Author's response to reviews

Title: The association between general practitioner participation in joint teleconsultations and rates of referral: A discrete choice experiment

Authors:

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Author's response to reviews:

Dear Prof Harm van Marwijk,

We are writing to submit a revision of our manuscript for publication in BMC Family Practice; in view of the reviewers' comments we have changed the title to “The association between general practitioner participation in joint teleconsultations and rates of referral: A discrete choice experiment”.

We are grateful for the reviewers' comments and have now revised our paper as detailed below.

Thank you again for your consideration.

Sincerely,
Tiago Cravo Oliveira
James Barlow
Steffen Bayer

In response to Gail Todd’s comments we have made the following revisions.

Comment 1: There is no definition of teleconsultations. How were they delivered and standardised? What types of consultations were involved? How often were they undertaken and who shared in the teleconsultation process? What conditions were discussed during the teleconsultations and who ran them? How many teleconsultations resulted in learning/behaviour altering outcomes? How were GPs advised to interpret teleconsultations or were they left to decide for themselves? Were the teleconsultations real time or store and forward? Did teleconsultations involve the GPs own patients or were they simulated cases or other GP referrals? The questions are endless around the teleconsultation process and definition. These need to be addressed in some way before publication.

Response: We have added a paragraph to the methods section providing a definition for teleconsultations and briefly describing the context in which they have been used.
Comment 2: There is significant bias in the results which I do not see has been accounted for or excluded. It could well be that those GPs using teleconsultations are in fact dedicated to improving patient care and use a variety of other educational tools and programs other than teleconsultations. Lower referral rates may be an associated finding of a group of doctors who seek a second opinion of any sort and are thus more informed and confident in patient care. Inferring that they have learnt something and that it is due to teleconsultation use is not proven or justifiable from the current results presentation.

Response: While we were able to include numerous factors reported in the literature as determinants of referrals, we do not have data for a number of potentially important variables. As such, we cannot exclude the possibility that GPs who participated in teleconsultation were also more informed and confident due to their use of other educational tools or sources of advice. We are grateful to the reviewer for pointing this out and have added this limitation to our discussion section.

Furthermore, to avoid confusion over the role that participation in teleconsultations plays in reducing referral rates, we have made it clearer throughout the article that we are exploring an association, not making any claims as to causality and directionality. Indeed, it was precisely our objective to explore whether the claims made in previous studies using simple frequencies and bivariate correlations were robust to the inclusion of other factors known to influence referrals. In other words, we intended to determine whether previously reported reductions associated with teleconsultation were independent of other known determinants of referrals.

Comment 3: What were the percentages of GPs with an interest in dermatology amongst teleconsultation users? How did an interest in dermatology affect referral patterns? Doctors who have an interest in dermatology would be more likely to feel comfortable treating patients with skin disease especially non serious ones, with significant impact on referral patterns. This would also be evident in the assessment of clinical need, melanoma constituting an emergency referral because they are now recognised, increasing the referral rate. The negative effect of a reduction in referrals of serious conditions, hinted at in the discussion, which should be referred should to be discussed.

Response: We have added a paragraph to the discussion section clarifying how the results of our multivariate logistic regression inform how different factors affect GPs’ decisions to refer. As we explain, the coefficients indicate that participation in teleconsultation and having a special interest in dermatology are independent predictors of referrals; participation in teleconsultation is associated with rates of referral, regardless of whether GPs have a special interest in dermatology. Notwithstanding, we agree with the reviewer that further exploration of the relationship between participation in teleconsultation and having a special interest in dermatology would be of benefit to the reader. We have thus reported how both variables are jointly distributed in our sample along with average referral rates. The results further confirm that participation in teleconsultation and having an interest in dermatology are independently associated with rates of
The negative effect of a reduction in referral rates for melanoma and naevus has been further discussed as well. We emphasize that the estimated marginal effects for these conditions are not statistically significant and, as such, one should be very careful about deriving any practical implications from them. As we point out, future studies with bigger samples can explore whether participation in teleconsultations does indeed lead to statistically significant reductions in referrals of severe cases, as this would certainly be a cause for concern.

Comment 4: The specialities associated with teleconsultations use could likewise impact results. If all 11 GPs who used it did so primarily for dermatology then the results are understandable and not unexpected. If the teleconsultations referred to any speciality then it is difficult to see why they would have impacted on referral patterns for dermatology considering how poorly taught dermatology is in most general medical curricula.

Response: While teledermatology is by far the most frequent example of the use of teleconsultations, we cannot unfortunately detail the frequency, content and specialties involved in the teleconsultations of the 11 respondents in our sample. We are grateful to the reviewer for pointing this out and have added this limitation to our discussion section.

Comment 5: How were the need variables chosen from the GP referral data base and on what was the choice based? In other words were conditions chosen that referral patterns might be expected to change provided GPs had access to therapeutic measures and that were likely to receive re-imbursement if treated by the GP? Was re-imbursement considered as a variable?

Response: We have clarified that conditions were chosen based on two criteria: that they be representative of what GPs commonly refer and that they cover the spectrum of clinical need or urgency. Reimbursement was not considered as Portuguese GPs are salaried and have no financial incentive to refer or not to refer patients. As done in previous studies, we included list size as a proxy for workload, as this is more important than financial considerations.

Comment 6: How were the non-clinical attributes chosen? There is no discussion or referencing on this.

Response: We chose non-clinical attributes based on previous evidence of statistically significant relationships to rates of referral. We have clarified this in the manuscript.

Comment 7: How did GP age and years of experience affect referral rates? The supplementary data suggests age affected referrals in a non-linear way – did the older or younger GP refer more?

Comment 8: How did years of experience affect referrals- did the younger GP refer more often?

Response: We have included a discussion of the role of age and experience in the paper. Unfortunately, we do not have hard evidence to explain the perceived
quadratic relationship. It is our belief that the estimates for age are a result of sample characteristics, yet we cannot confirm this.

Comment 9: There are no references for 25, 26, and 27 as quoted in the article. This implies poor referencing management and a laxness to detail. I have thus not checked references for their accuracy or correct use and referencing in the text. This must be done and acknowledged by the authors personally before the article can be considered for publication.

Response: We have added the missing citations to our reference list, an oversight for which we apologize. We have checked the references for accuracy and completeness.

Comment 10: I found the discussion a summary of the results with little added academic discourse relative to published data. I would suggest that the authors review the article not simply as a proof of concept of the survey tool by giving more clinical validity to the statistical analysis.

Comment: Discretionary Revisions: 1. I believe the supplementary data where the effects of need variables, non-clinical attributes and physician demographics are discussed should be part of the article giving it more clinical relevance.

Response: As suggested, we have incorporated the results of the logistic regression presented in the supplementary data into the article. We have also provided a more detailed discussion of how the coefficients in our regressions compare to those reported in previous studies.

In response to Walter Cullen’s comments we have made the following revisions.

Comment 1: While their intent is clear, the authors do not explicitly state the overarching aim and specific objectives

Response: The objective of the study is now explicitly stated in the abstract.

Comment 2: Background: the link between joint consultations and rationale for using DCE is not clearly stated.

Comment 3: Background: a more clearly stated articulation of the gaps in knowledge and how the work addressed these should be included

Response: We have included a detailed discussion in the background section of what we believe to be the limitations of previous studies on this topic, and how our own study addresses these. As suggested, we clarify how previous work has not accounted for the potential influence of confounding factors and how a discrete choice experiment (and stated choice methods more generally) can be useful in studying the determinants of referral decisions.

Comment 4: Methods: some additional detail on the context in which the work has been conducted, and especially the tele / joint consultations might be included

Comment 9: Background: some further detail on the teleconsultations, and their coverage, might be included.
Response: We have added a paragraph to the methods section providing a definition for teleconsultations and briefly describing the context in which they have been used.

Comment 5: Methods: The citations in line 94-5 (ie 23-25) do not substantiate the statement made.

Comment 6: Methods: Citation 25 and beyond are missing from the lit review
Response: We have added the missing citations to our reference list, an oversight for which we apologize. We have checked the references for accuracy and completeness and the statement that we reviewed the literature on determinants of referrals is now substantiated.

Comment 7: Results: The 7% response rate is a major weakness of the study. At a minimum, the authors should indicate how representative the respondents were of family physicians nationally.

Comment 8: Results: That only 11 respondents had participated in the intervention limits the relevance of the findings to the paper title
Response: With regards to the response rate and the size of our sample, we agree this is a significant limitation, as pointed out in the limitations section of the discussion. This survey was conducted as part of the corresponding author’s doctoral research, which has now come to an end. The solution would be to collect more data. However, this is, unfortunately, no longer an option. It is noteworthy that even with a small unrepresentative sample, we were able to achieve statistically significant results and interesting descriptive statistics. As we state in the discussion section, while the generalizability of our findings cannot be established, it is nonetheless of interest that our results apply to 44 GPs. We believe there is still value in publishing this research as it motivates future work with bigger and more representative samples (in a sense, it is a proof of concept of using DCEs to study referrals). Should future studies find that our results do not apply to a larger population of GPs, it would be interesting to explore in what ways the GPs in our sample differ from the general population.

Comment 10: Discussion: might usefully discuss how the findings relate to other literature; the reduction in referral for patients with melanoma is not discussed at all and this is perhaps the most important finding.
Response: As pointed out in the discussion section, the reductions in referrals of patients presenting with melanoma or naevus were not statistically significant. We thus cannot exclude the null hypothesis that these reductions are, in fact, non-existent. We have reiterated this in the discussion section. If these reductions were indeed significant then that would most certainly be a cause for concern. As it stands, only future work and a larger sample can confirm whether there are reductions in referrals of severe and urgent cases.