Effect of the number of pregnancy in the dental health status of mothers

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Abstract:

The aim of study was to evaluate the effect of the number of pregnancy in the dental health of iraqi women.

Three hundred ninety nine pregnant women were included in this study, with an age range of 18-39 years old. They were attending to the Maternal and Child Health Care Center (MCHCC) for their monthly periodic checkup with different pregnancy stages. The sample of the study was randomly selected from four out of 16 MCHCCs in the center of Mosul city.

Caries experience were diagnosed and recorded according to the criteria suggested by WHO 1997 using CPI probe. The (DMFS) index was used to assess the decayed, missing and filled surfaces.

The periodontal health status of pregnant women was performed using the following clinical parameters (gingival index, plaque index and calculus index).

To evaluate the effective of number of pregnancy on dental health status, the sample divided into three group (1-3) according to the number of pregnancy (1-3, 4-6, ≥7) respectively.

The result indicated an increase in the mean of DMFS score with an increase in the number of pregnancy; also the study indicates a significant increase in the mean of periodontal parameters with an increase in the number of pregnancy.

Keywords:

Pregnant women, DMFS, caries, plaque index, gingival index, calculus index, gingivitis.

Introduction:

Pregnancy may be accompanied by an increase of dental caries incidence. There is much diversity of opinions on this subject. There is a popular belief that mother loses "a tooth for every child" and that caries incidence or progress of existing lesion increases during pregnancy or that calcium is withdrawn from the maternal dentition to supply fetal requirements " soft teeth" [1,2]. Starobinsky [3] in his study found that there was an increase in the number of decayed teeth with advancing age in pregnant women.

Many studies and investigations have dealt with the frequency of occurrence of periodontal disease in pregnancy; the increased prevalence and severity of gingivitis in pregnancy have been well documented [4-7].

Oral hygiene is usually evaluated on the basis of the quantity of soft and mineralized deposits and the researches data strongly imply that most forms of periodontal diseases are plaque associated disorders which short as overt gingival inflammation

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[8-10]. However, during pregnancy the association between oral hygiene parameters and gingival inflammation had been varied among different studies [7,11-13]. Where as no study evaluated the effect of the number of pregnancy in the dental health in Iraqi women. We decided to carry out this study.

Materials and methods:

Three hundred ninety nine (399) pregnant women were included in this study, with an age range of 18-39 years old. They were attending to the Maternal and Child Health Care Center (MCHCC) for their monthly periodic checkup with different pregnancy stages. There are 16 MCHCCs for pregnant women in the center of Mosul city. The sample of the study was randomly selected from four MCHCCs.

The examination was performed in a suitable room under standardized condition following the recommendation of WHO 1997 [14]. Subjects were examined by seating on a portable chair fixed with an adjustable head rest.

Caries experience were diagnosed and recorded according to the criteria suggested by WHO 1997 [14]. The examination of dental caries was carried out using plane mouth and CPI probe. The Decayed, Missing and Filled Surfaces (DMFS) index was used to assess the decayed, missing and filled surfaces. Each decayed surface of tooth takes one point, also each filled surface of tooth take one point, while for missing tooth, the tooth takes four points as a realistic average for missing surfaces [15].

The periodontal health status of pregnant women was performed using the following clinical parameters:

1- The gingival index (GI) by (Löe and Silness 1963)[4] to assess gingival inflammation.
2- The plaque index (Pl I) by (Silness and Löe 1964)[16] to assess soft tissue accumulation.
3- The calculus index (Cal I) by (Bjorby and Löe 1967)[17].

The teeth selection for estimation of the three periodontal indices was the six teeth representing the six segments of the jaw (Ramfjord 1959)[18].

To evaluate the effect of number of pregnancy on the dental halth status of the mother, pregnancy sample divided into three groups according to the number of pregnancy.
1) Group (1) → The number of pregnancy = 1-3
2) Group (2) → The number of pregnancy = 4-6
3) Group (3) → The number of pregnancy = ≥ 7

The statistical analyses of the data include calculation of the mean and standard error of DMFS, GI, Pl I and Cal I. One-way analysis of variance (ANOVA) and Duncon's Multiple Range Test have been used to compare between different groups. The differences were considered significant (S) when the probability (P) was less than 5% level.

Results:

Table (1) shows the mean DMFS of pregnant women according to the number of pregnancy. The result indicated an increase in the mean of DMFS score with an increase in the number of pregnancy. When compared between these three groups, there has been a significant difference between them at 0.001 level and the third group who had more than seven pregnancy reported the highest score of DMFS (36.85), while the first group reported lower mean DMFS score (22.54).

Table (1): Effect of the number of pregnancy on the mean score of DMFS.

Pregnancy group *	Number of mothers	%	Pregnant group (mean ± SE)	F-test	P	Significance
1	163	40.9	22.54 ± 0.73 [A]			
2	159	39.8	31.17 ± 0.86 [B]	57.71	< 0.001	S
3	77	19.3	36.85 ± 1.28 [C]			

Means with different letters are statistically significant at 0.001 ($p < 0.001$)
*1 = 1-3 pregnancy number
2 = 4-6 pregnancy number
3 = ≥ 7 pregnancy number

Table (2) showed the mean gingival index. The study showed that the mean of gingival index increase with increase the number of pregnancy, so the third group has a high mean score (2.05), while the first group reported the lowest GI score (1.79) and it was significantly different from the second and third groups, while there was no significant difference between second and third groups.

Table (2): Effect of the number of pregnancy on the gingival health (GIS).

Pregnancy group*	Number of mothers	%	Pregnant group (mean ± SE)	F-test	P	Significance
1	163	40.9	1.79 ± 0.03 [A]			
2	159	39.8	1.96 ± 0.03 [B]	13.3	< 0.001	S
3	77	19.3	2.05 ± 0.04 [B]			

Means with different letters are statistically significant at 0.001 ($p < 0.001$)
*1 = 1-3 pregnancy number
2 = 4-6 pregnancy number
3 = ≥ 7 pregnancy number

Table (3) illustrated the mean plaque score for pregnant women according to the number of pregnancy. The result of the study revealed that the mean Pl I score of pregnant women increased with an increase of the number of pregnancy. The third group reported high mean Pl I score (1.6) with significant difference than the first and second groups (1.29 and 1.37 respectively).

Table (3): Effect of the number of pregnancy on Plaque index.

Pregnancy group*	Number of mothers	%	Pregnant group (mean ± SE)	F-test	P	Significance
1	163	40.9	1.29 ± 0.03 [A]			
2	159	39.8	1.37 ± 0.02 [A]	22.2	< 0.001	S
3	77	19.3	1.60 ± 0.04 [B]			

Means with different letters are statistically significant at 0.001 ($p < .001$)
*1 = 1-3 pregnancy number
2 = 4-6 pregnancy number
3 = ≥ 7 pregnancy number

Table (4) showed the mean calculus index for pregnant women according to the number of pregnancy. The study indicated that there were marked increased in the mean score with the increasing number of pregnancy and there are significant difference between them.

Table (4): Effect of the number of pregnancy on the dental health status of mothers (Calculus index).

Pregnancy group*	Number of mothers	%	Pregnant group (mean ± SE)	F-test	P	Significance
1	163	40.9	0.44 ± 0.028 [A]			
2	159	39.8	0.61 ± 0.029 [B]	34.17	< 0.001	S
3	77	19.3	0.89 ± 0.057 [C]			

Means with different letters are statistically significant at 0.001 ($p < .001$)
*1 = 1-3 pregnancy number
2 = 4-6 pregnancy number
3 = ≥ 7 pregnancy number

Discussion:

The study shows that 163 (40.9%) of pregnant women reported three or less the number of pregnancy and 159 (39.8%) reported 4-6 number of pregnancy, while 77 (19.3%) of them reported more than seven.

The mean DMFS for the total group was (28.78), it was higher than the other studies carried out in pregnant women in Iraq in the urban women in the capital [7,13], also with other study carried out in Australia [19]. The higher mean of DMFS value of pregnant women in this study comparing with these means values of DMFS in previous studies [7,13] may be due to more than half of pregnant sample as more adult in age in addition to that more than 60% have more than four children, so caries incidence increase with age and the number of missing teeth becomes higher (each tooth represent by four surfaces), or may be used different criteria and method for examination leading to this variation [20,21].

The increase in the missing teeth in pregnant women is due to negligence treatment of early caries teeth or did not attend to dental clinic for dental check up or difficulty to get the dental services at the cost they can pay especially during the pregnancy period and increase this period due to increase in the number of pregnancy [22,23].

The study revealed that there is a significant increase in the man DMFS with the increase number of pregnancy.

The mean DMFS increase from (22.54) for group (1) to (31.17) for group (2), that mean an increase about (40%), while in group (3) there was a slight increase when compared with group (2).

The study revealed that all the pregnant women in this study complain from gingival inflammation. This agree with other studies carried out in Iraq [7,13,24].

The study indicated that there is a significant increase in the mean of periodontal parameters (GI, Pl I and Cal I) with an increased number of pregnancy.

This significant differences may referred to the more number of pregnancy and increase their work as housewives to become careless about seeking dental care until later due to busy with their children.

The high score of Pl I and G I and increase significantly with increasing the number of pregnancy may be related to inadequate tooth brushing carried out by pregnant women during pregnancy or may be due to other causes such as gag reflex and don't accept toothpaste especially during first trimester of pregnancy and along with pregnancy and changing in food habit and increase sugary food [2].

The concept of preventing rather than curing disease is gaining acceptance in many countries.

One of the principal messages in this strategy is the importance of educating. Knowledge and encouraging people to be responsible for their own health [25]. So dental health education through the mass media, CMHCC and United Women in Iraq to pregnant and mothers with young children is very important to increase the dental awareness and preventive behavior for them and that they will determine about health related behavior on their children to be adopt.

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