Prevalence of unplanned pregnancy and factors related to maternal-fetal attachment in Zanjan, 2017

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Abstract

Background: Despite the progress of family planning programs, a significant proportion of pregnancies are still unplanned which threatens the different dimensions of community health. Unplanned pregnancy affects parent's-child association. Maternal-fetal attachment provides a model for the child's mental-social function at present and in the future.

Objectives: This study was conducted to determine the prevalence of unplanned pregnancy and related factors of maternal-fetal attachment in pregnant women referring to Zanjan health centers in 2017.

Methods: This descriptive correlational study was part of a clinical trial that was performed on 184 pregnant women who referred to health centers for routine prenatal care from October to February 2017 in Zanjan, Iran. Using multi-stage sampling method, health centers of Zanjan were divided into three categories based on social and economic situation. Then, from each category, three centers were selected, randomly. The inclusion criteria comprised being pregnant, satisfaction to participate in the study, have at least reading and writing skills, lack of the history of obstetric complications, psychological disease and medicine use, lack of known psychological disease, lack of narcotic substances abuse, and living in Zanjan City. Data collection tool included demographic checklists and maternal-fetal attachment questionnaire, which completed in self-report method. The data of this study were analyzed by appropriate statistical tests by SPSS v.16 software.

Results: Among the participants 58.2% of women had planned pregnancy, 36.4% had unplanned pregnancy, and 5.4% had unwanted pregnancy. Maternal-fetal attachment scores were significantly higher in the planned pregnancy group 84(75-93) than the unplanned pregnancy group 57(54-60) and unwanted pregnancy group 56(48-64) (P<0.001). The highest sub-scale in the planned pregnancy group was related to the attributing characteristics and intentions. Also, the most subscale in unplanned and unwanted pregnancies related to giving of self. There was a significant relationship between age, education, socioeconomic level, number of pregnancies, number of children and contraceptive method with type of pregnancy (P<0.001).

Conclusion: Based on the results of the study, it seems that reduction in unplanned pregnancy will enhance the maternal-fetal attachment and will improve the mother role and social-psychological health of the child.

Keywords: prevalence, unplanned pregnancy, maternal-fetal attachment

Introduction

Unplanned pregnancy as a global problem is considered one of the most important indicators of the community health. It is also a concern of the World Health Organization (WHO) [1]. About one half of pregnancies in the world occur as unplanned [2,3]. More than 95% of unplanned pregnancies occur in developing countries [4]. The prevalence of unwanted pregnancy in Iran has been reported to 35-42%, of which about 19% has

been mistimed pregnancies and 16% are unwanted pregnancies [5]. The prevalence of unwanted pregnancy in Zanjan was reported 28% in 2000 [6]. WHO has predicted that if couples use the contraceptive methods appropriately and continuously, still six million unplanned pregnancies occur throughout the world [7]. Unplanned pregnancy is defined as getting pregnant at the time when the pregnancy is not wanted by couples, but unwanted pregnancy is not demanded by couples at all [5,8].

The outcomes of unplanned pregnancy also affect the family and community health and hinder reproductive health [9]. Unplanned pregnancies impose significant costs on public health, and leads to a socio-economic downturn [10]. Unplanned pregnancy can cause preterm labor [11], low birth weight [5,11,12], increased neonatal mortality rate [13], reduced care and attention towards the child [14], and decreases breastfeeding [15].

In women with unplanned pregnancy, suicide ideation, high risk behaviours such as smoking and alcohol consumption [14,16], domestic violence [17,18], urinary tract infections [19], depression during pregnancy [20-24], iron deficiency anemia [25], and bleeding after childbirth [26] are more than planned pregnancies. Also, more childbirth may occur in an unhealthy condition [26]. In Iran, 80,000 deliberate abortions occur per year, most of which are due to unplanned pregnancies [27].

According to the attachment theory, which is the most common theory for determining the relationship between the parent and child [28,29], attachment as an emotional relationship between the mother and unborn child is formed during pregnancy in several stages as follow: planning for pregnancy, pregnancy compliance, pregnancy acceptation, fetal movements, awareness of fetus as a person, childbirth, seeing and touching the infant [30]. Cranley (1981) believes that during pregnancy, changes in the mother's mind-set and behaviours are formed that lead to the physical development of the fetus and development of the motherhood role [31]. They are complements to changes in the maternal relationship [31]. Along with the fetal development and growth, pregnant mother is developed in the emotional and

psychological sense and with the identification of her thoughts in relation to the fetus, based on positive images of the fetus, shows instinctive behaviours and improves her identity of motherhood [30]. Riding et al. believed that the maternal-fetal attachment increase mothers' cooperation in healthcare activities in relation to pregnancy and the mother cares of her and the fetus with more interest and determination [28,32]. Fetal attachment syndromes include adaptive thoughts related to the fetus such as mother-child relationship imagination and attribution of physical and psychological characteristics to the fetus by the mother [33]. Maternal-fetal attachment during pregnancy is a predictor of positive pregnancy and maternal adaptation after pregnancy [28,34,35]. Attachment behaviors in pregnancy are varied in different cultures and belief and cultural backgrounds may influence pregnancy behaviours. A few studies have been conducted on unplanned pregnancies and maternal-fetal attachment in Iran. Considering the importance of unplanned pregnancy and its consequences and the fetal development as one of the most important stages of healthy growth, and effect of maternal-fetal attachment on the psychosocial function of the child in the future, the aim of this study was to investigate the prevalence of unplanned pregnancy and related factors in maternal-fetal attachment in women referred to health care centers in Zanjan, Iran in 2017.

Methods
This descriptive correlational study was correlational study and part of a clinical trial that was performed on 184 pregnant women who referred to health centers for routine prenatal care from October to February 2017 in Zanjan, Iran. After registering the study at Zanjan University of Medical Sciences and receiving the code of ethics by the number ZUMS.REC.1396.66, the researcher referred to the health centers for sampling.

Using multi-stage sampling method, health centers of Zanjan were divided into three categories based on social and economic situation. Then, from each category, three centers were selected, randomly. Sampling in each cluster was

proportional to the covered population. All pregnant women referred to Zanjan health centers were considered as the research population (n=184). The inclusion criteria comprised being pregnant, satisfaction to participate in the study, have at least reading and writing skills, lack of the history of obstetric complications, psychological disease and medicine use, lack of known psychological disease, lack of narcotic substances abuse, and living in Zanjan City. Completion of the questionnaire, so that more than 20% of the questions remained unanswered, was considered as exclusion criteria.

All pregnant women who attended to these health centers, were asked to think about their recent pregnancy and choose the best options about their decision around becoming pregnant: A) I was going to get pregnant sooner, B) I wanted to get pregnant later, C) At the same time, I was going to be pregnant, D) I did not intend to become pregnant at that time and never in the future. Women who choose the option "C" were considered as planned pregnancy, option "B" was unplanned pregnancy and option "D" was considered unwanted pregnancy. Then, among the mothers who had the inclusion criteria 184 women were selected with convenience sampling method and the data collection tool completed by self-report method.

The research tools included demographic checklists and Cranley's Maternal Fetal Attachment Scale (MFAS). The MFAS has 24-item, with five subscales and each item scores on a five-point Likert from 1 to 5 (1(definitely No), 2 (No), 3 (uncertain), 4 (yes), and 5 (definitely yes)). Item number 22 was scored reversely. The total score ranges from 24 to 120. The higher score is considered as more attachment. Five subscales consisted of (i) Differentiation of self; (ii) Interaction with the fetus; (iii) Attributing characteristics and intentions; (iv) Giving of self; (v) Role taking. The maternal-fetal attachment scale has been evaluated using face and content validities. Its reliability has been assessed using the calculation of the Cronbach's alpha coefficient of 0.80 [30,31,34]. This questionnaire was translated by Khorramroodi in Iran in 2001 and its content was assessed by a test-re-test method and correlation coefficient of 0.85 [36]. Correlation coefficients of its sub-scales were reported from 0.52 to 0.73 (37). The alpha Cronbach coefficient of this questionnaire in this study was 0.946.

In order to analyze the data, all data were entered in SPSS v.16 software. Then, the subscales of each questionnaire and the socioeconomic level of the participants were determined. The economic situation was calculated on the basis of housing, infrastructure, vehicle and income generation and the socioeconomic level was estimated based on job rank, education level and economic class. In order to select the appropriate test, normality of quantitative variables investigated using the Kolmogorov-Smirnov test. Then, based on the parametric or nonparametric data, the outcomes of this study were compared between the three groups of pregnancy. For variables with normal and non-normal distribution, ANOVA and Kruskal-Wallis H tests were used, respectively. Also, the mean±standard deviation was reported for normal quantitative variables and the median and first-third percentiles were reported for non-normal quantitative variables. Chi-square test and Fisher's exact test were used to compare the qualitative variables. Power was calculated to estimate the adequacy of the sample size. The power of study for estimating the prevalence of unplanned pregnancy was 0.98 and to calculate unwanted pregnancy was 1. This sample size seems sufficient to study. In all tests, the p-value was set at less than 0.05.

Results

The mean±SD of the participant's age in the planned pregnancy group (26.02±5.60) was less than the unplanned pregnancy (28.40±4.53) and unwanted pregnancy (33.60±6.73). The ANOVA test showed a statistically significant difference between the groups in terms of age (P<0.001). The frequency of housewives was higher than employed women in all groups so that 82 women (76.6 percent) in the planned pregnancy, 42 women (62.7 percent) in the unplanned pregnancy and 7 women (70.0 percent) in the unwanted pregnancy groups were housewives. No difference between the three groups was reported using the Chi-square test.

The majority of women in the planned pregnancy group (36 people) had a secondary educational

level, the unplanned pregnancy (35 people) group had diploma and the unwanted pregnancy group had elementary education (4 people). The frequency of women with a high socioeconomic status in the planned pregnancy was 61.7%, unplanned pregnancy was 76.1%, and unwanted pregnancy was 30%. The majority of the women in the planned pregnancy (48.6 percent) group were primiparous, in unplanned pregnancy (52.2 percent) and unwanted pregnancy groups (70 percent) were multiparous as became pregnant for three times or more. The majority of women in the unplanned pregnancy had no children (55.1 percent), in the unplanned pregnancy group had one child (49.3 percent), and in the unwanted

pregnancy (70 percent) had two children or more. The percentage of planned pregnancy was 58.2%, unplanned pregnancy was 36.4% and unwanted pregnancy was 5.4%.

Among the participants 33.6% in the planned pregnancy, 64.2% in the unplanned pregnancy, and 90% in unwanted pregnancy group used contraceptive methods. The most commonly used method for both planned and unplanned pregnancies was withdrawal method and in the group of unwanted pregnancy was condom. There was a significant difference between the three groups regarding the use of contraceptive methods and the type of contraceptive method (p<0.001) (Table 1).

Table 1: Distribution of characteristics of the participants by type of pregnancy

Variables	Type of pregnancy	Planned		unplanned		unwanted		P Value
		Frequency	percent	Frequency	percent	Frequency	percent	
Age (year)[*]		26.02	5.60	28.40	4.53	33.60	6.73	<0.001
Job[**]	Housewife	82	76.6	42	62.7	7	70.0	0.14
	Employed	25	23.4	25	37.3	3	30.0	
Education[**]	Elementary education	4	3.7	0	0	4	40.0	<0.001
	Secondary education	36	33.6	20	29.9	3	30.0	
	Diploma	35	32.7	35	52.2	2	20.0	
	Academic education	32	29.9	12	17.9	1	10.0	
Socioeconomic status[**]	High level (first-second category)	66	61.7	51	76.1	3	30.0	0.008
	Low level (third to fourth category)	41	38.3	16	23.9	7	70.0	
Number of pregnancies[**]	Once	52	48.6	7	10.4	1	10.0	<0.001
	Twice	38	35.5	25	37.3	2	20.0	
	More than three	17	15.9	35	52.2	7	70.0	
Abortion History (yes)[**]		12	11.2	51	76.1	2	20.0	<0.001
Number of children[**]	No child	59	55.1	9	13.4	1	10.0	<0.001
	One	36	33.6	33	49.3	2	20.0	
	More than two	12	11.2	25	37.3	7	70.0	
Contraception (yes)[**]		36	33.6	43	64.2	9	90.0	<0.001
Type Contraception[**]	Without a contraceptive method	91	85.0	33	49.3	2	20.0	<0.001
	Condom	10	9.3	14	20.9	6	60.0	
	Other hormonal methods	6	5.6	20	29.9	2	20.0	
Gestational Age By LMP[*]		169.3	13.02	148.9	15.12	129.6	12.45	0.996

[*]**Mean± SD   ANOVA test**
[**]**Chi-square**

The Kruskal Kalalis test for comparing the total maternal-fetal attachment score between the groups showed statistically significant relationships between the total maternal-fetal

attachment score and all its subscales, so that the total maternal-fetal attachment score in the group of planned pregnancy was [84(75-83)] more than unplanned pregnancy [57(54-60)] and unwanted

pregnancy [56(48-64)] (p<0.001). Also, the highest score in the planned pregnancy group was related to the sub-scales of attribution of characteristics to the fetus and in the unplanned and unwanted pregnancy groups were related to the sub-scale of giving of self (Table 2)

Table 2: Maternal fetal attachment based on the type of pregnancy

Type of pregnancy Maternal fetal attachment	Planned		Unplanned		Unwanted		P Value
	Median	First-Third Percentiles	Median	First-Third Percentiles	Median	First-Third Percentiles	
Interaction with the fetus[**]	15.0	12-18	9.0	8-10	9.0	7-10	<0.001
Differentiation of self[**]	15.0	13-16	10.0	9-11	10.5	9.75-12.25	<0.001
Giving of Self[*]	18.01	3.51	14.28	1.99	13.70	3.94	<0.001
Role taking[**]	16.0	14-17	11.0	10-12	10.0	8.75-12	<0.001
Attributing characteristics and intentions[**]	20.0	16-22	12.0	11-13	11.5	10.25-13.25	<0.001
Total score[**]	84.0	75-93	57.0	54-60	56	48-64	<0.001

[*]**Mean± SD   ANOVA test**
[**]**Kruskal-Wallis H test**

Discussion

Based on the results of the present study, the pregnancy in 36.4% of women was unplanned and in 5.4% was unwanted. There was a significant relationship between maternal-fetal attachments to the type of pregnancy. Also, the total score of maternal-fetal attachment in planned pregnancy was more than unplanned and unwanted pregnancies.

The results of this study showed that pregnancy in 36.4% of pregnant women was unplanned. This figure was more than the study of Kazemi et al study (2000) in Zanjan [6]. They reported that 28% of pregnancies were unwanted which of them 40.7% were true unwanted and 59.7% were false unwanted (without the use of contraceptive method) [6]. The different prevalence was due to no discrimination of unplanned pregnancy and unwanted pregnancy and all was reported as unwanted pregnancy. Unwanted pregnancy may decreased in the present study due to improved women's knowledge of contraceptive methods and better performance.

In this study, maternal-fetal attachment in the group of planned pregnancy was more than that in the unplanned and unwanted pregnancy groups. The type of pregnancy influences maternal-fetal attachment [34,38]. Therefore, planned pregnancy makes childbirth more enjoyable and creates a more affective relationship between the mother and child. Jamshidimanesh et al. showed that maternal-fetal attachment was more in the wanted

pregnancy (88.57±14.23) than unwanted pregnancy (71.57±18.38) [39,40], that supported our study findings. The difference in the reported mean score in unwanted pregnancy may be due to the inclusion of pregnant women with a gestational age more than 20 week, differences in the community culture and traditions of society, elimination of two questions from the Cranley's maternal-fetal attachment questionnaire, and lack of attention to unplanned pregnancies [39]. Also the effect of gestational age on attachment was reported in this study [39]. Ustunsoz (2010) in a similar study showed that attachment was more in wanted pregnancy [35]. Mothers with unwanted and unplanned pregnancies due to anxiety and unpleasantness of pregnancy, paid less attention to the fetus and did not take care of it. As a result, maternal-fetal attachment was reported lower. Also, Turshizi indicated that maternal-fetal attachment (gestational age more than 14 weeks) was slightly more in wanted pregnancy (90.97±8.91) than unwanted pregnancy (88.41±11.02) group. However, this difference was not statistically significant [34]. It was not in line with the results of this study. Maternal-fetal attachment was higher in planned pregnancies than unplanned and unwanted pregnancies. Also, mothers with planned pregnancy shows more attachment behaviours such as interaction with the fetus, differentiation of self, attributing characteristics and intentions, role taking, and giving of self. Also, they have a greater

motivation to tolerate pregnancy and they are more interested to the fetus and show more attachment. Since, abortion is illegal in Iran and women should continue pregnancy, based on the level of attachment in unplanned pregnancies, specialized counselling is needed for adjusting the situation through increasing attachment between the mother and child.

Education of contraceptive methods and reducing unplanned pregnancies is an effective approach for improving maternal-fetal attachment and healthy pregnancy. The findings of this study can be used for educating women regarding contraceptive methods for reduction of physical and psychological complications of unplanned pregnancy. Healthcare professionals can improve mother-fetal attachment at clinical, educational, administrative, and counselling levels as one part of a prenatal care program and reduce related psychological complications.

Since, the tool used in this research was a questionnaire; the degree of trust to responses could be a limitation of this study. To resolve this limitation, a research assistant helped with completing the questionnaire and removing ambiguities during data collection. An educated researcher helped with the appropriate completion of the questionnaire. The generalizability of the findings to other parts of the country should be done with caution after performing more complementary and qualitative studies. This study identified factors associated with unplanned pregnancy and maternal attachment that can be used for future counselling and preparation of women for motherhood and pregnancy

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