Author’s response to reviews

Title: A Comparative Study of the Micro-tensile Bond Strength and microstructural differences between Sclerotic and Normal Dentine after Surface Pretreatment

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Author’s response to reviews:

Dear Editors:

On behalf of my co-authors, we thank you very much for giving us an opportunity to revise our manuscript, we appreciate editors and reviewers very much for their positive and constructive comments and suggestions on our manuscript entitled "A Comparative Study of the Micro-tensile Bond Strength and microstructural Change between Sclerotic and Normal Dentine after Surface Pretreatment" (OHEA-D-18-00564).

We have studied reviewers’ comments carefully. Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have revised the manuscript, all changes are indicated in the text by highlighting or using track changes. Attached please find a revised version and a clear version of the manuscript, which we would like to submit for your kind consideration.

Best regards,

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The point-to-point responses to the reviewers’ comments are as following:

Cleonice Silveira Teixeira (Reviewer 1): OHEA-D-18-00564

Dear Reviewer:

Thank you for your wonderful and careful comments and suggestions. Those comments are all valuable and very helpful for revising and improving our paper. We have made major revision of the article, and point-to-point responds. The content of the article remains the same as the old version.

Main points:

1. Abstract: The authors need to describe the experimental groups in methods. Response: Done as advised. Because the abstract is limited in 350 words, then the experimental groups are described simply in the methods.

2. Introduction: The authors need to revise this section. Some parts are without references, for examples:

Page 4, lines 20-24: "Frequent shedding of the resin filling body of sclerotic dentine leads to higher rates of repair failure and the loss of resources for both patients and the dentist."

Response: The introduction has revised, and the new references have been added. (Page 3, lines 2-4)

3. Methods: With respect to the methods, there are several points that need to be improved or better explained. For example:

Page 6, lines 26-34: "Surface pretreatment methods included distilled water (control group), 35% phosphate gel 30 s, 5% NaClO solution (sodium hypochlorite) 60 s, 15% EDTA gel 60 s, 15% EDTA gel 60 s + 5% NaClO solution 60 s, 15% EDTA gel 60 s + 10% NaClO solution 60 s, 35% phosphate gel 30 s + 5% NaClO solution 60 s, and 35% phosphate gel 30 s + 10% NaClO solution 60 s (Table 2)."

I suggest that the authors the exclusion of these lines and keep only Table 3 and to adapt the whole text in relation to the nomenclature of the experimental groups (N1-N8, S1-S8).
Response: “saline” is indeed a descriptive error, and we have corrected the typo. Moreover, we have removed these lines (Page 6, lines 6-19) and have adapted the whole text in relation to the nomenclature of the experimental groups (N1-N8, S1-S8).

Page 8, lines 2-3: "All of the electron micrographs were taken at the same working distance using the same magnification. I suggest that the authors describe specifically the magnification used.

Response: The magnification used have been specifically described. (Page 9, lines 2).

Page 8, lines 7-9: "Following pretreatment, the self-etching adhesive AdperTM EasyOne (3M ESPE, USA) adhesive system was applied according to the manufacturer's instructions." I suggest that the authors describe specifically how the adhesive system was applied.

Response: The methods of adhesive system has been added in the text. (Page 7, lines 12-14)

4. Statistical Analysis

Page 9, Line 37: "The level of significance was set at P < 0.05". I suggest change "P < 0.05" for $\alpha = 0.05$.

Response: We have changed "P < 0.05" for $\alpha = 0.05$.

5. Results: The results section presents several unnecessary information. I suggest that in this part of the text only describe the most important results of the study; the other results can be seen in the tables.

Page 14, lines 20-24: "After the micro-tensile test (μ-TBS), fracture modes, including adhesive fracture, mixed fracture and cohesive fracture, were observed using a stereoscopic microscope (Fig. 5)". I suggest that the authors the exclusion of these lines.

Response: These lines have been deleted. (Page 14, lines 6-8)

Page 14, lines 33-39: "Analysis of the specimen fracture mode failed to identify a correlation between different pretreatments and the dentine fracture mode, and there was no obvious correlation between the micro-tensile bond strength and interface destruction types". I suggest that the authors the exclusion of these lines. This information may be present in the discussion section.

Response: The lines have been deleted. (Page 14, lines 14-17)

6. Discussion:

Pages 15 and 16, initial part of this section is too long. I suggest reducing the literature review. Authors did not discuss the null hypothesis.

Response: We have removed some Non-essential literature (Page 16, lines 10-16, lines 21-26). The null hypothesis has been discussed in the last paragraph of “Discussion”. (Page 19, lines 17-21)

Once again, special thanks to you for your wonderful and careful comments and suggestions, and we hope that our response will meet with your approval.
Mahmoud Bahari (Reviewer 2):

Dear Reviewer:

Thank you for your comments concerning our manuscript. We have carefully studied your comments, and made major revision of the manuscript. The content of the article remains the same.

1. in the title: "change" should be substituted with " differences".
   Response: Done as advised.

2. references are out of date. please use more references from years 2015-2019.
   Response: We have updated the reference, and the new references have been added.

Deleted reference:

Additional references:


3. abstract is too long specially in results section. remove spss software and include statistical tests. please mention surface treatments and reason for ext of selected teeth.
   Response: Done as advised. The spss software and include statistical tests have been deleted in the Abstract. The methods of the surface treatments have been added. (Page 4, lines 20-23; Page 16, lines 28-33)

4. English translation needs revision. neck dentine?! shedding of filling material?!
   Response: The manuscript has been revised. A native English speaker helped us to revise the manuscript.

5. please delete tables 1,2,3 and include groupings and surface treatments in the text.
   Response: Table 1 shows the North Carolina dentin hardening grading, which is the standard instructed
the sample selection in the study, So we consider it should be remain.
A more thorough consideration of the suggestion from all the reviewers, we deleted the text that repeated the content in table 2 and table 3, and keep the tables. (Page 5, lines 10-14; Page 6, lines 6-19).

6. in results and methods section: consider and report bond strength test first and SEM second.
Response: Done as advised. The bond strength test has been moved ahead in the manuscript.

7. regarding statistical test it seems that two-way ANOVA is correct test.
Response: The micro-tensile bond strength data of group N were statistically analyzed by a one-way ANOVA. Since the data analysis of group S revealed heterogeneity of variance, and analysis of variance could not be used, therefore Nonparametric rank sum test was adopted for the analysis.

8. please repot error bar graph instead of bar graph.
Response: The table 4 has the same content of the figure 4. The graphic figure has been removed.
Special thanks to you for your review of our manuscript. Once again, special thanks to you for your wonderful and careful comments and suggestions, and we hope that our response will meet with your approval.

Rodrigo Nunes Rached (Reviewer 3):
Thank you very much for your approval of our research topic. We have checked the attached PDF file with comments carefully. Thank you for your comments concerning our manuscript. We agree that this manuscript needs special attention to literature presented. Newer references have been added and discussed.
1. "neck dentine" have been substituted with "Cervical dentin". (Page 2, lines 26)
2. “The cervical non-carious sclerotic dentine was formed subsequently” have been revised: The non-carious sclerotic dentine was formed subsequently along the cervical enamel junction. (Page 2, lines 29-31)
3. “paused” had be deleted. (Page 3, lines 6)
4. New references have been added. (Page 3, lines 4,29) (Page 17, lines 34)
5. We have changed “filling shedding” for “restoration failure”. (Page 3, lines 33)
6. “Gum wall parts” has been deleted. This part of the text has been revised: the dental wedge-shaped defect of each tooth was divided into specimens with a flat pretreated dentine surface for the scanning electron microscopy (SEM) observation. (Page 8, lines 19-21)
7. Use letters (or numbers) to indicate which image belongs to each surface treatment, and not only to indicate magnifications. (Page 11, lines 4-16) (Page 12, lines 4-16)
Done as advised.
8. The chart has been deleted. (Page 13, lines 11-13)
9. We have changed “upper right letters” for “superscript lowercase letters”. (Page 14, lines 3)

10. We have changed “insult” for “injury”. (Page 15, lines 7)

11. “edge shrinkage clearance” has been removed. (Page 16, lines 9-10)

12. We have deleted “Current dentine adhesives employ two different strategies to achieve the goal of micromechanical retention between resin and dentine. The first method, the total-etch or etch and rinse technique, is designed to completely remove the smear layer via acid-etching and rinsing. The second approach, the self-etch technique, aims to incorporate the smear layer as a bonding substrate. Sclerotic dentine is a very special substrate for use in the above scenarios.”. (Page 16, lines 21-26)

13. This part of the text has been revision. (Page 19, lines 11-17)

Special thanks to you for your review and approval of our manuscript. We appreciate for Editors and Reviewers’ warm work earnestly, and hope that the correction will meet with approval.

Best regards,

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