Knowledge, attitude and practices of women regarding oral and dental health care during pregnancy

* Noha M. Ali Abdalla., ** Ekbal Abd-Elraheem Emam,
*** Dr. Ahmad S. Abd EL-Malek, **** Ayat Masoud Omar Masoud

* Nurse Specialist in Technical Institute of Nursing, Faculty of Nursing-Minia University
** Assist. Professor of Maternity Health Nursing, Faculty of Nursing-Minia University.
*** Assist. Professor of Obstetrics and Gynecological Medicine, Faculty of Medicine, Minia University.
**** Lecturer of Maternity and Neonatal Health Nursing, Faculty of Nursing, Al-Fayoum University

Abstract:

Little is known about the role of maternal oral health and its potential impact on the health of pregnant women. This study aimed to assess knowledge, attitude and practices of women regarding oral and dental healthcare during pregnancy. A cross-sectional descriptive research design was adopted for this study. This study was conducted at MCH centers in Minia city (first child health center MCH center and west MCH center). A purposive sample of 300 pregnant women who had not any medical disorder was included in this study. Data were collected through four tools: Structured interviewing questionnaire, Knowledge Questionnaire sheet, women's attitude by the likert scale, and women's self-practices assessment tool, the study revealed that large proportion of pregnant women had poor knowledge, more than half of them had positive attitude about oral health, and more than half of them had poor practice regarding oral health care during pregnancy. The study concluded that there was lack of oral health knowledge and practices related to oral and dental healthcare among pregnant women. The study recommended that health education & awareness and stress on follow up programs should be carried out during pregnancy in order to motivate and educate pregnant women about importance of good oral health; further researches are needed to investigate the effect of bad oral care on pregnancy outcome

Keywords: Oral health, Pregnancy, Antenatal care, Awareness

Introduction

Pregnancy is a natural process that may create some changes in different parts of the body including the oral cavity. These changes will lead to oral diseases if enough and timely care of oral cavity is not taken. Women may experience increased gingivitis or pregnancy gingivitis begins in the second or third month of pregnancy that increases in severity throughout the duration of pregnancy. Pregnancy is associated with immunologic changes, particularly suppression of some neutrophil functions, are the probable explanation for the exacerbation of plaque-induced gingival inflammation during pregnancy. Oral health screening is not a routine procedure in many antenatal clinics, and there are no standard guidelines which ensure that all pregnant women are routinely screened, treated, or referred to specialized dental professionals as part of prenatal care.(1)

Women are more liable to oral health problems during pregnancy. This is at least partly because increased levels of estrogen and progesterone during pregnancy lead to exaggerated gingival tissue response to dental plaque, thereby increasing the risk of gingivitis.(2) Pregnancy may affect teeth far less than teeth and their periodontal environment in particular, may endanger pregnancy. (3)

Women need to be aware of the importance of oral health care during and after pregnancy for themselves as well as their children. (4)Regular dental visits and daily oral hygiene are important components of oral health care, which is an integral part of general health. Poor oral health can impact the quality of life and well-being of pregnant women by causing suffering and pain and affect the ability to eat, drink, swallow, maintain proper nutrition, and communicate. Further, the relationship between poor oral health and systemic diseases has been increasingly recognized over the past two decades. (5)

However, health professionals often do not provide oral health care to pregnant women. At the same time, pregnant women, including some with clear signs of oral disease, often do not seek or receive care. In many cases, neither pregnant women nor health professionals understand that oral health care is an important component of a healthy pregnancy. (6)

Nurses are extremely important to care of patients in all aspects of their health. They are in an ideal position to screen for dental disease, refer for dental care and promote good oral health of pregnant women.(7)It is well recognized that one of the aims of antenatal care is to improve general maternal well-being. For many years, an underrated part of this care included an attempt to improve the dental health of mothers during their pregnancy and to educate them about the dental healthcare of their babies. This is becoming important subject as periodontal disease has been shown to increase the risk of adverse pregnancy outcomes. (8)

Dental care professionals should render all needed dental services to pregnant women, regardless of their stage in pregnancy. It is not necessary to have approval from the prenatal care provider for routine dental care of a healthy patient. They should also be ready and willing to provide emergency/acute care at any time during pregnancy as indicated by oral condition. (9)

Justification of the problem:

Most women do not access oral health care during pregnancy despite evidence that poor oral health can have an adverse impact on the health of a pregnant woman and her child. (10)Researchers have shown a possible link between poor maternal oral health and adverse Pregnancy outcomes such as low birth weight and premature birth. Good oral health and control of oral disease protects a woman's health and quality of life before and during pregnancy, and has the potential to reduce the transmission of pathogenic bacteria from mothers to their children. (11), Oral health care needs to be addressed by a multi-professional approach and should be integrated into comprehensive health-promoting strategies and practices.(12) Therefore, it is important to understand pregnant women's oral health knowledge and behaviors and

to identify barriers to accessing care and practicing good oral hygiene. [13] So the present study will be done to assess pregnant women knowledge, attitude and practices regarding oral and dental health during Pregnancy

Aim of the Study

This study aims to: assess pregnant women knowledge, attitude and practices regarding oral and dental health during Pregnancy.

Research question:

1- What is the level of pregnant women Knowledge regarding oral health during pregnancy?
2- What is the attitude of pregnant women regarding oral health during pregnancy?
3- What is the practice of pregnant women regarding oral health during pregnancy?
4- Is there is relationship between knowledge, attitude and practice of pregnant women and socio demographic data?

Subject and Methods:

A descriptive cross-sectional research design was utilized to accomplish this study. It was conducted in MCH centers in Minia city (first child health center MCH center and west MCH center)These centers provides services for all pregnant women who are attending MCH centers seeking for antenatal care services either coming from rural and urban areas in Minia City. A purposive sample of 300 who are seeking medical advice, this sample detected by using (Epi- info [tm] statistical package; version 6) with 39% proportion of good Knowledge and practice at 95% level of confidence (CI) [14],

Pregnant women attending antenatal Clinic services were enrolled in the study and excluded any women with any medical disorders.

Tools and technique of data collection:

Data of this study was collected by using:

1. **Structured interviewing questionnaire**: This tool developed by the researcher after reviewing the related literature and translated to Arabic form by the researcher It was divided into 2 parts and Consisted of (8) questions of closed-ended types:

   It consists of two parts:

   - 1st Part: this part contained questions to assess women's socio demographic characteristics (Assessment sheet) such as (age, level of education, residence, occupation and total income of the family) (Questions: 1- 5), it took 5 minutes to be completed by researcher.
   - 2nd Part: this part contained questions to assess women's Obstetrical history such as: (Number of gravidity, parity and gestational age) (questions: 6-8), it took 5 minutes to be completed by researcher.

2. Woman knowledge assessment tool

This tool contained Assessment Knowledge Questionnaire sheet about oral health (Knowledge Assessment) such as: (questions: 9- 16), it took 10 minutes to be completed by researcher.

Scoring system of knowledge:

An answered question with yes was scored 1 and the answered question with no scored zero. For each area of knowledge, the scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. We constructed a "dental knowledge score" by counting the total number of acceptable answers given by the subjects, the dental knowledge score was in an interval scale and ranged from 0 to 10, with a higher dental knowledge score indicating better dental knowledge. The knowledge scores were regrouped into 2 categories: those with good oral health knowledge and those with poor oral health knowledge. Thus a score of 6 and above was graded as good knowledge, while 5 and below was graded as poor knowledge.

3. Women's attitude assessment sheet:

This tool contained statements on oral health during pregnancy assessed women's attitude about oral health by the likert scale (with 2 responses agree and disagree for each statement) (questions: 25- 34), it took 10 minutes to be completed by researcher:

Scoring system for attitude:

An answered question with agree was given the score "one" and "zero" for disagree, the scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. The subjects were asked to indicate whether they agreed with, dis agreed with a dental attitude score was then computed for each respondent by counting the total number of statements to which the respondent displayed positive oral health attitude. The maximum achievable score was 10 with a higher score indicating a more positive attitude. Individuals with scores of 7 and above were graded as having positive attitude to oral health.

4. Women self-practice assessment sheet

This tool contained questions to assess women's self-practices about oral health (questions: 35- 52), it took 10 minutes to be completed by researcher.

Scoring system for practice:

We constructed a "dental practice score" by counting the total number of acceptable answers given by the subjects, the dental practice score. Was in an interval scale and ranged from 0 to 14, with a higher dental practice score indicating better dental knowledge. The practice scores were regrouped into 2 categories: those with good oral health knowledge and those with poor oral health knowledge. Thus a score of 8 and above was graded as good practice, while 7 and below was graded as poor practice.

Content validity and reliability:

All tools of data collection were reviewed for validity from supervisor and jury committee consist of three professors' specialists of obstetric nursing for all steps of research process, According to the guidance of committee the researcher were modified the tools of data collection. Reliability: Give the same tool twice, separated by days for the students.

Pilot study: A pilot study conducted on 10 % (30 pregnant women) of total sample to test the tools for the clarity, applicability, feasibility, and for all research process

steps, to find the possible obstacles and problems that might be faced during data collection. Then necessary modifications were carried out and the subjects were excluded from the study to avoid contamination of the selected sample.

Field work:

An official letter was sent from the dean of the Faculty of Nursing at El-Minia University to head manager of Minia MCH centers, asking for permission to collect data.

Interviewing phase:

The researcher attended to MCH centers to collect the data per 3 day from 9.00 AM to 1.00 PM in three days each week within average of one hour for each woman, during which the aim and nature of study briefly explained through direct personal communication with the participant and formal consent obtained from the participant (verbal or written) before inclusion in the study this phase was took about 15 minutes.

Implementation phase:

During this phase the researcher interviewing by herself the participants who were agreed to participate in the study, using tools of data collection, all women were assessed for socio demographic characteristics, and obstetric history then they were evaluated for their knowledge, attitude and self practices regarding dental care, this phase took about 30 minutes by the researcher for each case.

Ethical considerations:

The study protocol was approved by pertinent research and ethics committees at the Faculty of Nursing in El-Minia University. An official permission was obtained by submission of an official letter from the responsible authorities of the study setting (MCH centers) to obtain the authorization for data collection. The aim of the study was explained to the participants, along with the benefits and any potential risks or discomforts. Oral consent was obtained from women after the researcher explained the general aim of the study. Participation was volunteer and any participant could deny participation at any time at no cost. Data was kept confidential and was used solely for research purposes.

Limitations of the study:

- It was somewhat difficult for the researcher to encourage and to motivate some women to participate in the study such as many of women were rushed and busy with other household things and had no time so refused to participate in the study
- Sometimes the flow rate of cases during the day of collecting data were low
- Many of cases were missed due to exclusion criteria

Statistical analysis

Data were entered and analyzed by software SPSS version 19 Qualitative data presented as frequency distribution, quantitative data as mean and standard deviation, chi square and correlation test were used Grades of correlation:

0.00-0.24(no or week), 0.25-0.49 (faire), 0.50-0.74(moderate), ≥0.75 (strong) P of less than 0.05 was considered as cutoff for significance

Results:

Table (1): Socio demographic data of the studied women:

Data	No	%
Age(in years)		
Less than< 20	58	19.3
20-29	149	49.7
30-39	86	28.7
≥40	7	2.3
Residence		
Rural	156	52
Urban	144	48
Education		
Illiterate	45	15
Read and write	53	17.7
Primary	55	18.3
Secondary	101	33.7
University and above	46	15.3
Occupation		
House wife	233	77.7
employee	67	22.3
Total	300	100%

Table (1) illustrate that nearly half (49.7%) of pregnant women aged between 20-29 yrs., less than one third (28.7%) age 30-39yrs, about 19.3% in category less than 20yrs, with the remaining 2.3%in category more than ≥40yr. Also more than half of studied women (52%) living in rural area, 77.7% of them were housewives. More over one third of studied women (33.7%) had secondary school and the majority of them (95.7%) had not enough income.

Table (2): Obstetric history of the pregnant women:

Data	No	%
Gestational age		
12 weeks	71	23.7
13-24 weeks	118	39.3
25-36weeks	111	37
Gravidity		
1st pregnancy	101	33.7
2-3 pregnancy	155	51.7
> 3	44	14.7
parity		
nulliparous	101	33.7
Once	78	26
Twice	87	29
Three	23	7.7
≥4	11	3.7
Total	300	100%

As regard to obstetric history table (2): show that more than half of the respondents (51.7%) in 2-3 pregnancies and more than one third in first pregnancy (33.7%) and nearly one third of them were nulliparous 101(33.7%) and nearly one third delivered from once to twice time previously (26%, 29%) and nearly 39.3% of them their gestational age were within 16wks -24wks.

Table (3): Subjective (self-assessed) assessment of oral health of pregnant women and Perceived causes of gum disease:

Data	No	%
Self-assessed oral health status		
Dental health		
Excellent	32	10.7
Very good	81	27
Good	123	41
Satisfactory	54	18
Poor	10	3.3
Gum health		
Healthy	142	47.3
Un healthy	87	29
Don't know	71	23.7
Types of current oral and dental problems		
Bleeding	55	18.3
Pain	101	33.7
Hyper sensitivity	66	22
Others*	2	0.7
No changes	76	25.3
Mother's action or behavior		
Consult the doctor	148	49.3
Do not go to examine my teeth	54	18
Go to natural recipes	46	15.3
I don't prefer medication	52	17.3

(*caries in teeth - * Problems in stuffing teeth)

Table (3): demonstrate that the large proportion of the respondents (41%& 47.3%) reported that their dental and gum health during their pregnancy was good and healthy, less than one third (27%) their assessment their oral was very good, also more than one third of the respondents (33.7%) reported that they suffer from pain in oral cavity during pregnancy followed by hypersensitivity (22%) and bleeding (18.3%). And their actions toward this problem were categorized as nearly half of them (49.3%) consulted the doctor. Some of them don't examine their teeth (18%). Others don't prefer medications (17.3%). And others go to natural recipes (15.3%).

Table (2): knowledge of pregnant women regarding oral health during pregnancy:

Item	Number N=300	Percent %
Importance of oral health for pregnant women:		
Yes	67	22.3
No	233	77.7
methods to oral care:		
Yes	139	46.3
No	161	53.7

Item	Number N=300	Percent %
Oral Physiological changes that occurs during pregnancy		
yes	53	17.7
No	247	82.3
effect of periodontal disease on pregnancy and fetal out come		
Yes	34	11.3
No	266	88.7
causes of gum disease		
A- more intake of sugared and sweaty food	66	22.0
B- more intake of solid food	16	5.3
C- ignorance care of oral health and teeth	118	39.3
D- physiological changes during pregnancy	14	4.7
E- lake of calcium intake during pregnancy	86	28.7
Appropriate time of knowledge about oral health during pregnancy as in the women's opinion?		
1st trimester	229	76.3
2nd trimester.	55	18.3
3rd trimester	16	5.3

Show that great about three quarter of pregnant women (77.7%) did not know the importance of oral health, more than half of them had no information regarding methods to care of teeth (53.7%) and the response to Physiological changes that occurs in oral cavity during pregnancy also the majority of pregnant women (82.3%& 88.7%) had no any information related to oral Physiological changes during pregnancy and effect of Periodontal disease on pregnancy and fetal outcome

Ignorance of oral health and teeth, lake of intake of calcium during pregnancy and more intake of sugared and sweaty food were the most common causes of gum disease reported by the women (39.3%, 28.7% and 22.0%) respectively.

Table (4): Total score of Knowledge, attitude and practice regarding dental health among pregnant women:

Item	Range	Mean ±SD	No	%
Total score of Knowledge				
Good	6-10	7.3±1.3	91	30.3
Poor	1-5	3.6±1.1	209	69.7
Total	1-10	4.8±2.03		
total score of attitude				
Positive	7-9	7.9±0.6	165	55
Negative	0-6	4.1±2.04	135	45
total	0-9	6.1±2.4		
total score of practice				
Good	6-14	8.3±1.8	126	42
Poor	0-5	2.9±1.2	174	58
total	0-14	5.2±3.1	0-14 // 5.2±3.1	
Total			300	100

This table illustrate that the mean ± SD of the total score of knowledge of studied women were (4.8±2.03) with large proportion of them (69.7%) had poor knowledge and about one third of them (30.3%) had good knowledge. Regarding the total score of attitude this table represented that the mean ± SD of the total score of attitude was (6.1±2.4) and more than half of them (55%)had positive attitude and about less than half (45%)with negative attitude. Also the mean± SD of the total score of practice was (5.2±3.1) with more than half of them (58%) with poor practice meanwhile 42% of them had good practice.

Table (5): Attitude of pregnant women towards dental health:

Attitude	Agree	Disagree
Consider oral health as priority	207(69%)	93(31%)
Oral health important component of PHC	219(73%)	81(27%)
Pregnant women highly exposed to oral diseases	207(69%)	93(31%)
Pregnancy cause teeth loss	227(75.7%)	73(24.3%)
Pregnancy cause calcium withdrew	261(87%)	39(13%)
Gum disease can cause preterm labor	62(20.7%)	238(79.3%)
Physiological changes affect the oral health	202(67.3%)	98(32.7%)
Oral health must start before pregnancy	238(78.7%)	64(21.3%)

Attitude	Agree	Disagree
Dental cheek during pregnancy is important	226(75.4%)	74(24.6%)
Total	300	100%

Illustrate that large number of the respondents (69%) considered oral health should be a priority. Majority of the pregnant women (75.4%) agreed that she should have a dental checkup during pregnancy, (73%) oral health important component of primary health care. (69%) Pregnant women highly exposed to oral diseases,(75.7%) pregnancy cause teeth loss, (87%) pregnancy cause calcium withdrawal, (67.3%)physiological changes that occur during pregnancy can affect the oral health and. meanwhile more than three quarter of studied women (79.3%) disagree with gum disease can cause preterm labor.

Table (6): Oral health Practices followed by pregnant women:

Practice	No	%
Frequency of tooth brushing during pregnancy		
Nothing	156	52
Once	89	29.7
Twice and more	55	18.4
Time spent for brushing		
<1 minute	90	30
< 2 minute	159	53
More than 3 minutes	32	10.7
4-5 minutes	19	6.3
Cleansing aid used		
Toothbrush and past	87	29
Threads	8	2.7
Mouth wash	10	3.3
Tooth brushing(sawak)	96	32
Rinse with water	83	27.7
fingers	16	5.3
Frequency of tooth brushing before pregnancy		
Nothing	146	48.7
Once daily	85	28.3
≥twice daily	69	22.9
Frequency of changing toothbrush		
Every 3 month	147	49
Every 6 month	110	36.7
Every 9 month	28	9.3
Every 12 month	15	5
Total	300	100

Show that more than half of the respondents (52%) don't brush their teeth during pregnancy, about one third of them (29.7%) brushing their teeth once daily .more than half of them (53%) spent less than 2 minutes in brushing their teeth. Nearly one third of them (30%) spent less than 1 minute in washing their teeth. Also more than one third of women (32%) using tooth brushing to washing their teeth, Less than one of them (29%) using of Toothbrush and past in washing teeth, less than one third of them (27.7%) rinsing their teeth with water .less than one third of them (28.3%) washing their teeth once daily before pregnancy. less than half of them (48.7%) don't wash their teeth before pregnancy. Nearly half of them (49%) was changing their teeth brush every 3 months and more than one third of them (36.8%) changing their teeth brush every 6 months.

Table (7): oral health Practices followed by pregnant women:

Practice	No	%
Usual time		
In morning	59	19.7
After every meal	118	37.3
Before sleep	123	41
Using mouth wash regularly during pregnancy		
Yes	13	4.3
No	287	95.7
Using mouth wash regularly before pregnancy		
Yes	34	11.3
No	266	88.7
Visit of dentistry		
Yes	70	23.3
No	230	76.7

Practice	No	%
Dental cheek at PHC		
Yes	83	27.7
No	217	72.3
Visit for problems		
Yes	146	48.7
No	154	51.3
Dental care speaking		
Yes	101	33.7
No	199	66.3
Receiving dietary advice		
Yes	100	33.3
No	200	66.7
Receiving advice for tooth brushing		
Yes	118	39.3
No	119	39.7
Never seen a physician	63	21
Consulting obstetric doctor important		
Yes	113	37.7
No	187	62.3
Total	300	100

Less than half of the respondents (41%) washing their teeth before sleeping .more than one third of them (37.3%) washing after meal .almost of them (95.7%) don't use any mouth wash during pregnancy. don't use any mouth wash before pregnancy (88.7%). More than three quarter (76.7%) of them don't visit the dentist. Meanwhile early three quarter of them (72.3%) don't make dental checkup at primary health care. Also more than half of them (51.3%) don't visit the dentist when there was a problem in their teeth. And about (48.7%) visit the dentist when there was a problem. More over Large number of them (66.3%) said that no one speak with them about dental care during pregnancy. And about (66.7%) don't receive dietary advice during pregnancy. (21%) less than one third of them never seen a physician. Most of them (64.3%) consult obstetric doctor about their oral health during pregnancy.

Table (8): correlation of total oral health knowledge score and attitude of pregnant females:

	Total attitude score	Total practice score
	r (p)	r (p)
Total knowledge score	0.35 (0.001*)	0.52 (0.001*)

*Significance difference.

Demonstrated that there were statistical significance difference between total knowledge score and total attitude and practices score (p= 0.001) respectively.

Table (7) the correlation between total score of knowledge /attitude / practices and socio-demographic data of the pregnant women:

Data	Knowledge score	Attitude score	Practice score
	r(p)	r(p)	r(p)
Age	0.15(0.007*)	0.009(0.8)	-0.01(0.7)
Residence	-0.09(0.08)	-0.24(0.001*)	-0.05(0.3)
Education	0.13(0.01*)	0.15(0.006*)	0.09(0.08)
Occupation	0.18(0.01*)	0.06(0.2)	0.15(0.001*)
Income	0.05(0.3)	0.02(0.6)	0.06(0.2)

* Significance difference.

Showed the correlation between total score of knowledge /attitude / practices and socio-demographic data of the pregnant women: The study show there was statistical significance difference between total knowledge score of the pregnant women and their age ,level of education and (p=0.007,0.01 and 0.01) also regarding attitude the study reported that there was significance difference between attitude of pregnant women and their residence and level of education (p= 0.001&0.006). More over statistical significance difference found between practice of the pregnant women and their occupation (p=0.001).

Table (9) the needed information of pregnant women regarding oral health:

Item	NO	%
Importance of oral health.	145	48.3
Importance of Calcium intake and iron intake.	33	11
Specialized units of oral health for pregnant women.	30	10
Visual method about oral care.	49	16.3

Item	NO	%
Relationship between oral health and pregnancy.	43	14.2

Showed the needed information's of pregnant women about oral health most of them (48.3%) want to know the Importance of oral health. Some of them (16.3%) want Visual method about oral care. About (11%) of them want to know the Importance of Calcium intake and iron intake. Some of them (10%) want specialized units of oral health for pregnant women. Some (14.2%) want more Information about Relationship between oral health and pregnancy.

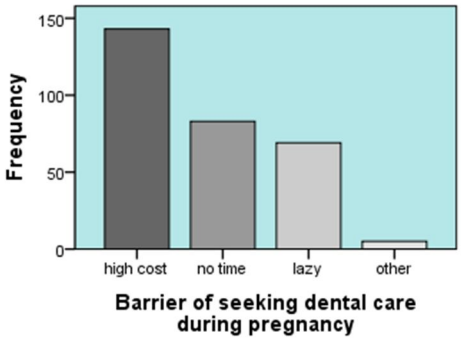

Figure 1:

Demonstrated that the barriers for seeking dental care. Most of the studied women (47.7%) considered high cost is the first barrier for seeking dental care during pregnancy followed by that 27.7% of them have no time lastly some of them (23%) were lazy for seeking dental care.

Discussion:

Good oral health and control of oral disease protects a woman's health and quality of life before and during pregnancy. [11] Prevention of oral and dental problems and their complications during pregnancy is possible through having pregnant women expressing appropriate knowledge, attitude and practice and seeking dental treatment at right time. [15]

Therefore present study was carried out with the aim to assess pregnant women's knowledge and attitude regarding oral health and oral health care practices during pregnancy. In such a way, deficiencies in oral health knowledge could be identified and recommendations could be formulated to improve dental education in antenatal care.

Regarding socio demographic characteristics of the study sample nearly half of pregnant women aged between 20-29 yrs., this may be because of early marriage and early childbearing as a custom in our country. And more than half of studied women living in rural area, more than three quadrants of them were housewives. This result is in consistent with study done by [16] who studied Oral health status and adverse pregnancy outcomes among pregnant women in Haryana, India: who stated that 87.0% percent of the subjects belong to 20–29 years of age, 82.1% of women were found to be unemployed; and resided at homes only

Contrary with study done by [17] who studied Oral Health Related awareness and Practices among pregnant women in bagalkot district, Karnataka, India: who stated that The majority 45.8% of the participants were in the age group of 20-24 years and around 37% were between 25 and 30 years nearly half of the participants (46.7%) belonged to the urban area, and 24.1% were from semi urban and 29.1% belonged to the rural area. socioeconomic status(SES) showed that the majority of the respondents (53.9%) belonged to upper lower class and 30.4% to upper middle class. This was contrary with study done by [18] who studied oral and dental health knowledge, attitude and Practice among Pregnant Women who found that majority of them71% belonged to urban area.

According to the current study findings, there were more than half of the respondents in 2-3 pregnancies and more than one third in first pregnancies and nearly 39.3% of them their gestational age were within 16wks -24wks. In the line with these findings [16] reported that fifteen percent of the pregnant women were in 3rd and 4th gravid. This reflects on the failure of the family welfare programs.[19] Health care programs should concentrate more on educating pregnant women about oral and dental health during pregnancy, providing Specialized units for the treatment of oral and dental diseases for pregnant women at nominal prices and financial support for low income pregnant women , increase awareness and counseling for pregnant women. This was not in the same line with a study done by [16] who found that 30% women were in their first pregnancy and 13% were in their fourth or fifth pregnancy.

As regard to pregnant women knowledge, Present study findings confirmed that great than three quarter of pregnant women did not know the importance of oral health, more than half of them had no information regarding methods to care of teeth. Also the response to physiological changes that occurs in oral cavity during pregnancy also the majority of pregnant women had no any information.

In contrast to this finding, in other study done by [20] who studied oral health of pregnant women; Knowledge, attitude and practice at antenatal care clinic revealed that majority of the participants agreed that oral health is important for general health. There for we must increase pregnant women knowledge about oral health by raising awareness of pregnant women about oral and dental health in antenatal care units and effect of pregnancy on oral health and the effect of oral disease on pregnancy and the effect on fetus and encourage them to attending antenatal units to make follow up to their status and ask doctor about their condition and ask them about their oral status.

In current study the mean ±SD of the total score of knowledge of studied Women were (4.8±2.03) with large proportion of them had poor knowledge and about one third of them had good knowledge. This finding was similar to

study done by [21] found that Knowledge and awareness regarding oral health was found to be low among the study subjects. And contrary with [13] who revealed that most were knowledgeable about dental health.

These findings were also contrary with [22] who studied Oral health status, knowledge and practice among pregnant women attending Omdurman maternity hospital revealed that Sudanese women (81.9%) had average oral health knowledge, but they were unaware of the relationship between oral health and pregnancy. So we can say poor knowledge was due to many factors like as cultural factors and fear from dental care, wrong believe that dental care during pregnancy can affect pregnancy health.

The present study confirmed that the total score of women attitude represented that the mean ±SD of the total score of attitude was (6.1±2.4) and more than half of them had positive attitude and about less than half with negative attitude. This similar to study done in Nigeria by [17] in which the most of the women included displayed positive attitudes to oral and contrary with study done [23] revealed that Most of the sample (78.8%), which had different age groups, educational levels and social classes, had a negative attitude to oral health during pregnancy health.

The most important finding in our study was that large number of the respondents considered oral health should be a priority. Majority of the pregnant women agreed that she should have a dental checkup during pregnancy, others considered oral health important component of primary health care. While (69%) Pregnant women highly exposed to oral diseases, large number of them agreed that pregnancy cause teeth loss, (87%) pregnancy produce calcium withdrawal, more over (67.3%) agreed with physiological changes that occur during pregnancy can affect the oral health and meanwhile more than three quarter of studied women disagree with gum disease can cause preterm labor.

The current result was constantly with study done by [18] regarding Attitude of women towards dental health 65.8% considered oral health should be a priority. Majority of the pregnant women (83%) agreed that women should have a dental checkup during pregnancy and 48% agreed that it should be every 6 months.

Concerning practices of women regarding dental care, present study confirmed that more than half of the respondents don't brush their teeth during pregnancy, about one third of them brushing their teeth once daily. More than half of them spent less than 2 minutes in brushing their teeth. Nearly one third of them spent less than 1 minute in washing their teeth. Also more than one third of women using tooth brushing to washing their teeth, less than one of them using of toothbrush and past in washing teeth, less than one third of them rinsing their teeth with water .less than one third of them washing their teeth once daily before pregnancy. Nearly half of them was changing their teeth brush every 3 months and more than one third of them (36.8%) changing their teeth brush every 6 months. This results were not in the same line with Study done by [18] who studied Self-reported oral health and hygiene habits, dental decay, and periodontal condition among pregnant European women, Concerning oral hygiene habits, 84% of the participants reported brushing their teeth 2 or 3 times a day, 68.5% did not use dental floss, and only 13.6% of women reported the use of interproximal cleaning brushes.

Present study also showed that the mean± SD of the total score of practice was (5.2±3.1) with more than half of them with poor practice meanwhile 42% of them had good practice. In contrast to this, in other study done by [4] who found that majority of respondents reported good oral hygiene habits such as brushing their teeth twice a day (73.7%) and using mouthwash (51%).

The present study demonstrated that there were statistical significance difference between total knowledge score and total attitude and practices score (p= 0.001) respectively. And there was significance between attitude of pregnant women and their residency and education with p. value =0.001&0.002) positive attitude in rural area and highly educated women. Also there was statistical significance difference between knowledge of pregnant women and their occupation (p=0.008) as house wife women had poor knowledge about oral health.

In the same line with study done by [24] who found that there was a significant relationship between mean knowledge scores and the level of education (p=0.000). and The relationship between the oral health attitude levels, and level of education (p = 0.000),In the line with other study done by [25] who studied knowledge, attitude and practice of oral health care in pregnant women in north India a cross sectional survey pregnant women with higher education status expressed better knowledge. Constantly with study done by (26) revealed that the survey highlights important gaps in dental knowledge and practices in women, particularly those with lower educational achievements and lower socio-economic status. Better knowledge of dental hygiene and practices were found in women who had some form of tertiary education and from a higher socio-economic status.

Contrary to our study finding of a study done by [27] who studied Factors associated with dental visit and barriers to utilization of oral health care services in a sample of antenatal mothers in Hospital University Sains Malaysia. Some mothers (28.2%) had received oral health education prior to their current pregnancy, and mostly (60.0%) were given by their dentists. Other sources of oral health knowledge include magazine (48.6%), television (42.9%), newspaper (40.0%), pamphlet (34.3%), radio (22.9%), and internet (20.0%). Interestingly, 14.3% had received oral health education from their medical doctors.

In the same line with the present study a study done by [28] studied what do expectant mothers need to know about oral health? A cohort study from a London maternity unit (7%) A number of them used external sources such as magazines (8%) and the internet (7%). The majority welcomed the idea of receiving oral health advice (57%), whereas the remaining was either 'not interested' (25%) or 'not sure' (11%). From this we must enhance knowledge of pregnant women about oral health by health education for them about oral health during pregnancy and how oral health is important for them and their babies; we must develop health education programs to increase awareness of pregnant women about oral health during pregnancy.

On conclusion the present study emphasized that most pregnant women were not aware of the potential risk and effect of bad oral health on pregnancy, effect of neglecting oral care during pregnancy on pregnancy outcome. The pregnant women need to learn and know the importance of oral health during pregnancy and its effect on pregnancy and how to manage and care of their oral cavity

during pregnancy, motive to visit doctor and examination and consultation to their oral health status during pregnancy. There for, a lot of health promotion programs should be carried out during pregnancy in order to motivate and educate pregnant women about importance of good oral health.

Conclusions:

Based on the results of the present study, it is concluded that:

- Large proportion of pregnant women had poor level of knowledge, more than half of them had positive attitude, and more than half of them had poor practice regarding oral health care during pregnancy.
- Most pregnant women not aware of the potential risk and effect of bad oral health on pregnancy, effect of neglecting oral care during pregnancy on pregnancy outcome.
- The needed information's of pregnant women about oral health most of them (48.3%) want to Increase awareness about oral health and teeth in pregnancy.

Recommendations:

In the light of the results of present study, the following recommendations are suggested Educational programs about oral health issues through Ministry of Health to raise the awareness of women about these issues in Egypt. Further researches are needed to investigate the effect of bad oral care on pregnancy outcome.

References

[1]. Roshani M Chawla, Sahana H Shetiya, Deepti R Agarwal, Pranjan Mitra, Nikhil A Bomble, D Satya Narayanaii.(May 2017) Knowledge, Attitude, and Practice of Pregnant Women regarding Oral Health Status and Treatment Needs following Oral Health Education in Pune District of Maharashtra: A Longitudinal Hospital-based Study, The Journal of Contemporary Dental Practice. 18(5) , 371-377.

[2]. Suzana Sharif, Norkhafizah Saddki, Azizah Yusoff. (2016) Knowledge and Attitude of Medical Nurses toward Oral Health and Oral Health Care of Pregnant Women: Malays J Med Sci. 23 (1), 63-71.

[3]. Marc J.N.C. Keirse and Kamila Plutzer. (2010) Women's attitudes to and perceptions of oral health and dental care during pregnancy. J. Perinat. Med. 38, 3.

[4]. Buğra Ozen, Levent Ozer , Feridun Başak ,Ceyhan Altun , Cengizhan Açıkel. (2012) Turkish Women's Self-Reported Knowledge and Behavior towards Oral Health during Pregnancy, Med Princ Pract .21, 318–322.

[5]. Alessandro Villa, Aimee R. Kreimer , Antonella Polimeni Domenico Cicciù , Laura Strohmenger , Enrico Gherlone , Silvio Abati. (2012) Self-Reported Oral Hygiene Habits among Dental Patients in Italy. Medical Principal and Practice. 21, 452–456.

[6]. Anil Kaul. Oral Health and Pregnancy outcomes Indo-Global Healthcare Summit, India 2014Oklahoma State University – Center for Health Sciences.

[7]. Katherine T. Wooten, Jessica Lee, Heather Jared, Kim Boggess, Rebecca S. Wilder.(2011) Nurse Practitioners and Certified Nurse Midwives' Knowledge, Opinions and Practice Behaviors regarding Periodontal Disease and Adverse Pregnancy Outcomes. Journal of Dental Hygiene. 85(2), 124.

[8]. Esther Hullah • YaroslavaTurok • Maud Nauta •WaiYoong, (2008) Self-reported oral hygiene habits, dental attendance and attitudes to dentistry during pregnancy in a Sample of immigrant women in North London. Arch Gynaecol Obstet. 277 (5), 405-409.

[9]. Shirley Y. Kang, DDS. (2014) Prenatal Oral Health Care, Center for Oral Health (COH). Western University of Health Sciences - College of Dental Medicine. California.

[10]. SandyaPatil, Rachna Thakur, Madhu K, Santhosh T PaulPrahlad Gadicherla. (2013)Oral Health Coalition: Knowledge, Attitude, Practice Behaviors among Gynecologists and Dental Practitioners, Journal of International Oral Health.5 (1), 8-15.

[11]. California Dental Association Foundation. (2010). Oral Health during Pregnancy and Early Childhood: Evidence Based Guidelines for Health Professionals.

[12]. Mohammad Abdul Baseer, Ghousia Rahman, Farah Asa'ad, Fatima AlAmoudi, Fatima AlBluwi. (March, 2014) Knowledge, Attitude and Practices of Gynecologists Regarding the Prevention of Oral Diseases in Riyadh City, Saudi Arabia. OHDM .13 (1)

[13]. Ewelina Gaszyńska, Justyna Klepacz-Szewczyk , Elżbieta Trafalska , Anna Garus-Pakowska , And Franciszek Szatko . Dental Awareness and oral health of pregnant women in Poland, International Journal of Occupational Medicine and Environmental Health 2015;vol28;No(3):pp 603 – 611.

[14]. Saskatchewan Prevention Institute. (2014) Improving the Oral Health of Pregnant Women and Young Children September 2014. 13.

[15]. Bamanikar S, Kee LK. (2013) Knowledge, attitude and practice of oral and dental health care in pregnant women. Oman Med J. 28,288‑291.

[16]. Puneet Singh Talwar, Ramandeep Singh Gambhir, Deepti Talwar, Ramandeep Kaur Sohi, Ashish Vashist, Vaibhav Munjal. (2015).Oral health status and adverse pregnancy outcomes among pregnant women in Haryana, India: A prospective study Journal of Indian Association of Public Health Dentistry. 13 (2).

[17]. Parappa Sajjan, Jyoti I Pattanshetti, Chiyadu Padmini, Veeresh M Nagathan, Mangala Sajjanar, Taha Siddiqui. (2015) Oral Health Related Awareness and Practices among Pregnant Women in Bagalkot District, Karnataka, India Journal of International Oral Health. 7 (2), 1-5.

[18]. Amit, PrachiMital, NupurHooja, PremlataMital, AnuradhaSalvi, Andleeb Fatima. (2014)Oral and Dental Health Knowledge, Attitude and Practice among Pregnant Women, Scholars Academic Journal of Biosciences (SAJB), Sch. Acad. J. Biosci. 2 (9), 627-632.

Singh L, Rai RK, Singh PK. Assessing the

utilization of maternal and child health care among married adolescent women: Evidence from India. J Biosoc Sci 2012; p. 44:1‑26.

[19]. Dr. Byanaku A K, Dr. Rwakatema D S. (2013) Oral health of pregnant women; Knowledge, attitude and practice at antenatal care clinic in goro Municipal, Tanzania. Professional Med J.20 (3), 365-373.

[20]. Ramandeep Singh Gambhir, Ashutosh Nirola, Tarun Gupta, Tegbir Singh Sekhon, and Samir Anand. (2015) Oral health knowledge and awareness among pregnant women in India: A systematic review; Journal of Indian Society of Periodontolog. 19 (6), 612–617.

[21]. H.M. El-Mahdi Ibrahim, A.M. Mudawi and I.A. Ghandour . (2016) Oral health status, knowledge and practice among pregnant women attending Omdurman maternity hospital, Sudan Eastern Mediterranean Health Journal. 22 (11)

[22]. Adeniyi Abiola, Agbaje Olayinka, Braimoh Mathilda, Ogunbanjo Ogunbiyi, Sorunke Modupe and Onigbinde Olubunmi. (2011) A survey of Knowledge and Practices of Oral Health by Pregnant Women in a Nigerian Teaching Hospital. African Journal of Reproductive Health.15 (4), 14-19.

[23]. Yolanda Martínez-Beneytoa,,María V. Vera-Delgado a, Leonor Pérez a, Antonio Maurandi . (2011) Self-reported oral health and hygiene habits, dental decay, and periodontal condition among pregnant European women, International Journal of Gynecology and Obstetrics. 114, 18–22.

[24]. NehaAgrawal , N. D. Gupta , R. K. Tewari , Amit Kumar Garg , PramodYadav . (2017) knowledge, attitude and practice of oral health care in pregnant women in north india a cross sectional survey; Journal of Dental Sciences University.1 (3).

[25]. Thomas NJ, Middleton PF, Crowther CA. (2008) Oral and dental health care practices in pregnant women in Australia: a postnatal survey; BMC Pregnancy and Childbirth, 8:13.

[26]. Norkhafizah Saddki, Azizah Yusoff, Yew L Hwang. (2010) Factors associated with dental visit and barriers to utilization of oral health care services in a sample of antenatal mothers in Hospital Universiti Sains Malaysia. (BioMed Central) BMC Public Health. 10(75).

[27]. Patricia Nunes Correia, Aishah Alkhatrash, Catherine Ethel Williams, Annette Briley, Jenny Carter, Lucilla Poston and Marie .Therese Hosey. (2017) What do expectant mothers need to know about oral health? A cohort study from a London maternity unit BDJ .3 (17004).