Author's response to reviews

Title: The feasibility of using pattern recognition software to measure the influence of computer use on the consultation.

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Response to peer reviewers comments

The reviewers' comments were valuable in identifying areas of the paper that needed further clarity and were gratefully received.

Peer review 1;

Minor revisions
1. Further details have been added to the methods section of the abstract to emphasise that it is a feasibility study, focusing on exploring the non-verbal behaviour of GP consultations and that members of the research team were used to test the feasibility of pattern recognition software.
2. A general statement of the study's findings was included as suggested.
3. The fourth paragraph referred to the method used in a previous study by the research team. An extra sentence was included at the beginning of the paragraph to make this clearer.
4. Changes to the structure of the background section were made to increase the readability of this section and to lead more fluently into the main objectives of the study.
5. Efforts have been made to make the principal findings of the study clearer. The exact non-verbal behaviours that could be measured using pattern recognition software were specified.

Major compulsory revisions
1. Efforts were made to discuss the difficulties encountered in using traditional approaches to measure the impact of the computer on the consultation more comprehensibly. The advantages of pattern recognition software in relation to these were highlighted. The limitations of pattern recognition software are discussed more comprehensively in the discussion section.
2. Further details on the setting in which the feasibility of pattern recognition software was tested were included. For example, information on the period of time in which the software has been tested has been incorporated. It was emphasised that the study used members of the research team to test the feasibility in a 'simulated' consultation room.
3. Efforts have been made to include a more comprehensive discussion of the implications and limitations of the feasibility study's findings. The non-verbal behaviours that have been found to be important to the patient-centredness of the consultation that were not captured in this study were identified and discussed further in the limitations section. Possible developments of the use of pattern recognition software to capture these were highlighted. The need to use pattern recognition software with three channel video recordings and traditional measures of verbal behaviour to capture all aspects of the GPs verbal and non-verbal behaviour important to the patient-centredness of the consultation has been emphasised in the limitations section of the article.
Peer review 2;

1. Comments  
   a) Discretionary revisions  
   The structure and content of the introduction has been changed to focus the article on the aim of the study as suggested (and to incorporate the comments from peer review 1.). Further details have been included to the method and results sections to emphasise that 'simulated' consultations were used to test the feasibility of pattern recognition software as mentioned above. The exact non-verbal behaviours that were successfully captured using pattern recognition software were identified and the implications of these key findings discussed (see also response to peer review 1.).  
   As suggested figures 1 and 2 were removed  
   The original reference for reference 26 has been cited. Many thanks for providing this.

   b) The few typographical errors identified have been amended and page numbers included.

   c) Major Compulsory Revisions  
   Efforts have been made to emphasise why it is important to develop a means of evaluating the impact of computers on the consultation. Figure 8 was omitted as suggested.

2. Questions  
   The use of pattern recognition software is an extension of the 'three channel' video approach. Three channel video provided a way of capturing an enormous amount of information about the consultation such as the interaction between the doctor and the patient, the output from the computer and the finer details of the consultation such as the GP's facial expression. However traditional methods using observation and manual rating scales (such as counting how many times the GP nodded his head based on observation) were needed to analyse this output, which proved highly time consuming and subjective. Pattern recognition software offers an objective method of counting non-verbal behaviours such as head nodding or turning towards the patient. This summary has been included in the section on pattern recognition software in the introduction. Unfortunately there was not the time/resources to set up graphical outputs of the data within this feasibility study, although this would be technically possible.

   The counts generated by the pattern recognition software can be viewed as they occur throughout the 'simulated' consultation captured on video and therefore these can be checked through direct observation. It was not possible to capture the verbal aspects of the 'simulated' consultation using pattern recognition, three channel video and traditional manual scoring systems such as the RIAS are needed to analyse the impact of the computer on verbal patient-centred behaviour in the consultation.