



## RESEARCH ARTICLE

**REVISED** The knowledge, attitude and practice level of dental auxiliaries regarding oral health care for pregnant patients in the eastern province of Saudi Arabia [version 3; peer review: 2 approved]Daneah Alibrahim <sup>1</sup>, Azza El. Mahalli <sup>2</sup><sup>1</sup>University Dental Hospital, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia<sup>2</sup>Department of Public Health, College of Public Health, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

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**Abstract**

**Background:** The purpose of this research was to assess the knowledge, attitude, and practice of dental auxiliaries related to oral health care for pregnant patients in the Eastern Province of Saudi Arabia.

**Methods:** A cross-sectional study using a questionnaire survey was conducted. The knowledge, attitude, and practice were rated using the Likert scale out of 5. Knowledge and practice were categorized using bloom's cut off point methods (80% and above is good, and less than 80% is bad). Concerning attitude, (80% and above is positive, and less than 80% is negative) The questionnaires were sent to all dental hygienists and assistants (N=358), and responses were collected from 218. Statistical Package for the Social Sciences (SPSS) software was utilised to conduct statistical analysis.

**Results:** Out of the 358, 218 responded (response rate = 61%). More than half of the respondents showed relatively good knowledge (57.3%). Most respondents had a positive attitude (89.4%). Regarding practice, approximately two-thirds had a good practice (67.4%). The knowledge score of hygienists was significantly higher than dental assistants, and respondents with experience in treating pregnant patients had significantly higher knowledge scores than others who did not have experience in treating pregnant patients. There is a statistically significant positive correlation between practice scores and education.

**Conclusions:** The findings suggest the need to establish continuous education programs and for dental hygienists and dental assistants to adopt the best practice guidelines on perinatal oral health.

**Open Peer Review****Approval Status**

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2. **Catherine Maybury**, University of Maryland School of Public Health, College Park, USA

Any reports and responses or comments on the article can be found at the end of the article.

**Keywords**

Dental auxiliaries; Pregnancy; Oral care; Knowledge; Attitude; Practice; Saudi Arabia

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**REVISED Amendments from Version 2**

We have updated the introduction and i added new reference. In addition, we have modified the methodology (added the number of questioner, mentioned that we used likert scale, and the data was squad). We also remove some words from the article in response to the reviewer comments.

**Any further responses from the reviewers can be found at the end of the article**

**Introduction**

Pregnancy is an experience that most females undergo during their lives, which contributes to physiological and psychological changes. One of the most apparent changes is the one in hormonal levels such as estrogen and progesterone that significantly influences various health issues. Hormonal changes can increase the risk of gingivitis and periodontitis.<sup>1-4</sup> Preventing plaque formation during pregnancy is important for both the mother and the fetus.<sup>5</sup> Health care practitioners from diverse backgrounds work together during pregnancy to meet the health and well-being of mothers and their developing fetuses.<sup>6</sup> Dental professionals such as dentists and dental auxiliaries (dental hygienists and assistants) are well-positioned to provide oral care for pregnant patients and facilitate referrals to other health care providers.<sup>3,6</sup> To improve the services provided to pregnant patients, researchers need to understand the knowledge and awareness level of dental auxiliaries regarding oral health care for pregnant patients.<sup>6</sup> A few studies have been performed in the United States that discuss dental hygienists' awareness, attitude, and practice towards pregnant patients.<sup>6,7</sup> However, in Saudi Arabia, no studies have been conducted to assess the awareness, attitude, and practice of dental auxiliaries towards pregnant patients. Health planners and providers may be better informed from the findings of this study for the benefit of the patients and the public. Dental hygienists are well positioned to provide oral care, introduce pregnancy oral health information, and encourage referrals to other health care providers. Thus, the study aims to assess the level of knowledge, attitude, and practice of dental auxiliaries regarding oral health care for pregnant patients in the Eastern Province of Saudi Arabia.

**Methods****Ethics statement**

Ethical approval was obtained from Imam Abdulrahman Bin Faisal University research ethical review board (IRP-PGS-2020-03-378). Written informed consent was obtained from all subjects who agreed to participate in the study. The confidentiality and privacy of the subjects were maintained.

**Study design and setting**

This population-based cross-sectional study was conducted at the governmental dental hospitals in the Eastern province of Saudi Arabia from 17 February 2021 to 17 March 2021.

**Participants**

Study participants were all dental auxiliaries (dental hygienist and dental assistant) at the governmental dental hospitals in the Eastern province of Saudi Arabia.

**Data collection and instrument**

The *questionnaire* was used by Schramm et al. (2016) but modified in the current study.<sup>6</sup> The questionnaire has 29 items and comprised of four sections which included socio-demographic characteristics (9 items) such as age, gender, years of experience,...etc; knowledge (6 items) such as prophylaxis treatment is safe for pregnant patients, periodontal care (scaling/root planning) can be safely applied during all stages of pregnancy...etc; attitude (8 items) such as I believe that prenatal care should include dental treatment, I consider counselling pregnant patients regarding periodontal disease,... etc and practice (6 items) such as I'm willingness to provide care to pregnant women, I consult obstetricians before/after dental procedures...etc.

Knowledge, attitude, and practice were rated using the Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. Knowledge and practice were categorized using Bloom's cut off point methods ( $\geq 80\%$  is good, and  $< 80\%$  is bad). Concerning attitude, ( $\geq 80\%$  is positive, and  $< 80\%$  is negative).<sup>8</sup> The survey was administered via Google forms services to all dental auxiliaries through e-mail obtained from hospital database. Two reminders were sent to the potential respondents. There was no missing data. See the *Extended data* for a copy of the questionnaire.

**Pilot study**

A pilot study was conducted on a representative sample of dental auxiliaries from a private hospital. The questionnaire was validated for face and content validity by a jury comprised of three consultant dentists, one clinical psychology

specialist, and one public health professor. Cronbach's coefficient alpha was used to calculate the internal consistency of the items included in the questionnaire. Cronbach's alpha were acceptable for knowledge ( $\alpha = 0.778$ ), and attitude ( $\alpha = 0.791$ ) and good for practice ( $\alpha = 0.862$ ).

### Analysis

Statistical analysis was performed using SPSS version 23 for Mac. Frequencies and percentages were calculated for categorical variables. The mean and standard deviation were calculated for continuous variables. The median score of 4 was a cut-off point that was considered satisfactory for knowledge, attitude, and practice.<sup>9</sup> As the distribution of the data was skewed, Mann Whitney and Kruskal Wallis tests were used to compare the knowledge, attitude, and practice scores. The Spearman rho test was used to correlate the knowledge, attitude, and practice scores with age, education, and experience. A p-value of  $\leq 0.05$  was considered statistically significant.

### Results

Of the total of 358, 218 responded, resulting in a response rate of 61%.

Table 1 shows the socio-demographic characteristics of study participants.

**Table 1. Distribution of study participants according to socio-demographic characteristics (2021).**

| Socio-demographic characteristics        | No %                        |
|--|-----------------------------|
| <b>Age category</b>                      | X $\pm$ SD (32.2 $\pm$ 9.3) |
| 20-                                      | 145 (66.5)                  |
| 35-                                      | 67 (30.7)                   |
| 45-                                      | 6 (2.8)                     |
| <b>Gender</b>                            |                             |
| Male                                     | 50 (22.9)                   |
| Female                                   | 168 (77.1)                  |
| <b>Nationality</b>                       |                             |
| 1-Saudi                                  | 152 (69.7)                  |
| 2-Non-Saudi                              | 66 (30.3)                   |
| <b>Marital status</b>                    |                             |
| 1-Single                                 | 107 (49.1)                  |
| 2-Married                                | 103 (47.2)                  |
| 3-Divorced                               | 8 (3.7)                     |
| <b>Education level</b>                   |                             |
| 1-High diploma                           | 56 (25.7)                   |
| 2-Bachelors                              | 155 (71.1)                  |
| 3-Master (MA, MSc, etc.)                 | 7 (3.2)                     |
| <b>Specialty</b>                         |                             |
| 1-Hygienist                              | 73 (33.5)                   |
| 2-Dental assistant                       | 145 (66.5)                  |
| <b>Workplace</b>                         |                             |
| 1-Imam Abdulrahman Bin Faisal University | 90 (41.3)                   |
| 2-Dammam medical complex                 | 39 (17.9)                   |
| 3-Qatif Central Hospital                 | 16 (7.3)                    |
| 4-King Fahad military complex            | 55 (25.2)                   |
| 5-Airbase Hospital                       | 18 (8.3)                    |

**Table 1.** *Continued*

| Socio-demographic characteristics            | No %       |
|--|------------|
| <b>Years of experience</b>                   |            |
| 1-<5 years                                   | 111 (50.9) |
| 2-5-10 years                                 | 55 (25.2)  |
| 3->10 years                                  | 52 (23.9)  |
| <b>Experience in treating pregnant women</b> |            |
| 1-Yes  | 138 (63.3) |
| 2-No   | 80 (36.7)  |

**Table 2** shows that more than half of the study participants (57.3%) had good knowledge regarding oral health care for pregnant patients. Concerning the attitude of dental practitioners towards the pregnant patients, (89.4%) had a positive attitude. Finally, approximately two-thirds of participants had good practice (67.4%).

**Table 3** shows that the knowledge score of hygienists was higher than dental assistants and of those experienced in treating pregnant women was higher than participants without experience and these differences were significant ( $P < 0.05$ ).

**Table 2.** The knowledge, attitude, and practice level of dental auxiliaries regarding oral health care for pregnant patients in the Eastern Province of Saudi Arabia (2021).

| Variable            | No %       |
|---------------------|------------|
| <b>Knowledge</b>    |            |
| 1-Good knowledge    | 125 (57.3) |
| 2-Poor knowledge    | 93 (42.7)  |
| <b>Attitude</b>     |            |
| 1-Positive attitude | 195 (89.4) |
| 2-Negative attitude | 23 (10.6)  |
| <b>Practice</b>     |            |
| 1-Good practice     | 147 (67.4) |
| 2-Bad practice      | 71 (32.6)  |

**Table 3.** Association of knowledge with socio-demographics of dental auxiliaries (2021).

| Socio-demographic characteristics | Median | P-value |
|-----------------------------------|--------|---------|
| <b>Gender</b>                     |        |         |
| Male                              | 4      | 0.248   |
| Female                            | 4      |         |
| <b>Nationality</b>                |        |         |
| 1-Saudi                           | 4      | 0.399   |
| 2-Non-Saudi                       | 4      |         |
| <b>Marital status</b>             |        |         |
| 1-Single                          | 4      | 0.359   |
| 2-Married                         | 4      |         |
| 3-Divorced                        | 4      |         |

**Table 3.** *Continued*

| Socio-demographic characteristics            | Median | P-value |
|--|--------|---------|
| <b>Specialty</b>                             |        |         |
| 1-Hygienist                                  | 4      | 0.006*  |
| 2-Dental assistant                           | 3.5    |         |
| <b>Workplace</b>                             |        |         |
| 1-Imam Abdulrahman Bin Faisal University     | 4      |         |
| 2-Dammam medical complex                     | 4      | 0.333   |
| 3-Qatif Central Hospital                     | 3.7    |         |
| 4-King Fahad military complex                | 4      |         |
| 5-Airbase Hospital                           | 4      |         |
| <b>Experience in treating pregnant women</b> |        |         |
| 1-Yes  | 4      | 0.008*  |
| 2-No   | 3.5    |         |

\*P ≤ 0.05.

**Table 4.** Association of attitude with socio-demographics of dental auxiliaries (2021).

| Socio-demographic characteristics        | Median | P-value |
|--|--------|---------|
| <b>Gender</b>                            |        |         |
| Male                                     | 4      | 0.632   |
| Female                                   | 4      |         |
| <b>Nationality</b>                       |        |         |
| 1-Saudi                                  | 4      | 0.523   |
| 2-Non-Saudi                              | 4      |         |
| <b>Marital status</b>                    |        |         |
| 1-Single                                 | 4      | 0.134   |
| 2-Married                                | 4      |         |
| 3-Divorced                               | 4      |         |
| <b>Specialty</b>                         |        |         |
| 1-Hygienist                              | 4      | 0.902   |
| 2-Dental assistant                       | 4      |         |
| <b>Workplace</b>                         |        |         |
| 1-Imam Abdulrahman Bin Faisal University | 4      |         |
| 2-Dammam medical complex                 | 4      | 0.298   |
| 3-Qatif Central Hospital                 | 4      |         |
| 4-King Fahad military complex            | 4      |         |
| 5-Airbase Hospital                       | 4      |         |
| <b>Experience in treating pregnant</b>   |        |         |
| 1-Yes                                    | 4      | 0.486   |
| 2-No                                     | 4      |         |

Table 4 shows that there is no statistically significant difference in the attitude score by gender, nationality, marital status, specialty, workplace nor experience in treating pregnant females ( $P > 0.05$ ).

Table 5 shows that there is no statistically significant difference in the practice score by gender, nationality, marital status, specialty, nor workplace ( $P > 0.05$ ). However, there is a significant difference between participants with experience in treating pregnant patients and those without experience ( $P < 0.05$ ).

**Table 5. Association of practice with socio-demographics of dental auxiliaries (2021).**

| Socio-demographic characteristics            | Median | P-value |
|--|--------|---------|
| <b>Gender</b>                                |        |         |
| Male   | 4      | 0.935   |
| Female                                       | 4      |         |
| <b>Nationality</b>                           |        |         |
| 1-Saudi                                      | 4      | 0.629   |
| 2-Non-Saudi                                  | 4      |         |
| <b>Marital status</b>                        |        |         |
| 1-Single                                     | 4      | 0.848   |
| 2-Married                                    | 4      |         |
| 3-Divorced                                   | 4      |         |
| <b>Specialty</b>                             |        |         |
| 1-Hygienist                                  | 4      | 0.168   |
| 2-Dental assistant                           | 4      |         |
| <b>Workplace</b>                             |        |         |
| 1-Imam Abdulrahman Bin Faisal University     | 4      |         |
| 2-Dammam medical complex                     | 4      | 0.452   |
| 3-Qatif Central Hospital                     | 4      |         |
| 4-King Fahad military complex                | 4      |         |
| 5-Airbase Hospital                           | 4      |         |
| <b>Experience in treating pregnant women</b> |        |         |
| 1-Yes  | 4      | 0.009*  |
| 2-No   | 4      |         |

\*Statistically significant at  $P \leq 0.05$ .

Table 6 shows the results of the correlation between knowledge and age, education and experience. There is a positive correlation between the knowledge score and age, education, and experience; however, these correlations are not statistically significant.

Table 7 shows the results of the correlation between attitude and age, education and experience. There is a negative correlation between the attitude score and age, education, and experience; however, these correlations are not statistically significant.

**Table 6. Correlation between the knowledge and socio-demographics of dental auxiliaries (2021).**

| Socio-demographics | Rho   | P-value |
|--------------------|-------|---------|
| Age                | 0.103 | 0.128   |
| Education          | 0.131 | 0.054   |
| Experience         | 0.110 | 0.104   |

**Table 7. Correlation between the attitude and socio-demographics of dental auxiliaries (2021).**

| Socio-demographics | Rho    | P-value |
|--------------------|--------|---------|
| Age                | -0.037 | 0.587   |
| Education          | -0.086 | 0.207   |
| Experience         | -0.022 | 0.742   |

**Table 8. Correlation between the practice and socio-demographics of dental auxiliaries (2021).**

| Socio-demographics | Rho   | P-value |
|--------------------|-------|---------|
| Age                | 0.063 | 0.355   |
| Education          | 0.160 | 0.018*  |
| Experience         | 0.032 | 0.643   |

\*P ≤ 0.05.

Table 8 shows the results of the correlation between practice and (age, education and experience). There is positive correlation between the practice score and age, education and experience. However, the only statistically significant correlation is with education (P < 0.05).

## Discussion

Pregnant women should receive routine and emergency dental treatment; however, there is limited information about the current practices among dental auxiliaries providing care to pregnant women.<sup>10</sup>

### Knowledge of dental auxiliaries

In this study, only slightly more than half of auxiliaries have adequate knowledge (57.3%) regarding oral care provided throughout pregnancy. On the other hand, they agreed that women should receive preventive dental care during pregnancy (75.2%), which is consistent with the available literature and studies on the subject.<sup>11</sup> Of the dental auxiliaries in this study, only 69.7% advocated for the risk of radiographs during this period. Similar disagreement about the use of radiographs for pregnant women has been identified in other studies.<sup>11,12</sup> The current findings demonstrated that the knowledge score of hygienists was significantly higher than dental assistants (p = 0.006). This finding is consistent with a study conducted in North Carolina in 2008 where respondents with low or moderate levels of knowledge were significantly less likely to provide comprehensive treatment for pregnant women than those with high levels of knowledge.<sup>13</sup>

To overcome these challenges, the current study recommends providing dental health care professionals with continuous education courses, workshops, seminars, and other educative programs to help them apply the current best dental health care practices during pregnancy.

### Attitude of dental auxiliaries

Dental auxiliaries had a very positive attitude toward perinatal oral health (89.4%). Other studies also found almost universal agreement that dental treatment should be included in prenatal care, with most dentists and dental auxiliaries having favorable attitudes toward pregnancy-specific counselling.<sup>6,11-13</sup> The present findings revealed that 81.6% of participants believe that they need educational material for pregnant patients. These findings were consistent with the literature where dental auxiliaries required continuing education to improve their awareness about pregnant women's oral health.<sup>6,11,14</sup>

### Practice of dental auxiliaries

The results of this study revealed that only 36.3% of study participants practiced administration of anesthetic injections. This contradicted previous study results where benzocaine, procaine and lidocaine were administered safely.<sup>12,15</sup> In addition, the current study showed that there was a statistically significant correlation between practice and level of education. This finding has been supported by another study which agreed that continuous dental education could be a useful strategy in improving dental practice.<sup>12</sup>

### Limitations

In this study, only 218 dental auxiliaries participated and thus the results may not be representative of the dental auxiliaries in the kingdom, and the findings may be not generalizable.

## Conclusion

Dental auxiliaries had relatively good knowledge, good attitudes, and good practices regarding offering oral health care to pregnant women. The research results confirmed that many dental auxiliaries shared the desire for continuing education on oral health care during pregnancy to improve oral health practices. Preventive measures for pregnant women would be beneficial not only for the mothers but also for their babies.



The current study recommends training as well as continuing education for dental auxiliaries.

## Data availability

### Underlying data

Figshare: main study 2.sav, <https://doi.org/10.6084/m9.figshare.17197283.v2>.<sup>16</sup>

This project contains the following underlying data:

- Main study 2.sav (Data for gender, age, nationality, marital status, education, specialty, work place, experience in treating pregnant patients, and questions 11 to 36)

### Extended data

Figshare: main study 2.sav, <https://doi.org/10.6084/m9.figshare.17197283.v2>.<sup>16</sup>

This project contains the following extended data:

- Survey for magazine.docx (Questionnaire)

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/) (CC-BY 4.0).

## References

1. Turton M, Africa CW: **Further evidence for periodontal disease as a risk indicator for adverse pregnancy outcomes.** *Int. Dent. J.* 2017; **67**(3): 148–156.  
[PubMed Abstract](#) | [Publisher Full Text](#)
2. NIH: *Periodontal (gum) disease: Causes, symptoms, and treatments.* 2017.  
[Reference Source](#)
3. Brown A: *Access to oral health care during the perinatal period: A policy brief.* 2008.  
[Reference Source](#)
4. Jared H, Boggess KA: **Periodontal diseases and adverse pregnancy outcomes: a review of the evidence and implications for clinical practice.** *American Dental Hygienists' Association.* 2008; **82**(3): 1–20.
5. Bakhshi M, Tofangchiha M, Bakhtiari S, et al.: **Oral and dental care during pregnancy: A survey of knowledge and practice in 380 Iranian gynaecologists.** *J. Int. Oral Health.* 2019; **11**(1): 21–27.  
[Publisher Full Text](#)
6. Schramm SA, Jacks ME, Prihoda TJ, et al.: **Oral care for pregnant patients: A survey of dental hygienists' knowledge, attitudes and practice.** *J. Dent. Hyg.* 2016; **90**(2): 121–127.  
[PubMed Abstract](#)
7. Rainchuso L: **Improving oral health outcomes from pregnancy through infancy.** *J. Dent. Hyg.* 2013; **87**(6): 330–335.  
[PubMed Abstract](#)
8. Bloom BS: *Taxonomy of educational objectives. Vol. 1: Cognitive domain.* New York: McKay; 1956; **20**(24): 1.
9. Barua A: **Methods for decision-making in survey questionnaires based on Likert scale.** *Journal of Asian Scientific Research.* 2013; **3**(1): 35–38.
10. Kumar J, Samelson R: **Oral health care during pregnancy recommendations for oral health professionals.** *N. Y. State Dent. J.* 2009; **75**(6): 29–33.  
[PubMed Abstract](#)
11. George A, Ajwani S, Bhole S, et al.: **Knowledge, attitude and practises of dentists towards oral health care during pregnancy: A cross sectional survey in New South Wales, Australia.** *Aust. Dent. J.* 2017; **62**(3): 301–310.  
[PubMed Abstract](#) | [Publisher Full Text](#)
12. Huebner CE, Milgrom P, Conrad D, et al.: **Providing dental care to pregnant patients: A survey of Oregon general dentists.** *J. Am. Dent. Assoc.* 2009; **140**(2): 211–222.  
[Publisher Full Text](#)
13. Da Costa EP, Lee JY, Rozier RG, et al.: **Dental care for pregnant women.** *J. Am. Dent. Assoc.* 2010; **141**(8): 986–994.  
[Publisher Full Text](#)
14. Umoh AO, Azodo CC: **Nigerian dentists and oral healthcare of pregnant women: Knowledge, attitude and belief.** *Sahel Medical Journal.* 2013; **16**(3): 111–115.  
[Publisher Full Text](#)
15. Turner MD, Singh F, Glickman RS: **Dental management of the gravid patient.** *N. Y. State Dent. J.* 2006; **72**(6): 22–27.  
[PubMed Abstract](#)
16. Alibrahim D: **main study 2.sav. figshare. Dataset.** 2021.  
[Publisher Full Text](#)

# Open Peer Review

Current Peer Review Status:  

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## Version 3

Reviewer Report 29 March 2023

<https://doi.org/10.5256/f1000research.144529.r164427>

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**Catherine Maybury**

Center for Health Literacy, University of Maryland School of Public Health, College Park, MD, USA

Approved. I have no further comments.

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Health literacy, oral health literacy, health education

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

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## Version 2

Reviewer Report 25 January 2023

<https://doi.org/10.5256/f1000research.122785.r159891>

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**Catherine Maybury**

Center for Health Literacy, University of Maryland School of Public Health, College Park, MD, USA

The authors have taken an important first step in understanding what dental auxiliaries in their country know and practice related to oral health care for pregnant patients. The article is easy to read and concise.

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I have a few suggestions.

**Introduction** - The authors state that a few studies have been performed in the US that discuss dental hygienists' awareness, attitude and practice towards pregnant patients but they only cite one article. I did a quick search and found the following (Rainchuso, 2013).<sup>1</sup> Please look for additional articles.

**Methods** - This section should be expanded to explain: a) how you adapted the Schramm instrument; b) how many items were in the survey overall; c) describe the measures (what types of items comprise knowledge, attitudes and practice?); d) for the survey, how many times was the survey link sent to the potential respondents? and e) was the data normal or skewed?

**Discussion** - Knowledge is low (57%). Why is this - is it because they do not receive training? Is it because practices do not treat pregnant women? If ONLY slightly more than half of auxiliaries have adequate knowledge this is a problem. One suggestion is to include this in the training as well as continuing education.

**Limitations** - Why would the findings lack validity? Please explain.

#### References

1. Rainchuso L: Improving oral health outcomes from pregnancy through infancy. *J Dent Hyg.* 2013; **87** (6): 330-5 [PubMed Abstract](#)

**Is the work clearly and accurately presented and does it cite the current literature?**

Partly

**Is the study design appropriate and is the work technically sound?**

Yes

**Are sufficient details of methods and analysis provided to allow replication by others?**

Partly

**If applicable, is the statistical analysis and its interpretation appropriate?**

Yes

**Are all the source data underlying the results available to ensure full reproducibility?**

Yes

**Are the conclusions drawn adequately supported by the results?**

Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** health literacy, oral health literacy, health education

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have**

significant reservations, as outlined above.

Reviewer Report 04 April 2022

<https://doi.org/10.5256/f1000research.122785.r129028>

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**Mohammad Abdul Baseer**

Department of Preventive Dentistry, College of Dentistry, Riyadh Elm University, Riyadh, Saudi Arabia

The authors have made improvements to the manuscript.

**Is the work clearly and accurately presented and does it cite the current literature?**

Partly

**Is the study design appropriate and is the work technically sound?**

Partly

**Are sufficient details of methods and analysis provided to allow replication by others?**

Partly

**If applicable, is the statistical analysis and its interpretation appropriate?**

Partly

**Are all the source data underlying the results available to ensure full reproducibility?**

Partly

**Are the conclusions drawn adequately supported by the results?**

Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Dental Public Health, Preventive Dentistry, Clinical Trials.

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

Author Response 05 Apr 2022

**Daneah Alibrahim**

Thank you so much Dr. Mohammad Abdul Baseer.

**Competing Interests:** No competing interests were disclosed.

Author Response 09 Apr 2022

**azza elmahalli**

Greetings

I'm professor Azza El.Mahalli. The 2nd author of this article. I acknowledge that we amended all the queries raised by Dr Abdul Bassir

Regards,

**Competing Interests:** No competing interest

Author Response 13 Apr 2022

**Daneah Alibrahim**

Dear Dr.Mohammed Abdul Baseer,

I acknowledge that I did all the amendment for all the queries raised by you. Thank you for the comment, I really appreciate it.

**Competing Interests:** No competing interests were disclosed.

Author Response 13 Apr 2022

**Azza El.Mahalli**

Greetings

As a second author, I acknowledge that we did the amendments as requested from Dr Mohamed Abdul Basir

Thanks,

**Competing Interests:** No competing interests were disclosed

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**Version 1**

Reviewer Report 25 February 2022

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**Mohammad Abdul Baseer**

Department of Preventive Dentistry, College of Dentistry, Riyadh Elm University, Riyadh, Saudi Arabia

The authors have made a good effort in conducting research on the topic that is not fully addressed in KSA, however:

1. Authors should improve the article's English and grammar.
2. Spelling mistakes in the abstract and other areas should be corrected.
3. The introduction should mention the intended benefits of the study.
4. Under the materials and methods section sample size calculations and sampling techniques utilized in the study should be elaborated.
5. How did the authors obtained email addresses of the participants should be mentioned in the study.
6. Descriptive analysis of each item in the questionnaire should be presented.
7. Normality assessment of the data should be indicated before deciding to opt for non-parametric analysis.
8. Results should also include correlation test among knowledge, attitude and practices.
9. The discussion is very brief, authors should elaborate it by including articles published from Saudi Arabia and elsewhere.
10. Authors should include more study limitations.
11. References should be updated with more than half being published within last 2-3 years.

**Is the work clearly and accurately presented and does it cite the current literature?**

Partly

**Is the study design appropriate and is the work technically sound?**

Partly

**Are sufficient details of methods and analysis provided to allow replication by others?**

Partly

**If applicable, is the statistical analysis and its interpretation appropriate?**

I cannot comment. A qualified statistician is required.

**Are all the source data underlying the results available to ensure full reproducibility?**

Yes

**Are the conclusions drawn adequately supported by the results?**

Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Dental Public Health, Preventive Dentistry, Clinical Trials.

**I confirm that I have read this submission and believe that I have an appropriate level of**

**expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Author Response 23 Mar 2022

**Daneah Alibrahim**

Dear Dr. Mohammad Abdul Baseer

Thank you for the comments, I really appreciate it. I have addressed your comments and submitted the new version.

best regards

***Competing Interests:*** No competing interests were disclosed.

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