Original Article

Evaluation of Dental pain related factors in pregnant women in Kerman in 2017

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ABSTRACT

Introduction and objectives: dental pain is the most common cause of pain in the oral area and as no study has been conducted so far to examine the factors associated with dental pain in pregnant women in Kerman, the present study aimed to evaluate the dental pain related factors in pregnant women in Kerman city in 2017. Methodology: This descriptive-analytical type of cross-sectional study was conducted on 450 pregnant women referred to private and public health centres in Kerman in 2017. One-step cluster sampling was used in this study for sampling. The data were collected through a questionnaire and a checklist. After collecting the questionnaire and the completed checklist from the subjects, the data were encoded and entered into SPSS software version 21 and analysed by Chi-square test at a significant level of less than 0.05. Results: The results of this study showed a significant relationship between systemic diseases and dental pain and 16.7% of pregnant women had systemic diseases in addition to dental pain. However, 37.8% of pregnant women did not have dental pain or systemic disease (P = 0.03). There was also a significant relationship between level of education and dental pain in pregnant women in Kerman and the prevalence of dental pain among pregnant women with a diploma level of education was 35.1% and higher than that in women with the master level of education (5.3%) (P=0.004). There was a significant relationship between living place and dental pain, and 65.3% of those who were living in urban areas and 96.04% of those who were living in rural areas reported dental pain (P = 0.003). The periodontal evaluation showed gingival bleeding in 306 (68%) pregnant women and visible plaque on the anterior teeth in 430 (95.6%) pregnant women. Conclusion: The results of this study showed a significant relationship between the systemic diseases, level of education and living place of pregnant women and dental pain during pregnancy. Thus, it is suggested to increase the access of pregnant women to dental insurance to reduce the high dental costs so that the conditions for treatment and follow-up of oral hygiene in these women to be provided.

Keywords: Dental Pain, Pregnant Women, Dental Pain Related Factors

Introduction

Dental pain and tooth loss are important as global social health importance. Its source is the basic tissues of the tooth or adjacent tissues. Untreated tooth decays are reported as the most common cause of dental pain, affecting the daily activities such as eating, studying, concentration, breathing and swallowing. A wide range of dental pain prevalence has been reported between 5% and 88% [1]. Dental pain is derived from bad oral conditions such as dental decays and periodontal disease [2]. The prevalence of oral and dental diseases during pregnancy increases, but most oral and dental diseases can be prevented by observing the hygiene [3]. During pregnancy, physical and hormonal changes have a pronounced effect on the organs of the body, including oral cavity in women [4]. A study conducted in the United States showed that the most common food craving in pregnant women is sweet foods [5].

In addition to hormonal changes, morning nausea and vomiting, acid production [6], and nutritional status provide the conditions for gingival diseases and tooth decays in pregnant women and make providing normal health care difficult for pregnant

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women. Thus, the majority of pregnant women may be affected by severe dental pain and increase tooth decay [7]. Increased level of estrogen and progesterone increases the permeability of the vascular structure of the mouth and weakens the immune system and increases the severity of oral inflammation [8, 9]. Pregnant women are often prone to gingival inflammation, loose tooth, and tooth decay. Therefore, they should receive appropriate oral care [10, 11]. However, due to poor knowledge and the lack of understanding of the importance of cares during this period by dentists, physicians and mothers, dental diseases are not properly treated during pregnancy, so that the statistics of developed countries show that less than half of the pregnant women are examined by the dentist [12, 13]. The most basic issue in this regard is the plaque control program that minimizes gingival inflammatory responses to topical stimuli associated with hormonal changes during pregnancy [14].

Studies in recent decades have also shown that reducing the level of oral streptococcus reduces the risk of dental decay in pregnant women [6]. The control of plaque and reducing the dental plaque by adopting behaviours such as brushing, dental floss, mouthwash and increased provision of oral care by healthcare providers have a significant role in reducing oral and dental problems in pregnant women and its consequences [15]. Pregnant women often need emergency dental care due to acute dental pains [16]. Although dental pain and the role of oral health are crucial in pregnancy, risk factors associated with dental pain have not been investigated. Thus, in order to fill this information gap and as no study has been conducted so far to investigate factors associated with dental pain in pregnant women in Kerman, this study was conducted to evaluate the factors related to dental pain and to investigate the social factors, health conditions and history of dental care in pregnant women in Kerman in 2017.

Methodology

This is a descriptive and analytical type of cross-sectional study conducted on pregnant women of Kerman city in 2017. The sample size consisted of 450 pregnant women referred to health centres and physicians' clinics in Kerman, who were selected by cluster sampling. A list of gynaecologists and health centres that women refer to them to receive pregnancy services was prepared. Then, according to the number of centres, a number of centres and clinics were selected randomly. Then, the researcher referred to these centres and selected the samples among the women referred to these centres up to the stage of reaching the considered sample size.

As the prevalence of dental pain in Krüger study was reported 54.9% [17] and based on the sample size formula and considering z=1.96, d=0.05, and p=0.54, the sample size was determined 382 people. As cluster sampling overestimate the number of required samples due to the concern of the unmatched clusters, the total sample size was considered 450 people in Kerman city.

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 P(1-P)}{d^2}$$

$$n = \frac{1.96^2(\ 0.54(0.46))}{(0.05)^2}$$

N= 381.70≈382

Data collection tools included a questionnaire and a checklist. The questionnaire consisted of two sections, including demographic information and factors related to the oral hygiene of the individual during pregnancy and a checklist to insert the information about the considered indices. It has been presented as an appendix. After collecting the questionnaires and a completed checklist from the subjects, the data were encoded and entered into SPSS21 software. The data were analysed using descriptive statistics of mean, standard deviation, frequency and percentage, and chi-square test at the significant level of less than 0.05. It should be noted that the questionnaires of this study were unanimous and all of the demographic information remained confidential. Moreover, the objectives of the research were explicitly explained for subjects before the study and the individuals participated in the study voluntarily after taking the written consent. Moreover, the project was proposed for Ethics Committee of the Research Deputy of Kerman University of Medical Sciences and approved under the Ethics Code of (IR.KMU.REC.1396.2053).

Results

In this study conducted with the aim of evaluating the dental pain related factors in pregnant women in Kerman, 450 pregnant women with a mean age of 28.28 years, a minimum age of 16 and a maximum age of 45 years were studied. Table 1 presents the distribution of the demographic characteristics of pregnant women.

Table 1- Frequency distribution of demographic characteristics of pregnant women in Kerman city in 2017

Variable	Level of variable	F (%)
Level of education	illiterate	40(8.9)
	Under diploma	95 (21.1)
	diploma	156 (34.7)
	Associate and bachelor	137 (30.4)
	Master and higher	22 (4.9)
job	employee	48 (10.7)
	housewife	346 (76.9)
	Self-employed	23 (5.1)
	student	33 (7.3)
Marital status	married	447(99.3)
	divorced	3(0.7)
Living place	city	324(72.0)
	Suburb	60 (13.3)
	Rural	66(14/7)

Family income	Under 10 million Rials	222(49.3)
	10-30 million Rials	183(40.7)
	Over 30 million Rials	45(10.0)
Pregnancy stage	The first trimester	122(27.1)
	The second trimester	128(28.4)
	The third trimester	200(44.4)

The distribution of questions related to the health status of pregnant women is also presented in Table 2.

Table 2- Frequency distribution of questions related to the health status of pregnant women in Kerman city in 2017

variable	Variable level	F (%)
Have you had a systemic problem during pregnancy?	yes	130(28.9)
	no	320(71.1)
Have you ever referred to a dentist during the pregnancy	yes	118(26.2)
	no	332(73.8)
The reason to refer to dentist	Regular dentistry checkup	21(4.7)
	Dental pain	91(20.2)
	Repair treatment (filling the teeth)	32(7.1)
	Treatment of gingival diseases	13(2.9)
	Prevention from oral and dental problems	7(1.6)
	Other causes	4(0.9)
Have you ever a dental pain during the pregnancy?	yes	226(50.2)
	no	224(49.8)
When your dental pain has started?	Before pregnancy	49(10.9)
	During pregnancy	143(31.8)
	both	34(7.6)

The results of this study showed that there is a significant relationship between the level of education and living place and dental pain in pregnant women in Kerman, but other variables (job, marital status, income and stage of pregnancy) showed no significant relationship with dental pain (Table 3).

Table 3- Frequency distribution of demographic characteristics of pregnant women based on the dental pain in Kerman city in 2017

		Dental pain		
variable	Variable levels	no	yes	p-value
		F (%0	F (%)	
Level of education	illiterate	18(8)	22(9.8)	*0.004
	Under diploma	35(15.6)	60(26.7)	
	diploma	77(34.2)	79(35.1)	
	Associate and bachelor	85(37.8)	52(23.1)	
	Master and higher	10(4.4)	12(5.3)	
job	employee	23(10.2)	25(11.1)	0.54
	housewife	169(75.1)	177(78.7)	
	Self-employed	13(5.8)	10(4.4)	
	student	20(8.9)	13(5.8)	
Marital status	married	224(99.6)	223(99.1)	0.10
	divorced	1(0.4)	2(0.9)	
Living place	city	177(78.7)	147(65.3)	*0.003
	Suburb	19(8.4)	41(18.20	
	Rural	29(12.9)	37(16.4)	
Family income	Under 10 million Rials	107(47.6)	115(51.1)	0.73
	10-30 million Rials	94(41.8)	89(39.6)	
	Over 30 million Rials	24(10.7)	21(9.3)	

The results of this study showed that there was no significant correlation between gingival bleeding and dental pain. It means the odds of dental pain among those who had gingival bleeding and the odds of dental pain in those who did not have bleeding were not significantly different (Table 4). There was no significant relationship between dental pain and visible plaque on the anterior teeth (Table 5)

Table 4- Relationship between gingival bleeding and dental pain in pregnant women in Kerman city in 2017

Dental pain		gingival bleeding		Crude OR	P value	Adjusted OR	P value
		yes	no				
yes	f	162	63	0.69	0.06	0.68	0.07
	%	36	14				
no	f	144	81				
	%	32	18				

Table 5- Relationship between visible plaque on anterior teeth and dental pain in pregnant women in Kerman city in 2017

Dental pain		Dental plaque		Crude OR	P value	Adjusted OR	P value
		yes	no				
yes	yes	216	9	0.81	0.64	1.03	0.93
		48	2				
no	no	214	11				
	Dental pain	47.5	2.4				

The results of this study also showed that 16.7% of pregnant women have both dental pain and systemic disease, while 37.8% of pregnant women had neither dental pain nor systemic disease. There was also a significant relationship between dental

pain and systemic disease. Moreover, women with systemic diseases reported a higher rate of dental pain (Table 6).

Table 6- Relationship between systemic disease and dental pain in pregnant women in Kerman in 2017

Systemic disease		Dental pain		p-value
		no	yes	
yes	f	55	75	*0.03
	%	12.2	16.7	
no	f	170	150	
	%	37.8	33.3	

Discussion and Conclusion

The results of this study showed that dental pain has a significant relationship with the living place. According to a study conducted by Karanachandra et al in Sri Lanka, rural women had more dental decays than urban women and they reported higher dental and periodontal disease compared to urban women [18]. In the study conducted by Petersen, there was a significant relationship between the living place and dental pain [19]. However, in the study conducted by Christensen in Denmark, no relationship was reported between living place and dental pain and oral hygiene [6]. The difference in the level of oral hygiene and public access to public health services in developed and developing societies might be the main reason for this inconsistency. In developing communities such as Iran, access to health centres in distant areas is lower and the level of oral hygiene is lower due to lower culture, lower income and more difficult access [6]. However, in this study, no significant relationship was found between family income and dental pain. In the study conducted by Christensen in Denmark, no association was found between the socioeconomic level and dental pain and oral hygiene [6] However, in a study conducted by Kawusi et al, it was reported that the referral and use of dental services have a significant relationship with health costs [20].

Based on the previous studies, the socioeconomic status and severity of tooth decay were highly associated with dental pain and people at higher age, lower socioeconomic status, and more dental decays reported higher dental pain [21]. In the present study, pain was not significantly associated with age. In the study conducted by Pau, dental pain was reported higher in young people [22]. In the study carried out by Vergnes, dental decay was higher in pregnant women [23]. However, in the study conducted by Acharya, pain increases with increasing the age of pregnant women [24]. No significant relationship was found between dental pain and job. In this regard, Dhaliwal did not show any significant relationship between job and health status and periodontal health of pregnant women [25]. This result is not consistent with the result of the study conducted by Bayat et al in Iran [15] and Sant'Ana in Brazil, in which dental pain was higher in housewives compared to employed women [26]. In the present study, a significant relationship was reported between the prevalence of dental pain and the level of education. The results show that people with the academic level of education have significantly lower dental pain compared to those who were illiterate or had elementary level of education. In a study conducted by Goerea et al in 2007 in Brazil, similar to our study, there was a significant relationship between the prevalence and severity of dental pain and level of education [27]. It seems that the education level of people plays an important role in the prevalence of dental pain. People with higher education pay more attention to health care and have more regular visits to the dentist [23].

Moreover, there was a significant relationship between dental pain and systemic problems in this study. Several studies have reported an association between heart, respiratory infections, kidney and diabetes diseases and oral hygiene [28, 29]. For example, the oral hygiene control is very important before pregnancy for diabetic women, because increasing the risk of acute and chronic infections makes it difficult for them to control their diabetes. Systemic kidney and lung diseases also often increase the risk of infections in the body by weakening the immune system. It suggests the importance of systemic diseases and their effect on dental pain during pregnancy [30]. In general, it can be stated that pregnancy is a dynamic state leading to transient physiological changes in body systems, including oral cavity. Gingival hyperplasia, gingivitis, pyogenic granuloma and various salivary changes are some of the changes seen commonly in pregnant women. An increase in the level of estrogen and progesterone increases the permeability of the oral vascular structure, leading to the weakened immune system and increased severity of oral inflammation [5-7]. The role of high levels of estrogen in the incidence of gingivitis and gingival hyperplasia has been reported [31, 32].

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