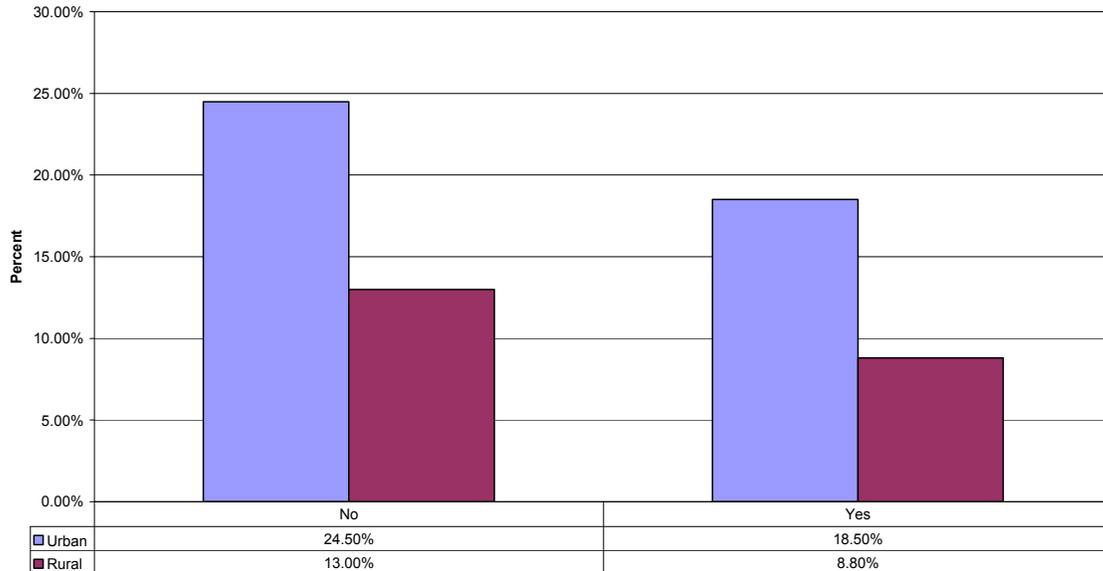
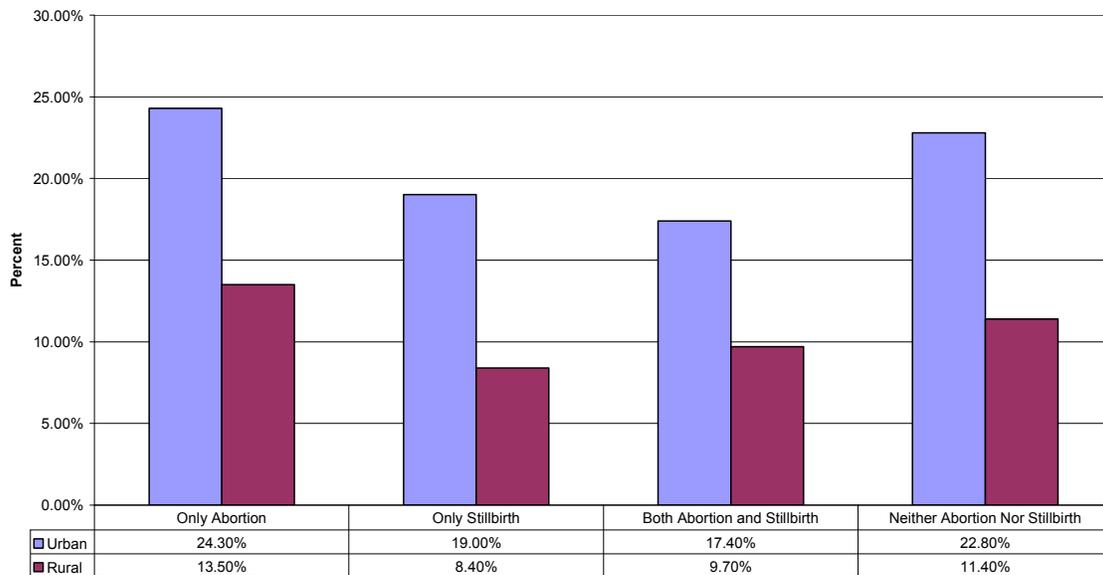


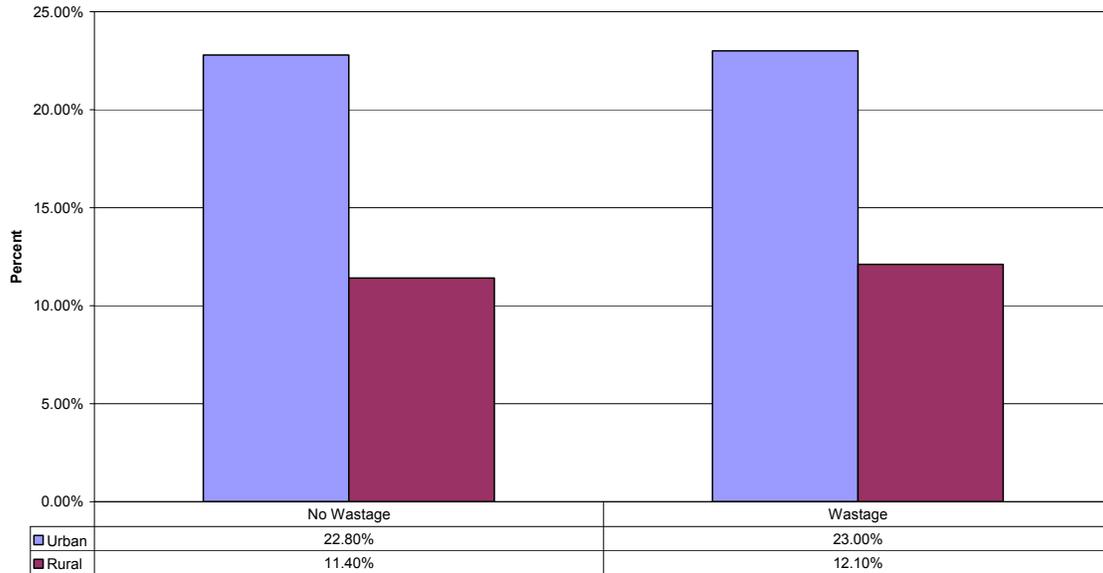
Figure 16. Prevalence of Withdrawal by Experience of Miscariage/Stillbirth and Area of Residence; DHSI-2000



4.3.11 Pregnancy Wastage

Women with experience of pregnancy wastage have slightly higher rates of withdrawal use than those without such experience in both urban (23.0% vs. 22.8 %) and rural areas (12.1% vs. 11.4%) (Figure 17).

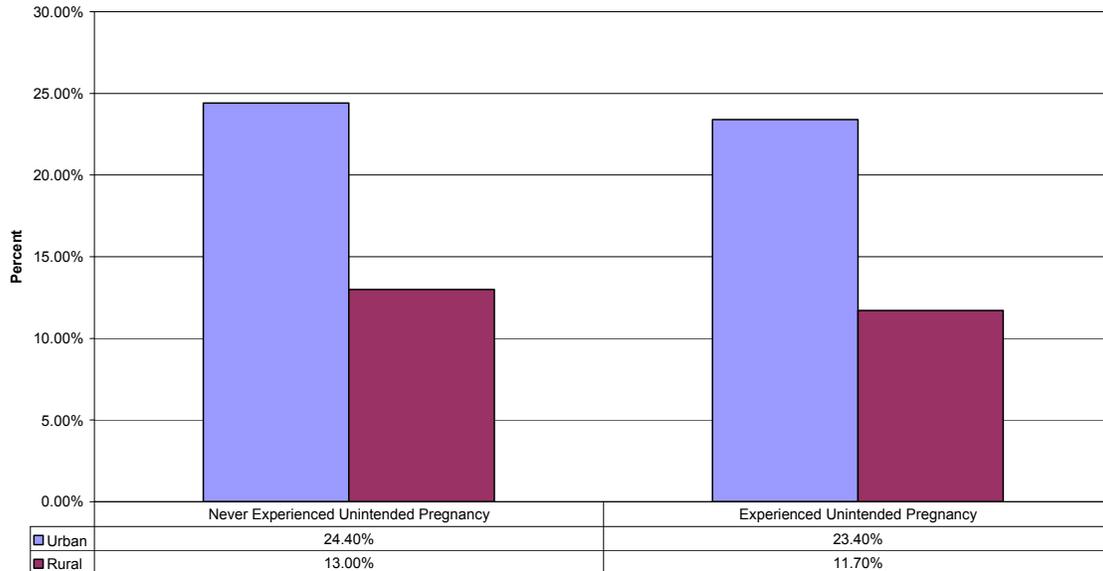
Figure 17. Prevalence of Withdrawal by Pregnancy Wastage and Area of Residence; DHSI-2000



4.3.12 Experience of Unintended Pregnancy

Withdrawal and other traditional methods are generally believed to be less reliable than modern methods. If so, they must be associated with a higher rate of unintended pregnancy. As indicated in Figure 18, however, women who have experienced unintended pregnancy have slightly lower rates of withdrawal use than women with no experience of unintended pregnancy in both urban (23.4% vs. 24.4%) and rural areas (11.7% vs. 13.0%).

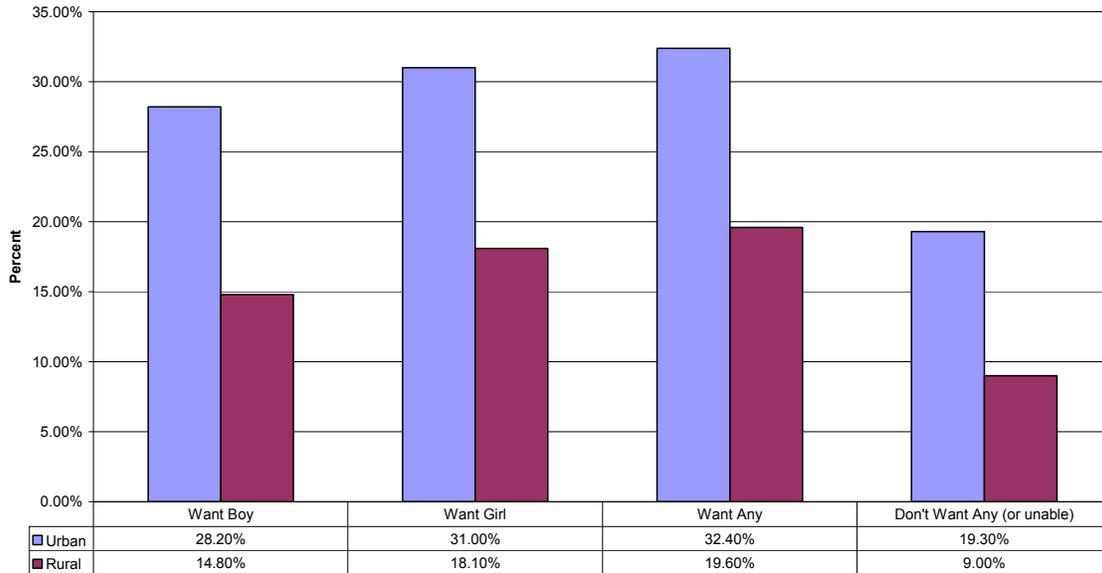
Figure 18. Prevalence of Withdrawal by Experience of Unintended Pregnancy and Area of Residence; DHSI-2000



4.3.13 Withdrawal Use and Preference for Sex of Next Child

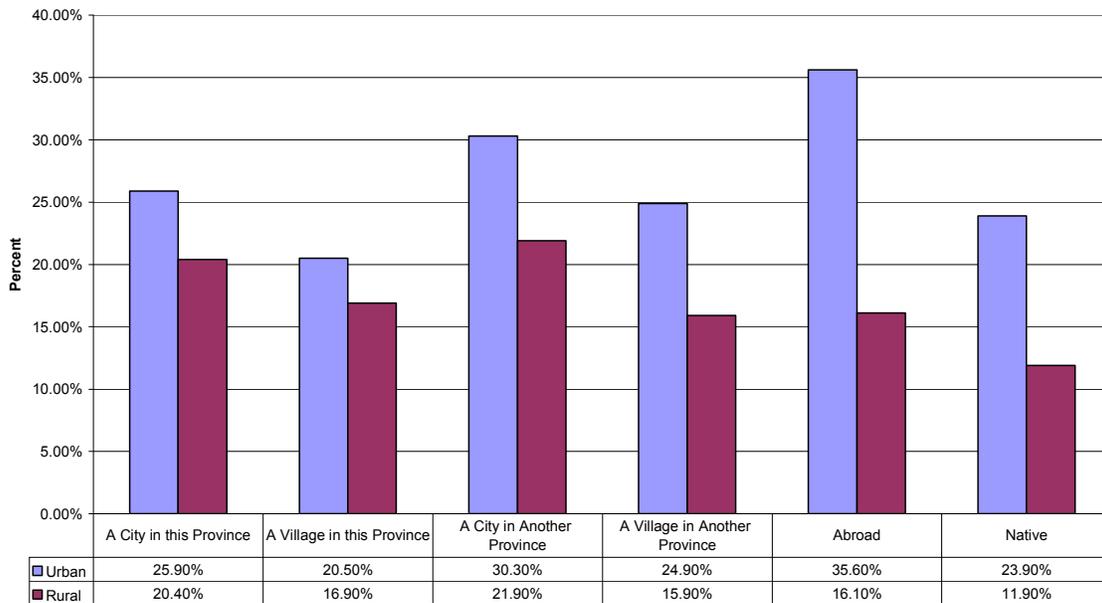
Preference for the sex of next child is an indicator of motivation for having further children. Thus one would expect that women with a desire to have a child of a specific gender may be more likely to rely on a relatively less reliable method like withdrawal. This expectation would seem to be borne out by the findings of present study (Figure 19). The lowest rates of withdrawal use belong to urban (19.3%) and rural women (9.0%) who do not want to have another child. By contrast, women who have expressed a desire to have another child regardless of gender have the highest rates of withdrawal use in both urban (32.4%) and rural areas (19.6%). Women wanting to have a girl (31.0% and 18.1%) and boy (28.2% and 14.8 %) have the next highest rates of withdrawal use.

Figure 19. Prevalence of Withdrawal by Sex Preference and Area of Residence; DHSI-2000



4.3.14 Withdrawal Use and Migration

Figure 20. Prevalence of Withdrawal by Migration and Area of Residence; DHSI-2000



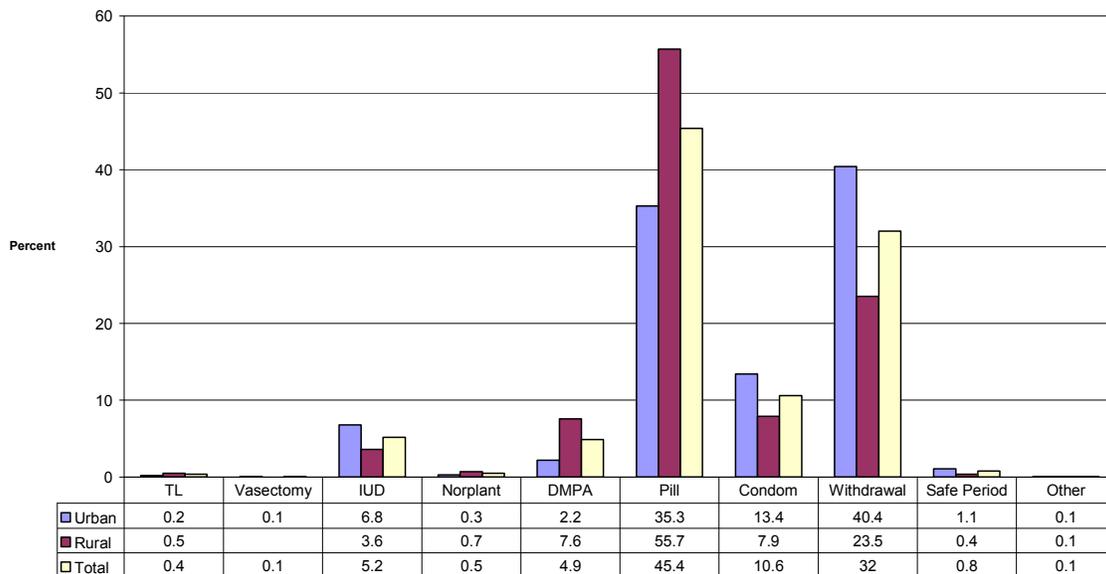
As indicated in Figure 20 the proportion of couples relying on withdrawal varies according to the migration status of women as defined in terms of change in place of residence during the five-year period preceding the survey. Urban women who have moved in from abroad (35.6%), from a city outside the province (30.3%) and from a city within the province (25.90%) have the highest rates of withdrawal use while urban women who have moved in from rural areas outside (24.9%) or inside the province

(20.5%) show lower rates of withdrawal use. The rate of withdrawal use by urban women who have not changed their place of residence (non-migrants) (23.9%) is lower than the overall mean of migrant women as well as women coming from abroad or from urban backgrounds. In the case of rural women too the highest rates of withdrawal use belong to migrant women coming from a city in another province (21.9%) or the province of residence (20.4%) and the lowest rate is shown by non-migrant women (11.9%). Women coming from villages within (16.9%) and outside the province of residence (15.9%) and those from abroad (16.1%) have lower withdrawal use rates. The main reason for the lower withdrawal use rate of rural migrants from abroad is that most of them are from Afghanistan (Mehryar et al, 2004).

4.3.15 Method Failure

Among women who were pregnant at the time of the survey, 2,713 claimed to have become pregnant while using a contraceptive. The combination of methods used by these women prior to getting pregnant is presented in Figure 21. From this table it would appear that the majority of pregnancies belong to women who were using pill (45.4%), withdrawal (32%) and condom (10.6%). There are interesting differences between urban and rural women. Over half (55.7%) of rural as compared with one-third (35.3%) of urban women have attributed their pregnancy to pill failure. Conversely, two-fifths (40.4%) of urban women as compared with less than a quarter (23.5%) of the rural have blamed use of withdrawal for their last pregnancy.

Figure 21. Proportion of Pregnant Women Who Got Pregnant (Method Failure) by Type of Last Method Used



4.3.16 Multivariate Analysis

Using binary logistic regression to identify the socio-demographic determinants of the withdrawal, Eini-Zinab & Mehryar (2005a) have noted that, when all other variables are excluded, the odds of relying on withdrawal by the sample as a whole is 21.6%. Controlling for other variables, it is found that

- The odds of using withdrawal rises as duration of marriage goes up. Couples married for 5-9, 10-14, 15-19, 20-24, 25-29, 30-34 and 35-39 years are 1.673, 1.952, 2.314, 2.774, 3.104, 3.565 and 3.091 times more likely to rely upon withdrawal than couples with 0-4 years of marriage duration.
- Although the overall impact of education on withdrawal is not significant, women with incomplete primary, primary, incomplete secondary, and secondary level of education are 1.106, 1.114, 1.14 and 1.13 times more likely than illiterate women to rely on this method.
- Rural couples are 0.709 times less likely than urban couples to use this method.
- Inhabitants of Gilan, Kerman, Khorasan, Sistan & Baluchestan, Bushehr, Hormozgan, Tehran and Qum provinces are 1.3, 1.315, 1.208, 1.958, 1.36, 1.392, 1.368 and 1.409 times more likely than couples from Tehran City to use this method. While couples in Kermanshah, Kurdistan, Chaharmahal & Bakhtiyari, Ilam and Kohgiluyeh & Boyerahamad provinces are 0.717, 0.651, 0.739, 0.488 and 0.63 times less likely than Tehrani couples to rely on withdrawal.
- Women identified as “homemakers” and those classified as “other” in terms of economic activity are 1.142 and 4.914 times more likely than actively employed women to use this method.
- Women knowledgeable about barrier methods and other modern contraceptives are 0.343 and 0.88 times less likely than their less knowledgeable counterparts to use this method. On the contrary, women with knowledge on natural contraceptives are 3.066 times more likely to use this method.
- Women who have ever used hormonal and barrier contraceptives are 0.389 and 0.176 times less likely than their counterparts to rely on this natural contraceptive.
- The odds of using withdrawal decrease as number of children ever born (CEB) increases. Couples with 2-3, 4-5, 6-7 and 8+ children-ever-born are 0.72, 0.434, 0.318 and 0.29 times less likely than couples with 0-1 children-ever-born to rely on this method.
- Couples who have ever experienced unintended pregnancies are 0.87 times less likely than those who have not done so to use withdrawal.

In general, urban women with long duration of marriage and low educational levels who work at home are the main users of this method. They are generally less knowledgeable on hormonal and barrier contraceptives and have never used these methods. Also they have fewer children-ever-born and have never experienced unintended pregnancy.

5. Discussion and conclusions

Compared with world estimates (UN, 1992; PRB, 2002), Iran has a very high rate of withdrawal use. According data collected in 1990s (Population Reference Bureau, 2002), only 3% of eligible couples of the world were depending on this method. The rate was somewhat higher in the more developed regions (7%) than the less developed. The overall average for Africa was 1%. Out of 41 African countries with the necessary data, only six have a withdrawal rate use above 3%. Mauritius (in West Africa) stands high above the rest of the continent with a withdrawal use rate of 16%. Of the 18 North, Central and South American and Caribbean countries too only 4 have withdrawal use rates exceeding 5%. Of 35 Asian countries with necessary data, four have withdrawal use rates exceeding 20% (Armenia, 31.9%; Azerbaijan, 30.6%; Bahrain, 26.3%, and Turkey, 24.4%). All of these four countries are situated in Western Asia which has the highest regional rate of withdrawal use (16%). In another 4 Asian countries the rate ranges between 10-18 percent. They are Iran (17.4%), Japan (15.3%), Lebanon (11.8%) and Georgia (10.5%). The proportion of couples using withdrawal is low in Northern (3%) and Western Europe (1%). But a larger proportion of couples in Eastern and Southern Europe would seem to depend on this method. Among these are Albania (31.8%), Romania (28.1%), Bosnia & Herzegovina (26.9%), Ukraine (19.5%), Italy (17.8%), Moldova (13.9%), Bulgaria (12.8%), Poland (11.1%), and Yugoslavia (11.3%). In Slovakia too 32% of couples rely on a combination of periodic abstinence and withdrawal. Thus, in mid 1990s, Iran occupied the 11th rank among the 120 odd countries with data on withdrawal.

Despite the historical roots of withdrawal in Islamic culture, the method does not seem to enjoy wide popularity in contemporary Muslim majority countries of North Africa, Middle East, and Asia. Azerbaijan (30.6%), Bahrain (26.3%), Turkey (24.2%), Iran (17.4%) and Lebanon (11.8%) are the only five (out of 26 Muslim majority countries of North Africa and Asia) with substantially high withdrawal use rates. The absence of such historically important Muslim countries as Egypt, Syria, Iraq, Saudi Arabia, Jordan, Tunisia, Morocco and Algeria in the above list of high withdrawal using countries is particularly interesting in view of the evidence culled by Musallam (1983) regarding the wide spread use of withdrawal and other traditional methods of birth control in these countries during the middle ages.

The continuing use of withdrawal (as the main form of traditional contraceptive) by a large proportion of Iranian couples is worth attention on several grounds. First, the method is being used despite the easy availability of a wide mix of modern methods offered freely by the national family planning program and in stark disregard of official advice against the use of withdrawal and other less reliable methods. A perusal of the evidence on regional and urban-rural variations in withdrawal use clearly indicate that the continued use of this method is by no means due to lack of access to information on and supplies of more modern methods advocated by the national program. On the contrary, better educated, urban, and more prosperous regions and couples are very much overrepresented among the users of this method. The surprisingly high correlation ($r = .90$) between withdrawal use rates of urban and rural areas of different provinces and the

overrepresentation of certain tribal areas with historically distinct ethno-linguistic characteristics would seem to suggest that cultural differences may be as important as differences in socioeconomic development in determining choice of this method of family planning. Provinces with the highest withdrawal use rates are mainly concentrated in north-central areas of Iran. They are not only economically better developed but also more homogenous in terms of such unique features of Iranian society as language (Persian) and religion (Shi'ism).

Considering individual characteristics, couples using withdrawal would seem to be mostly urban, better educated and young. The three characteristics are not independent as the younger generation of women (those born since 1970s) are more likely to be better educated, to have married at a later age, to have less age difference with their husband and, thus, to have a stronger voice in reproductive decisions, including the choice of contraceptive method. The decline in the proportion of women using withdrawal with age, duration of marriage and parity would seem to indicate that this method is more likely to be preferred by younger and low parity couples trying to space their pregnancies. The fact that the same trend would seem to operate in both urban and rural areas may be taken as a sign of the generality of the determining motive which cuts across urban-rural boundaries. But the persistently lower withdrawal use rates displayed by rural women regardless of the criterion of classification used (e.g., age, education, parity, etc) would seem to suggest that urbanization is of at least equal importance.

In view of the generally held view that withdrawal is less reliable than modern methods of contraception, one would expect withdrawal use to be associated with higher rates of fertility. Comparing fertility rates of provinces with high and low rates of withdrawal use the opposite of this outcome is found to hold. This is not unexpected in view of the sharp difference, in terms of various development indicators between the two groups of provinces noted above. Similarly, fertility rates of urban women who are more likely to use withdrawal is significantly lower than that of rural women who are more likely to use modern contraceptives. Provincial rates of withdrawal use correlate -.804 and -.878 with number of children ever born in urban and rural areas. Corresponding correlations for modern methods are +.365 ($p=.05$) and -.12 (NS), respectively. Withdrawal use rates also correlate significantly negatively with such other measures of provincial fertility as CBR, GFR, and TFR in rural areas but not in urban areas.

Using logistic regression, Eini-Zinab & Mehryar (2005b) have found that sterilized women have 1.69 units more CEB than the average for the reference group (non-users). Conversely, modern (reversible) and traditional method users' mean CEBs are 1.002 and 1.022 less than that of non-users. Even after taking into consideration the effect of age, sterilized women are found to have the highest CEB at all age levels.

Findings of this study strongly support the evidence and arguments put forth by Rogow & Horowitz (1995) and Santow (1993, 1995) regarding the historical contribution of withdrawal to fertility decline in the West and its important role in offering a safe, easily available, and reliable protection against unwanted pregnancy to motivated women who would prefer to use it. From Iranian experience it would also appear that the continued

use of this method is not due to unavailability of more modern methods which are freely provided by the national program. Nor does the use of this method necessarily lead to exceptionally high rates of unintended pregnancy or resistance to fertility decline. It may be of note that, over two-fifths (49.1% in urban vs. 41.2% in rural areas) have reported ever use of withdrawal. Of those currently using this method, almost all (98.72%) have given a figure for duration of use of this method, the mean duration of use being 5.82 years (6.37 years for urban and 4.83 years for rural couples).

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