

Oral health knowledge, attitude, and status and oral health index among midwifery students of Tehran University of Medical Sciences, Iran

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Original Article

Abstract

BACKGROUND AND AIM: All primary care providers contribute to oral health promotion of the community, especially when they are more frequently visited by individuals compared to dentists. The aim of the present study was to assess midwifery students' knowledge on and attitude toward oral health promotion of pregnant women and its relationship with the students' own oral health status and their backgrounds.

METHODS: In a cross-sectional study, a questionnaire was distributed among all midwifery students of Tehran University of Medical Sciences (n = 104). The questions consisted of information on their demographic data and knowledge on and attitude toward oral health during pregnancy. The students' oral health status was assessed in terms of decayed, missing or filled teeth (DMFT), community periodontal index of treatment need (CPITN), and plaque index (PI). The data were analyzed by Kruskal-Wallis, ANOVA, NPAR tests, and logistic regression analysis.

RESULTS: The mean scores of the students' knowledge about oral health were 5.2 ± 0.9 (maximum score = 8), attitude toward oral health 22.4 ± 4.8 (maximum score = 40), and attitude toward oral health of pregnant women 67.5 ± 11.5 (maximum score = 120). The mean DMFT was 4.55 (SD = 3.19), max CPITN was 1.48 (SD = 0.81) and PI was 0.9 (SD = 0.46). There was a significant relationship between oral health attitude and students' mean DMFT, PI, and max CPITN ($P = 0.005$, $P = 0.005$, and $P = 0.011$), but there was no significant relationship between these indices and the knowledge of the students.

CONCLUSION: The students seemed to have limited oral health knowledge and fairly negative attitudes, while better oral health status was related to a more positive attitude among them. Negative oral health attitude could affect their role in education of patients; therefore, it is necessary to incorporate oral health promotion educations in their curriculum.

KEYWORDS: Midwives, Knowledge, Attitude, Oral Health

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During pregnancy, which is associated with some changes in different parts of body, care of oral and dental health is very important.¹ Patients' oral health may affect their pregnancy outcome. Heavy oral microbial burden and periodontal disease have been related to obstetrical complications like preterm birth, low birth weight, and preeclampsia.² The majority of pregnant women receive no instructions regarding oral health during pregnancy, even

though this stage is an opportunity among them for receiving information and participating in preventive programs with increased acceptance.³

Oral health care may be provided during pregnancy; the second trimester is the best time for these cares, although it is possible to give dental services in the first and third trimester under stressless conditions.⁴ Pregnant women are usually under regular follow up of medical personals, especially

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obstetricians; some women even see their doctor before pregnancy for consultation. Therefore, peri- and postnatal period are very reasonable time for dental health care and education provided by non-dental medical groups.⁴ All primary care providers contribute to oral health promotion of the community, especially when they are more frequently visited by individuals compared to dentists.⁵ Since health personnel have been educated for disease prevention and health promotion, their own oral health knowledge and behavior should be in line with professional recommendations. Health personnel may play an important role in oral health education if their have appropriate oral health status and information themselves.⁶

Obstetricians must have good knowledge about oral health, but unfortunately some studies showed that their knowledge and practice present some deviations from scientific literature recommendations during pregnancy.⁷ Nurses and obstetricians/gynecologists showed less favorable attitudes toward women's oral health, compared to dentists.⁸ Thirty four percent of Brazilian obstetricians did not know the potential contribution of periodontal infection to low birth-weight. Moreover, there was divergence among their scientific information about the recommendation of prenatal fluoride supplementation and local anesthetics.⁷ Another Brazilian study reported that although obstetricians knew the association between gingival inflammation and adverse pregnancy outcomes, their attitudes were not in concordance with their knowledge.⁹ A survey of North Carolina obstetricians revealed that some misconceptions such as tooth decay or loss may worsen during pregnancy. However, only half of them recommended dental exams during pregnancy.¹⁰

There is no discussion in the literature about midwifery students' knowledge about and attitude toward dental care during

pregnancy. Therefore, the aim of this study was to assess midwifery students' knowledge on and attitude toward oral health promotion of pregnant women and their correlations in terms of students' oral health status and their backgrounds.

Methods

This study was an analytical cross-sectional study. The research population consisted of all midwifery students of Tehran University of Medical Sciences during the academic year 2010-2011. The total number of students was 116.

The self-administered questionnaire was based on previous valid questionnaires.^{2,6,11} The questionnaire was evaluated for content validity by the Department of Community Oral Health of the School of Dentistry at Tehran University of Medical Sciences (Tehran, Iran). Prior to data collection a pilot study was done among ten midwifery students to test the reliability of the questionnaire. The questionnaire was shown to have good internal consistency (Cronbach's alpha coefficient = 0.75).

The structured, anonymous questionnaire consisted of: 1- Socio demographic factors (age, marital status, student grade at university, self-reported financial status, parents education levels, and place of residency); 2- Self perceived oral health; 3- Oral health habits; 4- Oral health knowledge; 5- Oral health attitude; and 6- Attitude toward oral health during pregnancy.

Student's oral health status was assessed in terms of decayed, missing due to decay, or filled teeth (DMFT), the Community Periodontal Index of Treatment Need (CPITN), and the Plaque Index (PI) based on the World Health Organization (WHO) criteria.¹²

After a meeting with the head of the Midwifery Educational Group, we explained our study aims to the faculty members and then started our study. Before sampling the examiners were trained and calibrated for clinical assessments by examining 10

individuals twice, the intra- and inter-examiners' reliability were perfect.

During data collection, the questionnaires were given to the students. The questionnaires were completed by the students and then the students were examined clinically. The students were examined by two examiners in their classroom utilizing a stainless steel WHO probe (Hu-Friedy CP-11.5B Dental Screening Probe), disposable dental mirror, sterile gauze, and headlamp.

Knowledge questions were multiple-choice questions; we dichotomised answers to knowledge questions to "1" for correct and "0" for false answers. Scoring of attitude questions was based on a five-point Likert scale (totally disagree = 1, disagree = 2, neutral = 3, agree = 4, and totally agree = 5), and weighted according to value of each questions.

The data was analyzed using SPSS for Windows (version 18; SPSS Inc., Chicago, IL, USA). The statistical tests consisted of Kruskal-Wallis, ANOVA, Post HOC test, NPAR test, and regression analysis.

The study was approved by the Ethics Committee of the School of Dentistry, Tehran University of Medical Sciences (number:

90/01/69/12899). The students were entered in our study voluntarily and the subjects were entered into the database with only a numerical code.

Results

A total of 104 female students, 27 in their first year, 23 in second year, 29 in third year, and 25 in their fourth year, participated in the study. Ninety four percent of the students were single and 6.0% were married. Economically, 8.7% of them reported a very good condition, and 86.4% an acceptable and 4.9% a poor condition. Among the students, 68.0% felt that they have problems in their teeth, while 45.2% perceived that their oral health is average, 39.4% good, 9.6% bad, 3.8% very bad, and 1.9% very good.

Forty nine percent of the students had visited a dentist during the last year. The most frequent services that our study group had received in their last visit to the dentist are shown in figure 1. Most of the students (92.3%) always used fluoride tooth paste. The frequency of daily tooth brushing of the students is shown in figure 2.

Most of the students knew the role of fluorides in caries prevention. Only 14.7% of

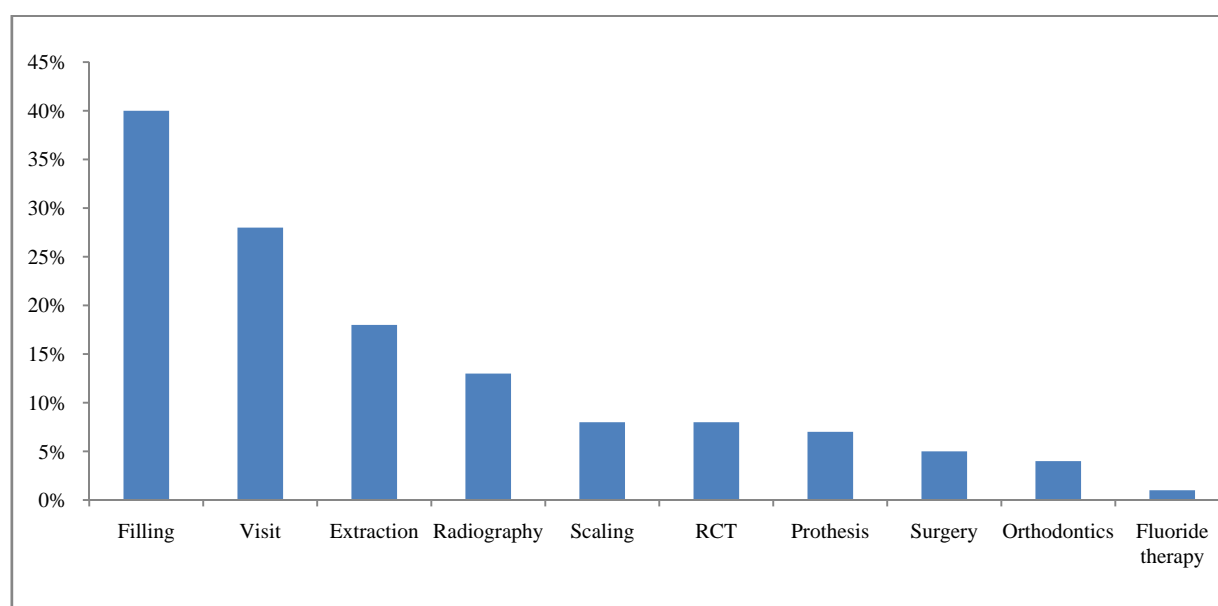


Figure 1. The most frequent services received by midwifery students of Tehran University of Medical Sciences in their last dental visit

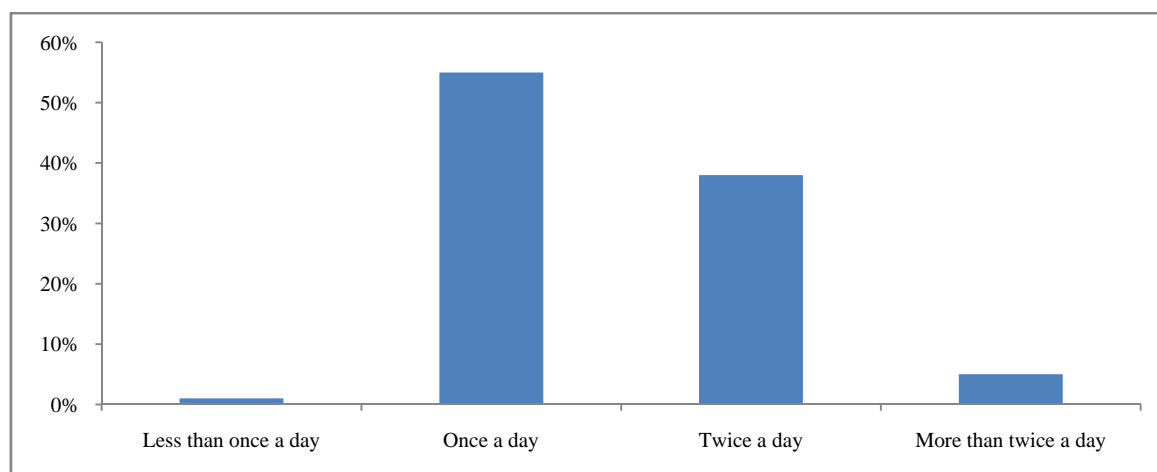


Figure 2. The frequency of daily tooth brushing of midwifery students of Tehran University of Medical Sciences

the students knew the potential contribution of poor dental care, as a risk factor, for low birth-weight and 36.3% of the students reported an oral health association with premature delivery. Forty six percent of the students indicated that the best time for dental procedure for pregnant women is their second trimester. The percentage of students' responses to attitude questions is shown in tables 1, 2, and 3.

The mean score of the students'

knowledge about oral health was 5.2 ± 0.9 (maximum score = 8); for attitude about oral health it was 22.4 ± 4.8 (maximum score = 40) and for attitude about oral health of pregnant women it was 67.5 ± 11.5 (the maximum score = 120). The mean DMFT was 4.55 ± 3.19 , max CPITN was 1.48 ± 0.81 , and PI was 0.9 ± 0.46 . There was a significant ($P = 0.003$) difference observed between the mean DMFT scores of the second year students and other students. Max CPITN score of first year

Table 1. Frequency (Percentage) of responses of midwifery students of Tehran University of Medical Sciences to attitude questions about oral health during pregnancy in 2010-2011

Questions	Strongly agree	Agree	Disagree	Strongly disagree	Neutral
I would delay dental treatment in a pregnant patient until after delivery due to malpractice concerns.	7 (6.8%)	27 (26.2%)	44 (42.7%)	11 (10.7%)	14 (13.6%)
I should refer women to the dentist for oral health screens before pregnancy.	46 (44.2%)	52 (50.0%)	0	0	6 (5.8%)
There is no reason for not accepting pregnant patients.	11 (10.9%)	42 (41.6%)	31 (30.7%)	5 (5.0%)	12 (11.9%)
All pregnant women should receive routine dental screening as part of their prenatal care.	43 (42.2%)	52 (51.0%)	3 (2.9%)	1 (1.0%)	3 (2.9%)
Obstetricians have an important role in oral health promotion of pregnant patients.	34 (32.7%)	57 (54.8%)	7 (6.7%)	2 (1.9%)	4 (3.8%)
The reason that dentists decline to see your obstetrical patients is their concern about safety of dental treatments during pregnancy.	13 (12.9%)	71 (70.3%)	8 (7.9%)	1 (1.0%)	8 (7.9%)
Midwifery students have enough information about oral health.	4 (3.8%)	24 (23.1%)	55 (52.9%)	9 (8.7%)	12 (11.5%)
Obstetricians need to obtain information on oral health.	50 (48.1%)	50 (48.1%)	2 (1.9%)	1 (1.0%)	1 (1.0%)

Table 2. Attitude of midwifery students of Tehran University of Medical Sciences toward provision of dental services during second trimester of pregnancy in 2010-2011

Questions	Strongly agree	Agree	Disagree	Strongly disagree	Neutral
Caries removal	16 (15.7%)	56 (54.9%)	13 (12.7%)	4 (3.9%)	13 (12.7%)
Composite filling	8 (7.8%)	39 (37.9%)	19 (18.4%)	6 (5.8%)	31 (30.1%)
Amalgam filling	3 (3.0%)	26 (25.7%)	26 (25.7%)	4 (4.0%)	42 (41.6%)
Bleaching	11 (10.7%)	45 (43.7%)	23 (22.3%)	6 (5.8%)	18 (17.5%)
Root canal therapy	4 (3.9%)	21 (20.6%)	35 (34.3%)	11 (10.8%)	31 (30.4%)
Dental x-ray (with shielding)	1 (1.0%)	5 (4.9%)	43 (41.7%)	41 (39.8%)	13 (12.6%)
Lidocaine use	3 (2.9%)	44 (42.7%)	31 (30.1%)	9 (8.7%)	16 (15.5%)
Antibiotic use	3 (3.0%)	29 (28.7%)	42 (41.6%)	9 (8.9%)	18 (17.8%)
Tooth extractions	4 (3.9%)	27 (26.2%)	38 (36.9%)	10 (9.7%)	24 (23.3%)
Abscess drainage	5 (4.9%)	44 (42.7%)	21 (20.4%)	9 (8.7%)	24 (23.3%)

Table 3. Prevalence (Percentage) of responses of midwifery students of Tehran University of Medical Sciences to attitude questions about oral health in 2010-2011

Question	Neutral	Strongly disagree	Disagree	Agree	Strongly agree
Using fluoride toothpaste to prevent tooth decay is more important than brushing.	17 (16.3%)	5 (4.8%)	28 (26.9%)	42 (40.4%)	12 (11.5%)
Frequency of sugar intake is more important than quantity in relation to the development of dental caries.	13 (12.5%)	1 (1.0%)	6 (5.8%)	59 (56.7%)	25 (24.0%)
I believe my own teeth should last me throughout my life.	13 (12.6%)	6 (5.8%)	32 (31.1%)	36 (35.0%)	16 (15.5%)
I find there is very little I can do to prevent myself getting dental problems.	2 (2.0%)	19 (18.6%)	71 (69.6%)	10 (9.8%)	0

students was significantly lower than other students ($P = 0.005$). While the mean DMFT, PI, and max CPITN score of students had no significant relationship with their socioeconomic status. The students' knowledge and attitude were not related to the year of study and socioeconomic status of students. There was a significant relationship between students' oral health attitude and their attitude about oral health during pregnancy ($P < 0.001$). Data analysis also showed that there was a significant relationship between oral health attitude and students' mean DMFT, PI, and max CPITN ($P = 0.005$, $P = 0.005$, $P = 0.011$), and between attitude toward oral health during pregnancy and mean PI ($P = 0.014$).

Discussion

This study has been performed among midwifery students of Tehran University of Medical Sciences. The students seemed to have limited oral health knowledge and fairly negative attitudes. Moreover, those with healthy periodontal and dental status had

significantly more positive oral health attitude than other students. These findings corroborate previous studies.^{7,13} Most of the students were single and the majority of the students said that their socioeconomic status is good. Most of the students felt that they have problems in their teeth. Contradictory findings were reported in a recent study among students at the Kuwait University, where most of the students did not feel that they have problems in their teeth. About half of the students had visited a dentist during the last year, which was in line with the study in Kuwait University.⁶ Unlike Kuwaiti students, this study showed that dental treatment services were used more than preventive dental services by the students. More than half of the students claimed to brush their teeth only once a day; therefore, their tooth brushing habits are still far behind the international recommendation (twice a day), similar results were found in the study in Kuwait University.⁶

Most of the students knew the role of fluorides in caries prevention. Near half of

the students indicated that the best time for dental procedure for pregnant women is the second trimester, but only a few knew the potential contribution of poor dental care, as a risk factor, for adverse pregnancy outcome. Contradictory findings were reported in two American and Brazilian studies among obstetricians. Most of them reported associations between oral health and pregnancy outcome.^{2,7} Thus, knowledge of midwifery students in our study was lower than American and Brazilian obstetricians. This may be due to their different curriculums.

There was no significant difference in knowledge between the first year and the more advanced students in a Kuwaiti study.⁶ This finding is in line with our study's findings. It was expected that third and fourth year students would have more knowledge than first and second year students, therefore, it was alarming that there was no significant difference in knowledge between the first year and the more advanced students.

Most of the responders thought that they should refer women to the dentist for oral health screens before pregnancy; similar results were also obtained from a study among obstetricians in the USA.²

Most of the students agreed that pregnant patients could undergo lidocaine injection, composite filling, bleaching, and abscess drainage, but disagreed regarding the safety of X-rays, amalgam, periodontal surgery, root canal therapy, tooth extraction, and antibiotic usage. The results are in agreement with the study by Strafford et al. who reported that providers agreed that dental cleanings, caries treatments, and abscess drainage are safe during pregnancy, but there are doubts about the safety of X-rays, amalgam, periodontal surgery, and narcotic usage.²

Max CPITN significantly increased from first year to second year students; this could be due to less attention to their oral health after entering the university and tight learning schedule. A slight increase was

observed in Mean PI from first year to second year students, but the difference was not significant.

chohan Al-Essa et al. showed that the mean DMFT among Saudi students was 10.1 ± 4.7 , it significantly increased with the increase in age.¹⁴ Lwin et al. found, in their study, that mean DMFT was 2.6 among nursing students and it significantly increased with the increase in age.¹⁵ Deyhimi et al. showed that the mean DMFT among Iranian dentistry students was 5.4; there were no significant changes in DMFT between different year students.¹⁶ Hessari et al. found that mean DMFT was 4.3 among 18 year olds people in Iran, which is almost the same as our results for midwifery students.¹⁷ Similar results were also obtained from a study among 15-19 year olds in Iran.¹⁸ As a matter of fact, oral health indices in our study were similar to the same age range in Iran, but oral health indices were expected to be better among the midwifery students as a group of medical professions.

There was no significant relationship between knowledge of students and their attitude toward oral health during pregnancy, but the relationship between oral health attitude and attitude toward oral health during pregnancy was significant. Lower scores of oral health indices were associated with positive attitude toward oral health. This means that the students with healthy periodontal and dental status had significantly more positive oral health attitudes than students with bleeding, calculus, or caries. However, oral health knowledge did not show a positive correlation with the oral health status. Similar results were also obtained from a study among pregnant women in Iran which showed that DMFT was not related to oral health knowledge, but positive attitude was associated with lower DMFT scores.¹⁹ Thomas et al. showed that there were gaps in dental knowledge and practices in pregnant women, particularly those with lower socio-economic status.²⁰ Sharda and

Shetty found that the mean DMFT score was dependent on the oral health behavior, but showed no significant relationship with the knowledge and attitude of the students. Furthermore, there was a significant relationship between periodontal status and attitude and behavior of the students, but periodontal status was independent of the knowledge.¹³

This study has some limitations, such as limited student cooperation in clinical examination and answering to questionnaire.

Conclusion

It may be concluded that the oral health knowledge and attitude among the midwifery students was considerably lower than what would be expected of these groups. The students with healthy periodontal and dental status had significantly more positive oral

health attitude than other student. Negative oral health attitude could affect students' oral health status and their role in education of patients; therefore, it is necessary to implement oral health promotion programs in their curriculum.

Conflict of Interests

Authors have no conflict of interest.

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