Original Article

The association of contraceptive methods and depression

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Abstract

Background: None of the contraceptive methods are fully side-effect free. One of the side effects that commonly causes discontinuation is mood changes and depression. The present study aimed to compare the depression between contraceptive methods including low-dose estrogen (LD) combined pills, condom and intrauterine devices (IUD).

Materials and Methods: In a cross-sectional study, 216 women were selected through systematic random sampling from 10 health care center sin Isfahan in 2011. Beck Depression Inventory II was used and individual productivity characteristics were asked. Validity and reliability of Beck depression inventory have been repeatedly confirmed in Iran. Content validity the productivity characteristics questionnaire was confirmed and its reliability was measured through Cronbach's alpha correlation coefficient (calculated as 0.71). ANOVA, covariance analysis and logistic regression were used to analyze the data.

Findings: Depression was observed in 47.8% of participants; however, there was no difference between mean score of depression in the users of three contraceptive methods.

Conclusions: The findings of this study showed that depression is not correlated with family planning type and fear of depression should not be an obstacle to choose between these methods. Depression is a multifactor issue. This study showed that type of family planning method in itself cannot be the cause of depression and family planners and consultants should consider this.

Key words: Contraceptive methods, depression, family planning, mood, side effects

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Introduction

One of the major problems that developing countries confront with is the increasing growth of population which in fact is a serious threat for the global community.[1] Nowadays, family planning services is not only considered as the key to the population growth and women and children's health, but also is assumed as one of the fundamental human rights.[2] Physical, psychological, economic and religious factors are considered in family planning and the mentioned factors will influence the decision on the selection and application of a contraceptive method.[3] Studies have shown that different factors are associated with not using these methods such as fear of side-effects and wrong beliefs. In addition, the main reason for discontinuation of the contraceptive methods was reported as side-effects.[4]

None of the contraceptive methods are fully side-effect free[5] and one of the side effects commonly causing discontinuation of the contraceptive methods is mood changes and depression.[6] Worldwide, incidence of depression in females is two times more than males.[7] One of the factors causing a difference between depression level of women compared to men is hormonal factors,[8] and the changes they experience is the most important

reasons of depression.[9] Therefore, some investigations were made on the possible association of depression and mood disorders with contraceptive methods.

Ott et al. showed that constant intake of low-dose estrogen (LD) pills in young women causes more positive mood and less negative mood.[6] Nonetheless, Sanders et al. found that pills have side effects on body, spirit and feelings and these effects cause discontinuation of pill intake or replacing the type of them.[10] Barrier methods such as condom were shown to have no mood side effect compared to non-barrier methods (pills) and their acceptance was higher among the consumers.[11] Unlike this theory, Gallup et al. stated that condom is associated with higher depression scores.[12] Gonzalez et al. found that phobia and panic disorder can be seen in intrauterine devices (IUD) users.[13]

The association of contraceptive methods (pills and condom) with mood changes and depression has remained controversial and requires further studies. Given the two-fold rate of mood disorders in women and the peak of these disorders during reproductive years, i.e. 15-49 years old,[14] the importance of the possible effect of contraceptive methods is highlighted. Considering the need for more studies in different communities and given that very few studies about the association of depression with contraceptive methods have been done in Iran, the present study was done to compare the mean scores of depression in users of contraceptive methods (LD pill, condom and IUD).

Materials And Methods

In a cross-sectional study, women aged 15-45 years and under the coverage of Isfahan health centers in 2011 who were the current consumer of one of the common contraceptive methods were studied. Sampling conducted in 10 health centers that were randomly selected. In these centers, 216 women who were the consumers of combined LD pill, IUD and condom were selected through regular systematic random sampling in proportion with the number of the women under the coverage of family planning of each center.

All the Iranian, Muslim and married women aged 15-45 who were the current consumers of one of the common contraceptive methods at least for six months were eligible if having at least primary education, a maximum of two healthy live children (the age of the last children higher than 1 year), with no history of abortion and hormonal contraceptive methods during the past year, no drug addiction and depression history found in the subjects and their husbands, no use of antidepressants, no history of severe stress during 6 past months according to Holmes-Rahe inventory and no history of chronic underlying diseases.

The data were obtained through a standard questionnaire including Beck Depression Inventory II of which a part of the questionnaire was also dedicated to individual productivity characteristics. Individual productivity characteristics included women and husband's age, education level and job, mean duration of marriage, the average monthly income, residence status, the number of dependents, number of pregnancy, duration of using the current contraceptive method, fear for unwanted pregnancy, fear of negative effects of contraceptives on health and satisfaction status.

Beck Depression Inventory II consisted of 21 items for depression symptoms. It was a four-choice questionnaire and every choice had a 0-3 score range. Zero indicated lack of depression and score three indicated the severity of symptom in that regard; therefore, total scores could be varied between 0-63. Scores 0-9 indicated normal and 10 and higher showed depression.[15] The translated version of this questionnaire had been shown to have high validity and reliability in Iran.[16] Validity of the individual productivity characteristics questionnaire was determined by content validity method. Reliability of the questionnaire was confirmed by determining Cronbach's alpha coefficient. Cronbach's alpha coefficient was calculated as 0.71. The data were analyzed using SPSS software version 10. ANOVA test, covariance analysis and logistic regression were conducted with 5% error.

Findings

The highest and lowest mean age of women and husbands was in users of LD pills and IUD, respectively. The highest and lowest mean age of marriage duration and the number of dependents was in LD pill and condom methods, respectively. The highest frequency of educational level among women and men was high school. Most of the study subjects were housewives (90.8%). The highest mean number of pregnancy was seen in LD pill group and condom methods and the lowest was in IUD. The highest and lowest mean duration of using current contraceptive method were in LD pill and IUD groups, respectively.

Women's and husbands' ages, duration of marriage, the average monthly income, residence status, number of

pregnancy, duration of using the current method and satisfaction with it were not statistically different ($p > 0.05$). However, there was a significant difference in education level, women and men's job and the number of dependents between these methods. Women with higher Education level, employed women and husbands who were employees were more in condom user group compared to the other methods ($p = 0.005$; $p = 0.047$). However, the number of dependents was significantly lower ($p = 0.03$). The highest and lowest frequency of fear from unwanted pregnancy was seen in IUD and LD pill groups, respectively ($p = 0.047$). The highest and lowest frequency of fear from negative effects on health was seen in users of LD pill and condom, respectively ($p = 0.01$).

Among the aforementioned factors, there was an inverse significant correlation between depression score of subjects with their education level ($p = 0.014$; $r = -0.18$) and their husband education level ($p = 0.02$; $r = -0.155$) and income level ($p = 0.01$; $r = -0.174$). The higher the educational level or income, the lower was the depression score of subjects.

The depression score of women had a significant association with husbands' job ($p = 0.009$) and residence status ($p = 0.03$). There was a significant correlation between duration of using the current method (per month) with depression score but only in IUD group. There was an inverse correlation between depression score of women with their satisfaction from contraceptive method ($p < 0.001$; $r = -0.307$), it means that despite satisfaction from the method, lower score of depression was seen. There was a significant correlation between concern about unwanted pregnancy ($p = 0.002$) and negative effects of methods on health ($p = 0.001$) with depression. However, no significant association was found between other individual productivity factors and depression score. Mean score of depression among the users of the three methods indicated mild depression in them; however, there was no significant difference in mean score of depression in different groups of contraceptive methods. According to table 1, frequency of depression was not statistically different among the users of three contraceptive methods.

Table 1. Frequency distribution of depression in the study subjects in terms of three contraceptive methods

Depression status	LD Pill n(%)	Condom n(%)	IUD n(%)	Total n(%)
Normal	37(51.4)	39(54.2)	37(51.4)	113(52.2)
Depressed	35(48.6)	33(45.8)	35(48.6)	103(47.8)
Total	72(100)	72(100)	72(100)	216(100)

$p = 0.928$, $df = 2$, $\chi^2 = 0.148$

Discussion

The findings of this study showed that despite lack of significant difference between depression level in three contraceptive methods, the high prevalence of mild depression (47.8%) could be due to factors other than type of contraceptive method in itself. O'connell et al. found that depression score of adolescents is spontaneously high and contraceptive combined pills has no significant effect on young adolescents' mood.[17] Milsom also believed that perhaps this complication is correlated with their lifestyle rather than pill intake.[18] Generally, there is no difference in psychological performance of pill, IUD and placebo users, and psychological effects of them are not due to medicinal properties but they are related to individual beliefs and emotions.[19] The users, who discontinue pills due to the side effects on mood, obtained higher scores from isolation and suspicion than those who discontinue pills due to other side effects except mood changes.[20]

A meta-analysis reviewed seven clinical trial and showed that users of hormonal contraceptive methods have higher depression and anxiety than non-hormonal methods; however, these negative effects on mood were not because of medicinal properties but were due to psychological effects of pill using (drug). Women who receive placebo contraceptive (pill) experienced the same side effects that the group with real drug (LD pills) experienced and if contraceptive methods used to treat, their side effects would be two times higher than the condition for normal contraceptive method.[21] Duke et al. showed that women who used pill for other reasons except contraceptive, are 1.32 times more likely to have depression than those used for contraceptive reason. There was an inverse correlation between years of pill using and depression symptoms which can be due to habit of using pills and removing psychological effect of pill consuming and there was no relationship between taking the combined pills and depression.[22]

In the present study, 48.6 percent of LD users were depressed. Women were covered by health centers and no private center was considered. Duke et al. believed that other factors also can play role in depression. Women who refer to health centers have more concern, are more persistent about their health and complain more about dissatisfactions and problems. Due to observational nature of previous study, further studies with placebo control are needed in this regard. Currently, despite more than 60 years history of taking combined oral contraceptive method, their effects on mood has

remained contradictory because there are many limitations in methodology of studies on pills.[22]

In the present study, given the study results, mean score of depression in IUD could be due to fear of side effects, unwanted pregnancy and the effect of method on health. In general, there are some certain psychological effects on users of contraceptive methods; for instance, undue phobia and panic can be seen in IUD users.[13] In the present study, 45.8 percent of subjects who used condom were depressed. Condom reduce sexual pleasure.[23] Inability to have a healthy and satisfying relationship with sex partner would have physical, psychological and even social consequences for woman and also her husband.[24] Vaginal orgasm is correlated with better psychological functioning of women.[25] Condom have a detrimental effect on women's orgasm and frequency of sex with condom is directly correlated with abnormal defense mechanisms they use such as suicide and depression.[26] Women who do not use condom are happier and depression and suicide are less in them than those who tend to have active sex with condom.[27] Some researchers speculated that probable mechanisms are involved in creating psychological effect of sexual activity one of which can be chemical substances exchange such as sexual pheromones.[28-29] This substance is absorbed through vaginal walls and increase in its concentration in blood can increase positive mood and decrease depression symptoms in women.[30] Gallup et al. showed that women who do not use condom have lower depression and suicide symptoms than condom users and this is due to addictive effects of seminal fluid in women; therefore, it is so likely that antidepressant substances found in semen have real effect in enhancing mood (vitality).[12]

Most studies about condom were done on single women or the couples' marital status were not pointed out. Some studies have shown that high-risk sexual relationship and being single are also correlated with low self-esteem and conditions of depression.[31] Therefore, in order to obtain more reliable results, such studies should be done in married and healthy women considering different cultures and religions. Given the small number of studies in Iran on depression and family planning and limited references, the present study was the first study which shows the need for more comprehensive studies with larger sample size in a larger study population (National Research).

The findings of this study showed that depression is not correlated with family planning; however, depression screening is very important before selection of contraceptive method and consultation about side effects and concerns at the time of decision and this issue should be taken into account by family planning services and consultants.

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