Research Journal of Biological Sciences 2 (4): 454-458, 2007

Time-To-Pregnancy in Tabriz's Women, 2004

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Abstract: The prevalence of subfecundity in Iran is somehow unknown. The aim of this study is to estimate the prevalence of subfecundity and determine its correlates. In this retrospective study 1576 women who attended to 6 maternity hospitals in Tabriz for delivery in September 2004 were interviewed face -to- face. The data which was collected includes lifestyle, Time-to-Pregnancy, fertility history, as well as demographic characteristics. Chi square test and independence t-test was used for statistical analysis by using SPSS software. The results show that 17.5 (CI95%: 15.2-19.8%)of cases are subfecund. Women with low education had a higher prevalence of subfecundity. There is no significant association between lifestyle, occupation and socio-economic status of subjects, with subfecundity ($p>0.05$). Although the prevalence of subfecundity in this study is the same as other countries. But more research is needed to bring about a clear understanding of the effect of lifestyle on subfecundity in Iran.

Key words: Subfecundity, prevalence, lifestyle, occupation, socio-economic status, Iran

INTRODUCTION

Half of the couples trying to become pregnant succeed within 3 months, by an increase of over 85% by end of the first year (Bongaarts, 1975). Time-To-Pregnancy (TTP) is the time which takes for a couple from initiating attempts to become pregnant until conception occurs. Subfecundity is defined by an unsuccessful waiting time to pregnancy of more than 12 months, despite frequent unprotected intercourse (Hassan and Killck, 2224). There are no medical reasons for subfecundity of 30% of the couples and 70% of them would become fecund after 24 months without any medical interventions (Templeton, 1995; Hull, 1992).

Studies of time to pregnancy or waiting time to conception have found fruitful findings in identifying male and female exposures with adverse effects on fertility. In these retrospective approaches, both the exposures and time to pregnancy are based on recall (Weinberg and Wilcox, 1998). Women are evidently able to recall these durations many years later with surprising accuracy (Joffe *et al*., 1993). There are many researches on the role of individual differences (age of female and male, occupation, body mass index, …) and lifestyle (smoking, drinking, psychological factors, …) in causing subfecundity (Zhu *et al*., 2003; Tuntiseranee *et al*., 1998; Pettigrew and Hamilton, 1997; Bolumar *et al*., 1996; Alderete *et al*., 1995; King, 2003; Juul *et al*., 2000; Bolumar *et al*., 2000; Olsen, 1991; Olsen *et al*., 1997; Hjollund *et al*., 1999; Stoleru, 1993).

On the other hand, prevention is the mean goal of health systems, which is an effective and economical strategy to overcome most of the medical problems before they arise. Subfecundity is one of these problems. Determining the risk factors associated with subfecundity and preventing them can help this group of population to become fecund and can also be helpful in infertility treatment (Clark *et al*., 1988). Results of one study conducted in Tehran indicates that about 80% of couples who failed to have baby after one year seek a treatment for this problem, where as, after 24 months about 70% of them can become pregnant without any medical intervention (Najomi *et al*., 2000).

In Iran the prevalence of subfecundity is unknown and its risk factors may be different from those other countries, because of the differences in lifestyle of Iranian people especially women. For instance, in some studies that carried out in developed countries, smoking, drinking and coffee consumption have been reported as risk factors of subfecundity (Bolumar *et al*., 1996; Alderete *et al*., 1995; Olsen, 1991; Olsen *et al*., 1997; Mohammad *et al*., 1998) but in case of Iranian women the prevalence of using these substances are much lower. As mentioned before the aim of this study is to estimate the prevalence of subfecundity and determine its correlates in Tabriz city of Iran.

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MATERIALS AND METHODS

In regards of the prevalence of subfecundity (15%) in previous studies (Nojomi *et al*., 2001; Mohamed and Stephen, 2004) the minimum sample size was estimated 976 women with planned pregnancy. In this retrospective study 1576 recently labored women were selected byusing proportional random sampling from 6 maternity hospitals in Tabriz (center of east Azerbaijan province) in September 2004. An interview was conducted with selected subjects who had planned pregnancy. Trained interviewers completed a questionnaire that includes lifestyle variables, time-to- Pregnancy, fertility history and demographic characteristics of the subjects.

In this study "subfecundity" was defined as time-to-pregnancy more than 12 months. Some of lifestyle variables such as drinking tea by both couples, smoking of husband, physical activities of woman and social-economic status of family were studied. The important factor in drinking tea is the quantity of tea, but not den-sity and kind of it. "Physical activities" refers to some kind of daily body movements, which take at least 10 min that include occupational activities, recreative activities and working at home. Principal component analysis was applied to calculate socioeconomic status of the subjects by using their level of education, husband education, subject's and husband's occupation. The subjects were classified as high, middle and low socioeconomic status level.

The Chi-square test was used to examine the association between level of education, occupation, residential area, type of family, physical activity, smoking of husband and social-economic status with subfecundity. The independence t-test was used to compare mean values of age of couples and quantity of tea consumption in the two fecund and subfecund groups. CIA and SPSS statistical programs were used in statistical analysis.

RESULTS

Overall 1155 (73.3%) women of 1576 selected women had planned pregnancy. Nine hundred and fifty three cases (82.5%) were fecund and 202 cases (17.5%; CI95%: 15.2-19.8) were subfecund (time-to- pregnancy was more than 12 months). The mean of time-to-pregnancy was 10.93±21.6 months (median 3 months). Nineteen percent of cases become pregnant in first menstruation and maximum time-to-pregnancy was 18 years.

The mean age of women participated in this study was 26.6±5.54 and youngest and oldest ones were 15 and 46 years old, respectively. The mean age for fecund and subfecund women was 25.5±5.2 and 26.8±5.6, respectively

Table 1: Frequency and percentage of fecund and subfecund cases and mean and standard deviation of time- to pregnancy in different levels of independent variables

Variable	Fecund n (%)	Subfecund n (%)	Overall* n (%)	Time-to-pregnancy Mean±SD
Educational status (p<0.01)				
Illiterate	71(71.7)	28(28.3)	99(8.6)	23.3±32.3
Elementary	322(80.9)	76(19.1)	398(34.6)	9.7±17.8
Intermediate	227(84.1)	43(15.9)	270(23.4)	12.6±24.4
Graduated	237(96.8)	45(3.2)	282(24.5)	7.3±18.9
Student of university and upper	92(90.2)	10(9.8)	102(8.9)	11.4±25.7
Total	949(82.5)	202(17.5)	1151(100)	10.9±21.7
Occupation (p = 0.77)				
Housewife	753(82.2)	163(17.8)	916(79.4)	10.9±21.4
Employed	198(83.5)	39(16.5)	237(20.6)	10.7±22.7
Residential area (p=0.798)				
Urban	581(83.0)	119(17.0)	700(60.7)	10.9±22.5
Suburb	113(80.7)	27(19.3)	140(12.1)	12.9±23.5
Rural	258(82.2)	56(17.8)	314(27.2)	10.2±18.6
Family type (p = 0.835)				
Expanded	569(82.5)	121(17.5)	690(59.8)	10.9±21.2
Nuclear	384(82.9)	79(17.1)	463(40.2)	10.6±21.8
Physical activity (p = 0.449)				
Low	441(81.5)	100(18.5)	541(48.1)	11.4±22.6
Mediate	280(84.6)	51(15.4)	331(29.4)	9.5±17.9
Severe	207(82.1)	45(17.9)	252(22.5)	11.4±21.1
Smoking of husband (p = 0.392)				
Non smoker	602(81.1)	140(18.9)	742(64.5)	9.9±15.8
Less than 11 cigarette per day	168(86.1)	27(13.9)	195(16.9)	11.3±18.3
11-20 cigarette per day	63(82.9)	13(17.1)	76(6.6)	12.7±13.2
More than 20 cigarette per day	116(84.1)	22(15.9)	138(12.0)	13.1±21.9
Socioeconomic status (p = 0.269)				
High class	165(80.1)	41(19.9)	206(21.5)	13.9±28.3
Middle class	405(83.2)	82(16.8)	487(50.8)	9.5±16.5
Low class	228(85.7)	38(14.3)	266(27.7)	9.7±22.7

* Total of cases with no regard of conception status

($p<0.01$). Also, the mean age of husband for fecund and subfecund women was 30.0±5.9 and 31.2±5.8, respectively ($p<0.01$).

Frequency and percentage of fecund and subfecund cases and mean and standard deviation of time- to pregnancy in different levels of independent variables with these p-values are presented in Table 1. As seen in this table, the only significant relationship exists betweensubfecundity and woman's level of education: In which, with increasing the education levels, the prevalence of subfecundity decreased.

The mean and standard deviation of daily drinking of tea in fecund and subfecund women were 802±650 and 892±627cc, respectively ($p = 0.073$). The mean and standard deviation of daily drinking of tea for husbands of fecund and subfecund women were 1044±834cc and 1123±800 cc, respectively ($p = 0.219$). Overall among all cases, 9 cases smoked less than 10 cigarettes per day and only 4 cases smoked more than 10 cigarettes per day.

DISCUSSION

In this study prevalence of subfecundity is 17.5%, which is similar to the results of the study recently conducted in England (Mohamed and Stephen, 2004). Previous studies conducted in Iran include those infertile women or those in fertile age, but in this study women who recently delivered were included and infertile women were excluded. The results of a study of year 2000 in west part of Tehran indicated that 87.3% of the woman had no difficulty in fertility (Nojomi *et al*., 2001). In 1998 another research was conducted in Tehran in order to study the primary infertility; subjects in this research were women between 20-49 years of age and the rate of overall infertility was reported 21.9% (Barooti *et al*., 1999).

Further analysis of the data shows that there is a significant relationship between subfecundity and level of education, in other words, by increasing the educational level, the prevalence of subfecundity decreases. This finding is similar to the results of previous studies (Nojomi *et al*., 2001; Abediniya *et al*., 2003). Reduction of subfecundity in women with higher level of education may be result of low prevalence of diseases related to fertility, seeking quick treatment services in cases of becoming ill, or their knowledge about duration of ovulation.

In this study, mean age of fecund women was 25.5±5.2 and it was 26.8±56 for women with subfecundity, which statistically were significant. Although it is similar to the results of Olson's (1990) study but we cannot conclude that higher age can be a risk factor for subfecundity. Because the subjects in this study were those women who recently delivered and it is expected that subfecund women who waited for pregnancy more than 12 months, were older than fecund women.

Furthermore, the results of this study indicate that the mean age of husband of subfecund women are higher than the mean age of husband of fecund women. Although a weak relationship between age of husband and the time-to-pregnancy was reported in Olson's (1990) study but in another research entitled " Effect of male age on fertility: Evidence for the decline in male fertility with increasing age" in England (2003) indicates that there is a significant relationship between age of woman and men and increased time to pregnancy (Mohamed and Stephen, 2003).

Long working hours, especially in women, can be a risk factor of subfecundity, but in researches that were carried out in Thailand and Denmark (Zhu *et al*., 2003; Tuntiseranee *et al*., 1988) the relation between occupation and shift work with subfecundity was not found. In another study in Sweden indicated the effect of types of career on women's ability to fertility (Ahlborg *et al*., 1996). In our study there was no significant relation between occupation and subfecundity of women ($p = 0.77$).

The results of our study showed that time-to-pregnancy in women whose husbands were heavy smoker, were higher, but this association statistically was not significant. The harmful effects of smoking and heavy alcohol drinking on the general health are well accepted. Several studies have shown the negative effects of smoking (Curtis *et al*., 1997; Augood *et al*., 1998) and alcohol consumption (Hakim *et al*., 1998) on fertility. Smoking has been shown to affect gamete quality (Vine *et al*., 1996) impair fertilization (Tepleton *et al*., 1991) or result in early miscarriage. The effect of alcohol consumption on fertility has been suggested to be related to hormonal and ovulatory abnormalities (Gill, 2000). Couples who are trying for pregnancy are usually advised to give up smoking and stop drinking, but this advise may be difficult or even impossible for some couples to follow, which may add more stress and strain to an already threatened relationship and further jeopardize their chances of conception (Hjollund *et al*., 1999; Stoleru *et al*., 1993). It is important, therefore, to quantify and base the advice given on clear evidence.

Gathering data from previous or historical records was one of the limitations of this study. Although in this study only those women who recently delivered were included and infertile woman were excluded. But, in

regards to issue of time to pregnancy it proved to be useful in identifying male and female exposures with adverse effects on fertility and thereby can be an initiation to similar studies in different population sectors in Iran.

ACKNOWLEDGEMENT

This research was supported by research grant from National Public Health Management Center (NPMC), Tabriz University of Medical Sciences. Thereby their support is being greatly appreciated. In closing, wereadily acknowledge to Zahra Rostami, the nursing student, who helped us in gathering and recording data. We would also like to thank the other members of the search team for their excellent work in collecting data: Seyyedeh Shiva Torabi, Hajar Mahdavi and Maryam Nematollahzadeh.

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