Author's response to reviews

Title: Practices and opinions on nitrous oxide/oxygen sedation from dentists licensed to perform relative analgesia in Brazil

Authors:

Anelise Daher (anelisedaher@terra.com.br)
Renata P.L. Hanna (renatapinheiro@hotmail.com)
Luciane R. Costa (lsucasas@odonto.ufg.br)
Claudio R. Leles (crleles@odonto.ufg.br)

Version: 3 Date: 21 June 2012

Author's response to reviews:

REFEREE 1 (R1) (Reviewer: Paul Ashley)
Reviewer's report:

R1: The comments I raised in my previous version of the review have been addressed. If the editors believe that this paper is within the scope of the journal then I see no reason why it should not be published.

AUTHORS (AU): We sincerely appreciate your taking time to provide your comments on our manuscript.

REFEREE 2 (R2): Jason H Goodchild
Reviewer's report:

We thank you for your availability to extensively read our manuscript and to make it more readable after your suggestions.

R2.1) Page 3, Background, 1st paragraph, first sentence: “Dentistry” does not need to be capitalized.

AU: Accepted.

R2.2) Page 3, Background, 1st paragraph, second sentence: The authors should consider deleting the word “ether”. While it is true that Guedel’s planes of anesthesia refer to the use of ether, it is confusing to mention ether anesthesia and nitrous analgesia in the same sentence.

AU: Accepted. The word “ether” was removed.

R2.3) Page 4, Background, 1st paragraph, first sentence: “Pediatric” and “Dentistry” do not need to be capitalized.
AU: Accepted.

R2.4) Page 4, Background, 1st paragraph, second sentence: The authors should consider revising the end of the sentence as follows, “…lack of clinical experience and additional costs for purchasing the equipment may have an inhibitory effect on the practice of RA for children [5].”
AU: We agree and the sentence was changed as suggested.

R2.5) Page 4, Background, 1st paragraph, third sentence: delete the word “habitually”
AU: Accepted. The word “habitually” was removed.

R2.6) Page 4, Background, 1st paragraph, 4th and 5th sentence: The authors should consider combining the two sentences. An example is as follows: “Although the costs for RA may be lower than general anesthesia or multiple drug sedation (e.g. intravenous sedation), RA is not recommended as an alternative for all cases referred for general anesthesia due to its particular indications and limitations.”
AU: Accepted. The sentences were combined as follows: “Although the costs for RA may be lower than general anesthesia or multiple drug sedation, RA is not recommended as an alternative for all cases referred to general anesthesia due to its particular indications and limitations”.

R2.7) Page 4, Background, 1st paragraph, last sentence: Replace “cheaper” with “less expensive”.
AU: Accepted. The word was replaced.

R2.8) Page 4, Background, 2nd paragraph: The authors should revise this paragraph for clarity and comprehension. An example is as follows, “In Brazil, the use of RA in dentistry was endorsed by the Brazilian College of Dentists (BCD) in 2004. Current legislation dictates that dentists are permitted to provide RA following a 96-hour training course and submitting proof of completion to the BCD. It is important to note that many Brazilian dentists have limited training and practice experience in outpatient sedation as part of dental school [8]. Criticism by anesthesiologists concerning the competency of dentists to provide outpatient sedation has been reported as a barrier that prevents RA practice among licensed dentists [9].”
AU: We agree. The sentence was changed as you suggested.

R2.9) Page 4, Background, 3rd paragraph, 1st sentence: Delete “exploratory” and “perceived”
AU: Accepted. The words were deleted.

R2.10) Page 5, Methods, Study design and sample, 1st paragraph, 2nd sentence: The authors should consider replacing the word “conduct” with “provide”.
AU: Accepted. The word “conduct” was replaced.
R2.11) Page 5, Methods, Questionnaire development, 1st paragraph, 1st sentence: The authors should consider revising the sentence as follows, “For construction of the self-administered questionnaire, a series of individual in-depth interviews were previously conducted with six dentists trained in RA.”
AU: Accepted. The sentence was rewritten as you suggested.

R2.12) Page 6, Methods, Questionnaire development, 3rd paragraph, last sentence: “Six out of 9 statements had reversed scores.” Please explain further.
AU: We rewrote the sentence as follows: “Six out of the 9 statements were phrased in the reverse, which means that strong agreement indicated more negative opinions about RA; in order to make those items comparable to the other items, we had to reverse score them for the statistical analysis.”

R2.13) Page 8, Results, Respondents’ characteristics and RA practice, 3rd paragraph, starting with “Among the circumstances mentioned in the questionnaire…” The authors should revise this paragraph for improved clarity and comprehension.
AU: We agree that the sentence is confusing. We decided to remove the description and analysis of the means regarding the number of options used by participants to indicate or contraindicate RA because they do not add important knowledge to the study and seem to confuse the reader. The paragraph cited was changed to: “Among the circumstances written in the questionnaire as possible indications or contraindications for RA, the most participants had similar opinions about RA recommendation (Table 2). Physically (p=0.01) or mentally (p=0.02) compromised patients were the only indications clearly associated with those dentists who practice RA in the dental office.”

R2.14) Page 9, Results, Respondents’ opinions about RA, 1st paragraph, 2nd sentence: the authors should consider replacing, “…showing fairly positive opinions by the respondents about RA”, with, “…indicating the opinion of RA by respondents was slightly positive.”
AU: Accepted. The sentence was changed as you suggested.

R2.15) Page 10, Discussion, 2nd paragraph, 2nd sentence: the authors should consider replacing the word “analgesia” with “modality”.
AU: Accepted. The word “analgesia” was replaced.

R2.16) Page 11, Discussion, 1st paragraph, 4th sentence: Delete the word “meanwhile”
AU: The word was deleted.

R2.17) Page 11, Discussion, 1st paragraph, 5th sentence: “In fact, nitrous oxide is one of the least approved techniques by Kuwati patients, because the use of pharmacological techniques can be perceived as risky in some cultures.” This sentence needs revision.
a. Replace “approved” with “accepted”.
AU: Accepted. The word was replaced.

b. Are there a lot of Kuwati patients in Brazil? If not, the mention of Kuwati patients has limited relevance to this manuscript.
AU: The study from Kuwait was cited to compare our results with others found in different population, as we did compare other points with studies conducted in Northern Ireland or Canada, for example.

c. The sentence is about the limited acceptance of nitrous by Kuwati patients, but the authors state that the technique is seen as risky by “some cultures”. What other cultures perceive RA as risky? Why do they perceive it as risky when RA has an overwhelmingly positive safety record? If those cultures are not part Brazil then, again, there is limited relevance to this manuscript.
AU: Thank you for those questions. They do deserve further investigations. The study from Kuwait is quantitative, and authors say in the discussion that “Apparently the parents in our study thought nitrous oxide sedation is not safe.”. Both studies’ methods (Kuwait and ours) do not allow us to understand why participants think nitrous oxide could be risky. We changed the expression “some cultures” by “that culture”.

R2.18) Page 11, Discussion, 6th sentence: Replace “cheaper” with “less expensive”.
AU: Accepted. The word was replaced.

R2.19) Page 11, Discussion, 7th sentence: Replace “environmental” with “occupational”. Also, the authors mention the occupational risks with the chronic exposure to unscavenged nitrous oxide. There have been numerous publications describing the mitigated risk to dental personnel when the proper use of scavenging is employed. The authors should add something about the increased safety of nitrous oxide use for the dental team when proper scavenging is used.
AU: The word “environmental” was replaced and we added additional information about nitrous oxide scavenging at the end of the same paragraph: “Occupational exposure to nitrous oxide can be controlled by effective vacuum gas-scavenging systems included in RA equipments, as well as by good work practices such as appropriate mask size selection and mask adjustment, minimal talking and mouth breathing by the patient.”

R2.20) Page 12, Discussion, 2nd paragraph, last sentence: The authors should consider replacing “actual data” with “generalizable conclusions”
AU: Accepted. The sentence was modified as suggested: “In fact, the interpretation of the results should be viewed with caution because they primarily represent opinion rather than generalizable conclusions, …”

R2.21) Page 12, Discussion, 3rd paragraph, starting with “All in all, admitting there is a need…” This sentence should be moved to the last paragraph of the
Conclusions section. Also, it could be revised as follows, “There is a need to provide more comfortable treatment for dental patients. It is the author’s recommendation that the concerns discussed herein should be addressed by RA-training course directors, especially in locations where the use of RA for dental treatment is not well-established or commonly practiced.”

AU: Thank you for this suggestion. We agree that this sentence could fit better in Conclusions section so we moved it to there. We rewrote the sentence as you suggested.

R2.22) Page 18, Table 1, change to: “Population served by relative analgesia”
AU: Accepted. The sentence was changed as suggested.

R2.23) Page 18, Table 1, change to: “Practice of relative analgesia in respondents’ own dental practice”. Could “own” be replaced by “primary”?
AU: We changed the statement as you suggested, but we are afraid we cannot replace “own” by “primary” because we did ask if the dentist practices RA in the office that belongs to him/her. S/he could have a primary practice in a place that does not belong to her/himself.

R2.24) Page 18, Table 1, change to: “Frequency of practice of relative analgesia (includes respondents’ use in other dental practices)”. Could it be further revised to “(includes respondents’ use in dental practices other than their primary practice location)”?
AU: We think your second suggestion represents better what we did ask, so we accepted this suggestion.

REFEREE 3 (R3): Mark Donaldson

We appreciate your comments and suggestions to make our manuscript more readable and trustful.

Reviewers’ report:

R3.1) Sample size: In my original review I mentioned that, “Brazil has an estimated population of 189,841,456 and is the fifth largest country in the world. It has 191 institutions granting degrees in dentistry (137 private and fifty-four public), 17,157 available student positions, and graduates 10,000 professionals annually and the WHO estimates that there are 160,781 practicing dentists.” This study developed a questionnaire that was sent out to 281 dentists of which 136 responded, yet only 127 were deemed complete/usable. The Discussion still stops short of emphasizing that any conclusions whether statistically significant or not are probably not generalizable based on the 127 total respondents to this survey (less than 0.08% of the population being represented (127/160,781). I continue to stress this because the implication in the “Background” section of the Abstract is very clear, “This study aimed to assess Brazilian dentists’ practices and opinions about RA in the dental setting.” What this study actually reviewed was the opinions of a small group of Brazilian dentists (127). This fact should be first and foremost in the manuscript, and I would still question the accuracy of the
current title which insinuates that this is a, “national study.” For better accuracy in the Abstract’s Conclusions, this should again be stated as, “Most of the 127 licensed Brazilian dentists (n=90; 70.9%) interviewed currently use RA. Current practice of RA and frequency of use among this group determined the degree of favourable opinion about this inhalation sedation among respondents.

Without splitting hairs too much, even if 136/281 surveys were returned (response rate = 48.4%), if 9 of the surveys were, “inadequately filled out and were excluded from the final analysis,” shouldn’t the return rate be 127/281 or 45.2%?

AU: We appreciate your comments and concerns regarding the generalization of our results. We will attempt to consider your point exploring it step-by-step in the following sentences:

a) Target study population: our study population was RA licensed dentists exclusively, and not the whole group of dentists able to practice dental science in Brazil. This is clear in the methods section, study design and sample subtitle; perhaps it needs clarification in other parts of our manuscript. In order to address this issue, we changed the following:

- Title: Changed to “Practices and opinions on nitrous oxide/oxygen sedation from dentists licensed to perform relative analgesia in Brazil”
- Background, Abstract section: We rewrote the following sentence “This study aimed to assess RA licensed Brazilian dentists’ practices and opinions about nitrous oxide/oxygen sedation in the dental setting.”
- Abstract’s “Conclusions”: We added the population’s information suggested at the end of the sentence: “Most of the RA licensed Brazilian dentists interviewed currently use RA. Current practice and frequency of use determined the degree of favourable opinion about this inhalation sedation among this group of respondents.”
- Discussion, first paragraph: We added the acronym “RA”.
- Discussion, last paragraph: We changed “national survey” by “targeting RA licensed dentists working in the whole country”

b) Response rate: When it comes to calculating response rates, one problem is that it is not always easy to differentiate between out of scope, sample loss and refusals and this can give misleading response rates (Data Analysis Australia, 2009). You are right, if we consider valid questionnaires returned. So we changed our response rate to 45.2% in the Results section from the abstract and main text.

c) Generalizability of results: we changed some statements in the last paragraph of the Discussion section to address this issue: “We recognize that this study as a survey had a major limitation in the coverage and non-response rate. […] In fact, the interpretation of the results should be viewed with caution because they primarily represent opinion rather than generalizable conclusions, as stated in another opinion study of professionals [16].”
R3.2) Page 3, Background, 1st paragraph, first sentence: “Dentistry” does not need to be capitalized.
AU: Accepted.

R3.3) Page 4, Background, 1st paragraph, first sentence: “Pediatric” and “Dentistry” do not need to be capitalized.
AU: Accepted.

R3.4) Page 4, remove the word, “habitually” and we usually refer patients “for” general anesthesia not “to” general anesthesia as general anesthesia is not a physical location.
AU: Accepted. The word “habitually” was removed. We changed the sentence as you suggested: “…but most preferred to refer patients for general anesthesia to have teeth extracted [5].”

R3.5) Page 4, Background, 1st paragraph, last sentence: Replace “cheaper” with “less expensive”.
AU: Accepted. The word as replaced.

R3.6) Page 4, Background, 2nd paragraph: The authors should revise this paragraph to improve readability.
AU: We agree. The paragraph was changed as referee #2 suggested: “In Brazil, the use of RA in dentistry was endorsed by the Brazilian College of Dentists (BCD) in 2004. Current legislation dictates that dentists are permitted to provide RA following a 96-hour training course and submitting proof of completion to the BCD. It is important to note that many Brazilian dentists have limited training and practice experience in outpatient sedation as part of dental school [8]. Criticism by anesthesiologists concerning the competency of dentists to provide outpatient sedation has been reported as a barrier that prevents RA practice among licensed dentists [9].”

R3.7) Page 5, Methods, “The final sample comprised 281 dentists who agreed to participate in the study.” This is a false statement. There were 281 practitioners whom you were able to locate e-mail addresses for to send the questionnaire, but they DID NOT agree to participate in the study. If they had agreed your response rate would have been 100%. In fact only 127 dentists returned usable questionnaires.
AU: This statement might be confusing because we only explained our procedures later in the first paragraph of the “Data collection and analysis” subtitle. So we added words at the end of the aforementioned sentence: “The final sample comprised 281 dentists who agreed to participate in the study answering back the first email sent”. As you can see, we first sent a cover letter and consent form inviting dentists to participate, and 281 agreed. But, interestingly, only 127 returned valid questionnaires even though 281 accepted to participate; 154 gave up for unknown reasons.
R3.8) Page 5, Methods, “posterior analysis” is an interesting term. Do the authors’ mean, “retrospective analysis?”
AU: Thank you for your question. We replaced the word “posterior” with “subsequent” for better understanding of the sentence.

R3.9) Page 6, Why is Table 3 the first table being introduced? Shouldn’t the first Table be Table 1?
AU: You are right. We removed all references to tables in the Methods section, because if we changed Table 3 to be the first table, the results presentation would be weird.

R3.10) Page 6, Methods, “Six out of 9 statements had reversed scores.” This sentence needs further explanation. If six of the nine scores were reversed then was the maximum achievable score really still 45?
AU: We rewrote the sentence as follows: “Six out of the 9 statements were phrased in the reverse, which means that strong agreement indicated more negative opinions about RA; in order to make those items comparable to the other items, we had to reverse score them for the statistical analysis.”

R3.11) Page 8, Results, Now Table 1 and Table 2 appear? These are out of order.
AU: You are right. We removed all references to tables in the Methods section, because if we changed Table 3 to be the first table, the results presentation would be weird.

R3.12) Page 8, Results, I do not believe that, “dentally anxious patients” is a grammatically correct term. It appears more than once in this manuscript. Also, Table 2 lists “fearful patients” and “anxious patients” separately – how do you differentiate these populations?
AU: Although we are ESL researchers and our manuscript have been revised twice by the Proof Reading Service, we humble believe we can use the term “dentally anxious patients” because it has been used in other published papers (e.g. Hull, P & Humphris, G M 2010, ‘Anxiety reduction via brief intervention in dentally anxious patients: a randomized controlled trial’, Social Science and Dentistry, vol 1, no. 2, pp. 108-117).

Anxiety and fear are interrelated, but we can understand anxiety as “a diffuse, unpleasant, vague sense of apprehension…”. On the other hand, fear is an emotional response to a known or definite threat (please see more about this discussion in http://panicdisorder.about.com/od/understandingpanic/a/fearandanxiety.htm). For example, if a patient is undergoing a dental implant surgery for the first time, s/he can be anxious about the procedure but do not know why; however, if a patient...
felt pain in a dental implant surgery once s/he can be fearful of having another procedure like that. Maybe dentists do not distinguish it, but we separated it in different items because in a questionnaire we should not include more than one question in the same item, and if we had included fear and anxiety in the same item we could have dentists confused about what to mark if they think that these emotions are different concepts.

R3.13) Page 8, Results, I am not sure there are really three groups here, “most of them had acquired RA equipment (88 out of 126, 69.8%); others had not acquired it (18 out of 126, 14.3%) or intended to acquire (n=20 out of 126, 15.9%).” Respondents either have the equipment or they do not; whether they “intend” to purchase it at some point in the future should not enter into your analysis.

AU: In the questionnaire there were the three options, so we decided to keep them in the descriptive analysis. But as we stated in the last paragraph of “Respondents’ characteristics and RA practice” in Results section: “[…] The acquisition of RA equipment, dichotomized in ‘yes’ or ‘no’ answers, was also associated with RA practice…”, this question was treated as a dichotomized variable for the inferential analysis.

R3.14) Page 8, Results, 3rd paragraph: The authors should revise this paragraph to improve readability.

AU: Thank you for the suggestion. We changed to “or intended to acquire sometime in the future”.

R3.15) Page 11, Discussion, 1st paragraph, “This survey sought to profile RA practice within a group of licensed Brazilian dentists.” This relates to my introductory comments about sample size and accuracy of language. This statement is probably a more accurate description of the study, but it contradicts what is written in the Abstract and Title which state, “A cross sectional national survey” and “a national survey in Brazil.” These are examples of hyperbole.

AU: We have changed the issue regarding sample size and removed the word ‘national’ as we explained before.

R3.16) Page 10, Discussion, 1st paragraph: Replace “to sedation” with “for sedation.”

AU: Accepted. The sentence was changed as suggested: “This suspicion is also supported by other studies [11] which found that dental anxiety level is a good predictor of referral for sedation…”

R3.17) Page 10, Discussion, 2nd paragraph: Replace “analgesia” with “sedation technique.”

AU: The word “analgesia” was replaced with “modality” as suggested by referee #2.

R3.18) Page 11, Discussion, 6th sentence: Replace “cheaper” with “less
expensive”.
AU: Accepted. The word was replaced.

R3.19) Page 11, Discussion, 7th sentence: “Moreover, a recent trial . . .” goes on to cite 3 references. Should this read “trials”?
AU: Actually there is only one trial (ENIGMA trial) reported in three different studies. We added this information in the sentence: “Moreover, a recent trial (ENIGMA trial) performed with anesthesiologists about the usage of nitrous oxide for general anesthesia were reported in three studies showing both positive [27] and negative [28,29] recommendations in different situations.”

R3.20) The Conclusions section should again be re-written to more accurately reflect the study population and the overall findings as it relates to the thesis statement.
Please see my comments above.
AU: We changed the following statement in the Conclusions section: “Although there may be questions about the theoretical criteria which indicate the technique, this group of RA licensed dentists had more favorable opinions if they performed RA as part of their routine practice.”

R3.21) Why are some of the references bolded?
AU: Because it is asked to be in the BMC Oral Health reference style.

R3.22) I am not familiar with the referencing format here where a colon appears after the last author.
AU: This is also recommended by the BMC Oral Health reference style.

R3.23) Table 1, last sentence, “Did not answer” should be omitted since there were no respondents.
AU: Actually there was one respondent. Perhaps there was a formatting error that changed the alignment between the columns. We checked the alignment to avoid misinterpretation.

AU: All the terms were based on the list of the American Academy of Pediatric Dentistry, and the AAPD do not define them.

R3.25) Table 2, also needs spaces between the absolute numbers and the percentages in parentheses: 39 (94.4) and not 39(94.4)
AU: Thank you for this suggestion. We did the formatting changes.

R3.26) Table 3, requires periods after each description as these sentences tend to run into each other.
AU: Thank you for your suggestion. We did a period after each description.