PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	How do patients with end-stage ankle arthritis decide between two surgical treatments? A qualitative study
AUTHORS	Zaidi, Razi; Pfeil, Michael; Macgregor, Alexander; Goldberg, Andrew

VERSION 1 - REVIEW

REVIEWER	Tim Rapley Lecturer Institute of Health and Society, Newcastle University, UK
REVIEW RETURNED	16-Mar-2013

REPORTING & ETHICS	No checklist - but for qual research - such checklists are pretty useless
GENERAL COMMENTS	Overall, this is fine. However, I think you need to embed some of your ideas in some of the other relevant and broader literature. Firstly, I think you would well to think with some of the work that focuses on real-time interactions between orthopedic surgeons and patients – particularly the Hudak's conversation analytic work that focuses on treatment recommendations. This will enable you to offer another layer to your discussion about the role of surgeons in decision-making. Secondly, I think you need to briefly look at some of the more empirical work on SDM. So - in a piece of horrible self-citation – look at my paper on 'distributed decision making' – and then you might want to follow up on some of the references (especially, Collins 2005). I suggest this, as what's lacking in your discussion is how such decision making is built-up over time, how it evolves and flows between human (surgeons, peers, family) and non-human actors (net-based information). Also, I think you need to references some the classic SDM literature – over the NHS document (especially as this offers a quite specific vision of SDM). A couple of minor issues: P7: You note that the decision is tied to good relations with 'current surgeons', and yet the quote highlights a broader issue – 'the team' alongside the consultant. So, is the emphasis an individual or a more dispersed group of actors? P8: The idea of peer-advice, relates nicely to the concept of 'lay consultation' (see for example McKinlay 1973 – alongside the work that focuses on the elderly).

	Some potentially useful references: Collins S, Drew P., Watt I. and Entwistle V. (2005) "'Unilateral' and 'bilateral' practitioner approaches in decision-making about treatment", Social Science and Medicine, 61, 2005: 2611-27 McKinlay J (1973) Social networks, lay consultation and help-seeking behaviour. Social Forces 51: 275-292 Shannon J. Clark, Pamela L. Hudak (2011) When Surgeons Advise Against Surgery. Research on Language & Social Interaction 44 (4): 385-412 Pamela L. Hudak, Shannon J. Clark, Geoffrey Raymond (2011) How surgeons design treatment recommendations in orthopaedic surgery Social Science & Medicine, 73 (7): 1028-1036 Pamela L Hudak, Shannon J Clark, Geoffrey Raymond (2012) The Omni-Relevance of Surgery: How Medical Specialization Shapes Orthopedic Surgeons' Treatment Recommendations. Health Communication 1-13 Rapley T. Distributed decision making: The anatomy of decisions-in-action. Sociology of Health and Illness 2008, 30(3), 429-444.

REVIEWER	Richard Thomson Professor of Epidemiology and Public Health Institute of Health and Society Newcastle University Dr Rebecca Say NIHR Doctoral Training Fellow Institute of Health and Society Newcastle University
REVIEW RETURNED	25-Mar-2013

THE STUDY	Is the research question clearly defined? NO The authors are inconsistent in their statement of the aims of the study. In some instances they state that it is to explore how patients with end-stage osteoarthritis of the ankle decide between two different surgical treatments (ankle fusion and total ankle replacement) and even on how patients decide on surgery (line 31 p4). In others they state that they are aiming to explore how patients in general decide between different surgical options. We would suggest that the authors are consistent and use the former aim as the latter cannot be adequately addressed by this study. Is the overall study design appropriate? YES (if their aim explore how patients with end-stage osteoarthritis of the ankle decide between two different surgical treatments). Are the participants adequately described? No The authors should include their inclusion/ exclusion criteria. The authors state that they have used purposive sampling but do not describe the criteria on which they were purposively sampling or why they chose them. Are the patients representative of actual patients the evidence might effect? NO This is unclear as they do not adequately describe their inclusion/

	exclusion criteria or their recruitment strategy. The authors should define their inclusion/ exclusion criteria and describe how many patients were approached; who approached the potential participants; how long participants had to consider participation; and if any patients declined (and how this might affect their findings). The authors should also clarify what information participants would have received about the different surgical options: they state they would have received information (“all treatment options would have been discussed with them”), but also that participants were interviewed “prior to the appointment to discuss their decision on treatment”. They also state that “All patients had developed a good understanding of their condition and current state over many years using a wide variety of information sources” but do not evidence this. Indeed, they later state (and evidence) that some patients were misinformed. They should better describe the pathway of care and any information that patients are given to help with their decision making. The participants are all from a single site. This should be discussed further as a limitation. Also “several” had sought second opinions – is this typical or was this a purposive sampling criterion? If so, why? Are the methods adequately described? NO The authors should include who conducted the interviews and where they were conducted. They should describe how they developed the interview schedule and include this as an appendix. They should describe the stages of data analysis and justify why they chose to use thematic analysis. The term ‘manual’ should be removed; presumably they mean they themselves performed the thematic analysis (or this should be explained). They state they used thematic analysis to validate their findings but should explain what they mean by this and summarise their analytic process. It is not clear that the interviews were “in-depth”. The conclusions suggest they may have been rather perfunctory, but it is not possible to be sure given the methods description. Furthermore, the number of quotes is small and statements are made that are unsupported by quotes (e.g. the role of family and friends in decision making). Fourteen patients is a small number for a qualitative study of this type. Is the main outcome measure clear? N/A Are the abstract/ summary/ key messages/ limitations accurate? The aim of the research should be clarified in the abstract (please see discussion above). The method of data analysis should be included in the abstract. The language used in the results/ conclusions in the abstract makes them difficult to understand and seems to go beyond the findings. For example, it is not clear what the authors mean by ‘The quality of the doctor-patient relationship dictated the validity patients ascribed to their clinical interaction’. The abstract states that “[patients] leverage family and friends to guide decision making” but there is little on this within the presented results. There is no summary or key messages section included in the manuscript. The limitations of the study are not adequately addressed and some key limitations are omitted. Also, as the participants/ recruitment are not adequately described it is not possible for readers to assess all the potential limitations. Are the statistical methods described? N/A Are they appropriate? N/A Is the standard of written English acceptable? No The language used is difficult to understand at times and should be

	improved. There are numerous typographical and grammatical errors, particularly the use of apostrophes. Are the references up to date and relevant? An author should be included for references: 1, 12, 19, 20, 21. There are key papers exploring patients' attitudes to decision making about surgical treatments which have not been considered, for example I would suggest they consider some of the papers included in the Cochrane Review 'Decision aids to help people who are facing health treatment or screening decisions'. Reference 2 is largely about adherence to therapy and is not appropriate to the statement in the introduction. Do any supplemental documents raise questions about the work? N/A
RESULTS & CONCLUSIONS	Do the results answer the research question? NO This depends on the aim of the study which is not clearly defined (please see above). Are they credible? NO Are they well presented? NO The results are difficult to read because they are so fragmented and should be reformatted to improve readability. The authors should remove references to the numbers of patients with a particular view as this is a qualitative study and so the numbers are not relevant as it is not a statistically representative sample. Similarly, they should remove the mean age. On several occasions statements about patient understanding are made without being clear whether the understanding is correct or not. Are the interpretations and conclusions warranted by and sufficiently derived from/ focused on the data? NO This may be the first study to explore factors influencing patients making decisions about end-stage ankle arthritis but it is not the first study exploring how patients make decisions about elective surgery. Therefore, this claim should be removed from the discussion and the findings of this study discussed in the context of the wider literature. Unfortunately, I do not think there is any evidence for the claim they make that British medicine has changed for the better on page 11 line 12. This should be reworded to reflect the influence of high profile cases on health policy. It is not clear why the authors reference other studies when describing the findings of their study on page 11 line 35. The authors need to remove or make a stronger case for why they believe patients' decision making needs are the same whatever their condition (page 12, lines 27-33). They provide no evidence for this and previous research suggests this is not the case. I believe they over-state the generalisability of their findings and do not acknowledge the limitations sufficiently. They conclude that surgeons' personal preferences can dominate patients' decisions but there is no evidence for this in the results they report. I suggest that they include relevant data or make this conclusion more tentative. Are they discussed in the light of previous evidence? NO The authors do not refer to other studies exploring patients' attitudes to decision making about surgery and the results of this study should be discussed in the context of this literature. Is the message clear? No Is the article reported in line with the appropriate reporting statement or checklist? NO The authors should refer to the COREQ checklist to improve the reporting of this study.
REPORTING & ETHICS	Is the article reported in line with the appropriate reporting statement

	or checklist? NO The authors should refer to the COREQ checklist to improve the reporting of this study. Are research ethics addressed appropriately? NO This cannot be ascertained as too little detail about recruitment is provided and this is particularly important as the study was not reviewed by a research ethics committee. Is the article free from concerns about publication ethics? YES

REVIEWER	Stephanie Sivell Research Associate, Cardiff University, School of Medicine
REVIEW RETURNED	02-Apr-2013

THE STUDY	On reading this paper, this study seems to be a qualitative study exploring how patients make decisions about their surgical treatment options for end-stage ankle osteoarthritis. However, on reading the Methods, it is stated this this work was undertaken as part of a wider service evaluation. It is not clear to me what the aim of the service evaluation was and how this specific piece of work fits in. The title of the manuscript and the study aim at the end of the Introduction could be made clearer and more focused by specifically mentioning the patient group in question and the condition/illness they are choosing surgery for. However, as a qualitative study exploring how patients make decisions for surgery for ankle osteoarthritis, I do think the overall study design is appropriate. There are no statistical methods employed as this is a qualitative piece of work, but the thematic analysis described is appropriate. The wider patient/shared decision making literature has not really been addressed in either the Introduction or the Discussion.
RESULTS & CONCLUSIONS	I think the results answer the research question in so far as the aims seem to be an exploration of how patients make surgical decisions for ankle osteoarthritis. I would like to have seen more discussion in both the Introduction and the Discussion to the wider literature. There is wealth of evidence in the literature on patient decision making and shared decision making for a wide range of treatment decisions, including surgical decision making. I feel the Introduction would benefit from some degree of review of the wider literature, with more of a discussion of how these findings fit within the wider literature in the Discussion section; to what extent do these findings reflect the evidence reported in the literature and what is the added value? This would help make the overall message clear to the reader.
REPORTING & ETHICS	The authors state that the local R&D Institutional Review Board who approved the work confirmed that as the interviews were part of a wider service evaluation then no formal ethical approval was required. It is encouraging to see that the authors still followed ethical procedures, although I would like to see some more information on how patients were approached, what information they were given and what consent procedures were in place as currently this is not very clear to me.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1: Tim Rapley

I think you would well to think with some of the work that focuses on real-time interactions between orthopedic surgeons and patients – particularly the Hudak's conversation analytic work that focuses on treatment recommendations. This will enable you to offer another layer to your discussion about the role of surgeons in decision-making.
Secondly, I think you need to briefly look at some of the more empirical work on SDM. So - in a piece of horrible self-citation – look at my paper on 'distributed decision making' – and then you might want to follow up on some of the references (especially, Collins 2005). I suggest this, as what's lacking in your discussion is how such decision making is built-up over time, how it evolves and flows between human (surgeons, peers, family) and non-human actors (net-based information). Also, I think you need to references some the classic SDM literature – over the NHS document (especially as this offers a quite specific vision of SDM).

Thank you for these comments. These suggestions have really added to our paper. We have cited Hudak work in the discussion with reference to how interventions are introduced and placed in a consultation giving them an unequal status. We also found your paper of immense interest as our work also found that decisions are distributed, we have mentioned how this concept ties in with our work in the discussion.

P7: You note that the decision is tied to good relations with 'current surgeons', and yet the quote highlights a broader issue – 'the team' alongside the consultant. So, is the emphasis an individual or a more dispersed group of actors?

Thank you for this important comment. We have now amended the manuscript to include a discussion on the role of the wider team, although our work seems to imply that the consultant surgeon was the key determinant and his team were simply additional reference points.

P8: The idea of peer-advice, relates nicely to the concept of 'lay consultation' (see for example McKinlay 1973 – alongside the work that focuses on the elderly).

Thank you for bringing this reference to our attention. We now cite this work in the discussion as we found patients who had undergone the procedures of most influence to our sample.

Reviewer: Richard Thomson/ Dr Rebecca Say
Is the research question clearly defined? NO
The authors are inconsistent in their statement of the aims of the study. In some instances they state that it is to explore how patients with end-stage osteoarthritis of the ankle decide between two different surgical treatments (ankle fusion and total ankle replacement) and even on how patients decide on surgery (line 31 p4). In others they state that they are aiming to explore how patients in general decide between different surgical options. We would suggest that the authors are consistent and use the former aim as the latter cannot be adequately addressed by this study.

The intention of this study was to focus on ankle arthritis. We have clarified this in aim and methods section.

The authors should include their inclusion/ exclusion criteria. The authors state that they have used purposive sampling but do not describe the criteria on which they were purposively sampling or why they chose them.

Thank you for pointing this out. We have now amended the manuscript accordingly.

Are the patients representative of actual patients the evidence might effect? NO
This is unclear as they do not adequately describe their inclusion/ exclusion criteria or their recruitment strategy. The authors should define their inclusion/ exclusion criteria and describe how many patients were approached; who approached the potential participants; how long participants had to consider participation; and if any patients declined (and how this might affect their findings). The authors should also clarify what information participants would have received about the different surgical options: They state they would have received information ("all treatment options would have been discussed with them"), but also that participants were interviewed "prior to the appointment to discuss their decision on treatment".

We have added clarification in the methods section.

They also state that "All patients had developed a good understanding of their condition and current state over many years using a wide variety of information sources" but do not evidence this. Indeed, they later state (and evidence) that some patients were misinformed. They should better describe the pathway of care and any information that patients are given to help with their decision making.

Thank you for raising this point, we have now added a quote from a patient in the text illustrating "understanding." The patient clearly relates past trauma. Further the patient demonstrates awareness of the osteoarthritis being a disease of the cartilage.

The participants are all from a single site. This should be discussed further as a limitation. Also "several" had sought second opinions – is this typical or was this a purposive sampling criterion? If so, why?

The study was carried out at The Royal National Orthopaedic Hospital, a tertiary centre which sees patients both as primary GP referrals or as second opinions/tertiary referrals. Approximately 50% of our work is the latter and hence such patients are typical patients in our cohort and we did not purposively sample such patients. We have amended the discussion to include this important limitation.

Are the methods adequately described? NO
The authors should include who conducted the interviews and where they were conducted.

Two Authors conducted the interview (RZ and AG), these done in the outpatient clinic.

They should describe how they developed the interview schedule and include this as an appendix.

Thanks you for this point, we have now added an interview schedule to the text. We would be happy for this to be removed into an appendix if the editor feels this appropriate.

They should describe the stages of data analysis and justify why they chose to use thematic analysis. The term 'manual' should be removed; presumably they mean they themselves performed the thematic analysis (or this should be explained). They state they used thematic analysis to validate their findings but should explain what they mean by this and summarise their analytic process.

We thank the reviewers for this advice. We have amended the manuscript accordingly within the results section.

It is not clear that the interviews were “in-depth”. The conclusions suggest they may have been rather perfunctory, but it is not possible to be sure given the methods description.

The interviews were not perfunctory and we have amended the text to demonstrate the depth of our interviews.

Furthermore, the number of quotes is small and statements are made that are unsupported by quotes (e.g. the role of family and friends in decision making).

We have added more participant quotations where appropriate, however, it is possible to add too many quotations. We have therefore restricted ourselves to focus support by providing quotation to the more important aspects. We did not think that the use of family members as a sounding board was an issue unusual or controversial enough to warrant the inclusion of a participant quote.

Fourteen patients is a small number for a qualitative study of this type.

Although our sample size was relatively small, fourteen patients undergoing surgery for end stage ankle arthritis is actually a large number of patients as it is not as common a condition as for example hip arthritis. Despite this we reached data saturation and hence further interviews would unlikely yield more information.

Are the abstract/ summary/ key messages/ limitations accurate?
The aim of the research should be clarified in the abstract (please see discussion above). The method of data analysis should be included in the abstract.

The abstract has been changed to reflect these comments and a key messages box also added.
The language used in the results/ conclusions in the abstract makes them difficult to understand and seems to go beyond the findings. For example, it is not clear what the authors mean by ‘The quality of the doctor-patient relationship dictated the validity patients ascribed to their clinical interaction’.
Agreed, we have amended the manuscript accordingly. In essence we were saying that some patients clearly discount information that is given to them if they don’t have confidence in the person providing that information. This is not a topic that we would like, or feel is appropriate to discuss in this paper.

The abstract states that “[patients] leverage family and friends to guide decision making” but there is little on this within the presented results.

We did not think that the use of family members as a sounding board was an issue unusual or controversial enough to warrant the inclusion of a participant quote. We have now removed this line from the manuscript for consistency.

There is no summary or key messages section included in the manuscript.
Agreed. Amended accordingly.

The limitations of the study are not adequately addressed and some key limitations are omitted.
Agreed. Amended accordingly.

Also, as the participants/ recruitment are not adequately described it is not possible for readers to assess all the potential limitations.
Agreed. Amended accordingly.

Is the standard of written English acceptable? No
The language used is difficult to understand at times and should be improved. There are numerous typographical and grammatical errors, particularly the use of apostrophes.
We do not agree that the standard of written English is unacceptable but agree that there were some typographical and grammatical errors that we have attempted to address in the updated manuscript.
Are the references up to date and relevant?
An author should be included for references: 1, 12, 19, 20, 21.
There are no authors given for these references and in accordance to the BMJ's guidelines we have state 'no authors listed'

There are key papers exploring patients' attitudes to decision making about surgical treatments which have not been considered, for example I would suggest they consider some of the papers included in the Cochrane Review 'Decision aids to help people who are facing health treatment or screening decisions'.
Our study focuses on the sources of information that patients use to make decisions and the importance that the patients place on these various types of information. Although aides were used, no participant placed a major emphasis on these aides as being key influencer of their decisions. We have amended the manuscript accordingly.

Reference 2 is largely about adherence to therapy and is not appropriate to the statement in the introduction.
Agreed. Amended accordingly.

The results are difficult to read because they are so fragmented and should be reformatted to improve readability.
We appreciate this comment and have reformatted accordingly.

The authors should remove references to the numbers of patients with a particular view as this is a qualitative study and so the numbers are not relevant as it is not a statistically representative sample. Similarly, they should remove the mean age.
Agreed. Amended accordingly.
On several occasions statements about patient understanding are made without being clear whether the understanding is correct or not.
Thank you. We have amended the manuscript accordingly.
Are the interpretations and conclusions warranted by and sufficiently derived from/ focused on the data? NO
This may be the first study to explore factors influencing patients making decisions about end-stage ankle arthritis but it is not the first study exploring how patients make decisions about elective surgery. Therefore, this claim should be removed from the discussion and the findings of this study discussed in the context of the wider literature.
We recognise this point, but to our knowledge this is the first study to look at patient's choosing between two orthopaedic operative interventions. We do recognise there is work on operative vs. non-operative interventions. We have now made sure this point is clear in the text.
Unfortunately, I do not think there is any evidence for the claim they make that British medicine has changed for the better on page 11 line 12. This should be reworded to reflect the influence of high profile cases on health policy.
Thank you. This has been reworded.

It is not clear why the authors reference other studies when describing the findings of their study on page 11 line 35.

Thank you, paper amended accordingly.

The authors need to remove or make a stronger case for why they believe patients' decision making needs are the same whatever their condition (page 12, lines 27-33). They provide no evidence for this and previous research suggests this is not the case. I believe they over-state the generalisability of their findings and do not acknowledge the limitations sufficiently.
We have altered the text in order not to give the impression of over generalizability of our findings.
They conclude that surgeons' personal preferences can dominate patients' decisions but there is no evidence for this in the results they report. I suggest that they include relevant data or make this conclusion more tentative.
Agreed. We have shown that surgeon's point of view tends to override any others. Other groups have shown that surgeons preference either verbal or non-verbal can influence the decision making. We have added evidence in the discussion to this effect.

Are they discussed in the light of previous evidence? NO
The authors do not refer to other studies exploring patients' attitudes to decision making about surgery and the results of this study should be discussed in the context of this literature.
We have added to the discussion on the wider literature.

Is the message clear? No
Is the article reported in line with the appropriate reporting statement or checklist? NO
The authors should refer to the COREQ checklist to improve the reporting of this study.
We adhered to COREQ advice as much as required to ensure that the paper provides sufficient background information to allow the reader to judge both the quality of the study and transferability of the results. We do not believe that providing all of the information suggested by COREQ checklist would add to the paper.
Are research ethics addressed appropriately? NO
This cannot be ascertained as too little detail about recruitment is provided and this is particularly important as the study was not reviewed by a research ethics committee.
We have provided more information concerning ethical issues in the 'Sample' and the 'Ethical issues' sections.
Is the article free from concerns about publication ethics? YES

Reviewer: Stephanie Sivell, Research Associate, Cardiff University, School of Medicine

On reading the Methods, it is stated this this work was undertaken as part of a wider service evaluation. It is not clear to me what the aim of the service evaluation was and how this specific piece of work fits in. .

This work was as part of service evaluation of patients end-stage ankle arthritis, as our unit geared up to re-engineer patient pathways for ankle arthritis. As a result of this work, we have introduced an educational forum and are building on line patient information sources to provide patients with unbiased and comprehensive information on their condition and treatment options.

The title of the manuscript and the study aim at the end of the Introduction could be made clearer and more focused by specifically mentioning the patient group in question and the condition/illness they are choosing surgery for.
Agreed. Amended accordingly.

The wider patient/shared decision making literature has not really been addressed in either the Introduction or the Discussion
Agreed, amended accordingly.

I would like to have seen more discussion in both the Introduction and the Discussion to the wider literature. There is wealth of evidence in the literature on patient decision making and shared decision making for a wide range of treatment decisions, including surgical decision making. I feel the Introduction would benefit from some degree of review of the wider literature, with more of a discussion of how these findings fit within the wider literature in the Discussion section; to what extent do these findings reflect the evidence reported in the literature and what is the added value? This would help make the overall message clear to the reader.
Thank you, we have widened our discussion.

The authors state that the local R&D Institutional Review Board who approved the work confirmed that as the interviews were part of a wider service evaluation then no formal ethical approval was required. It is encouraging to see that the authors still followed ethical procedures, although I would like to see some more information on how patients were approached, what information they were given and what consent procedures were in place as currently this is not very clear to me.
Agreed. Text amended accordingly.

VERSION 2 – REVIEW

REVIEWER	Richard Thomson Prof Epidemiology and Public Health Rebecca Say, NIHR Doctoral Fellow Institute of Health and Society, Newcastle University
REVIEW RETURNED	23-May-2013

THE STUDY	The English still includes too many grammatical, typing and other errors.
RESULTS & CONCLUSIONS	There are still inconsistencies in the paper
GENERAL COMMENTS	Thank you for the opportunity to re-review this paper. The authors have adequately addressed most of our previous comments. However, we have some further suggestions about the revisions that should be addressed before we would recommend publication. We have some concerns about the authors' description of the three models of medical decision making. It would be more accurate to say a paternalistic decision may not take account of a patient's values and preferences rather than that a decision could be counter to the patient's wishes (as this could be construed as assault). Perhaps better to refer to preferences (see later re preference misdiagnosis). Also, communication in the informed model is largely one way (patients may ask questions of clarification and need to communicate their decision). In the revised discussion, it is surprising that the authors state that most patients had used decision aids (not aides), but that none of them stated that these had influenced their decision making. Did the authors explore this in the interviews? Why was this the case? Seems at odds with other research. However, it is not clear from the description in the paper whether the information given to patients was truly a decision aid (as defined for example by the Cochrane review of patient decision aids, importantly incorporating - implicitly or explicitly - an element of values clarification) or rather information leaflets. Are the authors confusing written information leaflets provided to patients with a patient decision aid? This needs clarifying, as it affects their, and the readers', interpretation. If decision aid(s) were made available for patients facing this decision, the authors should include a brief description of them and explain how a patient would access and use them.

	We do not think the authors can conclude that the surgeons whose patients were participating in this study had no treatment preferences; they have not observed any consultations. And in SDM the more important issue is the preference that the surgeon may have for an individual patient in front of them, rather than an overall preference for one operation over another – the former might not match the patient's preference due to preference misdiagnosis (see Mulley, A., G. , et al. (2012). "Stop the silent misdiagnosis: patients' preferences matter." BMJ 345). Presumably they are basing this assumption on their knowledge of the unit and this should be acknowledged. Observing actual decision making in consultations would be a useful component of future research to contribute to better understanding how these decisions are made. The conclusions about the role of the surgeon seem to vary between one of validator of information and influence on decision making. These are not the same thing. The results seem to imply that family and friends are most important in decision making, whilst surgeons are most important for information (and its validation). Yet other statements refer to the surgeons' dominant role in decision making. This needs to be consistent (or at least clarified). This is an important point. Similarly, are the authors over-confident in their assertion that the surgeon is the final validator of any other information? Was this true for all participants or just Patient 12 quoted? They appear dismissive of the role of other team members 'simply used as additional reference points', whereas the quotation from patient 13 they included suggests that GPs may have a really valuable role. This should be amended and they may wish to consider the role of other professionals such as specialist nurses, if relevant. We do not think the authors need to include the reference to generalizability and RCTs. Previous comments about the limitations due to the sample size did not relate to qualitative studies, rather that they had over-interpreted and over-stated the implications of their findings. The improved discussion of the limitations of this study has mainly addressed this. This is important exploratory work but unlikely to tell the whole story. There are still many typographical and grammatical errors throughout the title, abstract and text and these interfere with the quality of the written English and should be corrected. Some of the language used throughout the paper could also be clearer and more precise. For example: 'grey media' (abstract line 28) 'more mature patients' (p34, line 5). Minor points – "allocating numeric codes to all participant contributions" does not in itself maintain anonymity (and we suspect they mean confidentiality). A code may still be linked to identifying information. The authors use the term "media" and "Internet" interchangeably. In this paper they should stick to the latter

VERSION 2 – AUTHOR RESPONSE

Reviewer: Richard Thomson Prof Epidemiology and Public Health

The English still includes too many grammatical, typing and other errors.

We apologise for this oversight and have amended any typos we are aware of.

We have some concerns about the authors' description of the three models of medical decision making. It would be more accurate to say a paternalistic decision may not take account of a patient's values and preferences rather than that a decision could be counter to the patient's wishes (as this could be construed as assault). Perhaps better to refer to preferences (see later re preference misdiagnosis). Also, communication in the informed model is largely one way (patients may ask questions of clarification and need to communicate their decision).

Having reflected on this we entirely agree and have amended the manuscript accordingly.

In the revised discussion, it is surprising that the authors state that most patients had used decision aids (not aides), but that none of them stated that these had influenced their decision making. Did the authors explore this in the interviews? Why was this the case? Seems at odds with other research. However, it is not clear from the description in the paper whether the information given to patients was truly a decision aid (as defined for example by the Cochrane review of patient decision aids, importantly incorporating - implicitly or explicitly - an element of values clarification) or rather information leaflets. Are the authors confusing written information leaflets provided to patients with a patient decision aid? This needs clarifying, as it affects their, and the readers', interpretation. If decision aid(s) were made available for patients facing this decision, the authors should include a brief description of them and explain how a patient would access and use them.

We agree with the reviewer that the distinction between decision aides and information leaflets needs to be made and we have therefore amended the manuscript accordingly.
We are aware of the difference between decision aids and information sheets, but the main issue is that NO decision aids are available to help patients with ankle osteoarthritis. There are only 3 decision aids pertaining to "osteoarthritis" on the Cochrane website and none really cover the differences between surgical options, all seem to focus on non-operative measures. In England where over 200,000 joint replacements are performed annually, it would seem opportune to develop a surgical decision aid, but as far as we are aware they are not used in practice at the moment. In fact our group was involved in writing the commissioning guidelines which is being adopted by NICE as the guidance for national commissioning and we do not believe that decision aids figure very prominently, which is a shame. Perhaps the reviewer might consider working with our group to develop such decision making aids in relation to surgery or surgical choices?

We do not think the authors can conclude that the surgeons whose patients were participating in this study had no treatment preferences; they have not observed any consultations. And in SDM the more important issue is the preference that the surgeon may have for an individual patient in front of them, rather than an overall preference for one operation over another – the former might not match the patient's preference due to preference misdiagnosis (see Mulley, A., G. , et al. (2012). "Stop the silent misdiagnosis: patients' preferences matter." BMJ 345). Presumably they are basing this assumption on their knowledge of the unit and this should be acknowledged. Observing actual decision making in consultations would be a useful component of future research to contribute to better understanding how these decisions are made.

We agree with this point. Although we are aware (and have stated in the text) that during a consultation treatment preferences can be communicated by the way they are introduced and talked about, we have now stated in the discussion that ‘From our knowledge of the treating surgeons in our unit, we believe that surgeons expressed no overt treatment preference.’ We have also stated that observing decision making in consultations would be a useful component of future research to contribute to better understanding how these decisions are made. Further the benefit of the reviewer it is worth pointing out that this unit has secured significant NIHR funding to run a multicentre RCT to compare ankle replacement against fusion.

The conclusions about the role of the surgeon seem to vary between one of validator of information and influence on decision making. These are not the same thing. The results seem to imply that family and friends are most important in decision making, whilst surgeons are most important for information (and its validation). Yet other statements refer to the surgeons’ dominant role in decision making. This needs to be consistent (or at least clarified). This is an important point.

Our study shows that the surgeon was both a validator of information and a key influencer in the decision making process, whereas family members seem to influence the patients decision to undergo surgery or not.
Similarly, are the authors over-confident in their assertion that the surgeon is the final validator of any other information? Was this true for all participants or just Patient 12 quoted?

This sentiment was expressed by 10 participants in the study, we did mention number of patients who expressed similar views in a previous version of the paper but were advised by the reviewers to remove this. The clarified this issue by changing our text to: The strength attributed to the surgeon’s advice was demonstrated when 10 of our 14 participants asserted that it overruled other, conflicting information sources.

They appear dismissive of the role of other team members ‘simply used as additional reference points’, whereas the quotation from patient 13 they included suggests that GPs may have a really valuable role. This should be amended and they may wish to consider the role of other professionals such as specialist nurses, if relevant.

We agree that GPs have a crucial role and we mention this in the paper. However, the sample we studied only cited them as minor influencing factor in deciding between the two surgical options. Although we are sure that the GP and other HCP’s such as clinical nurse specialists, who indeed are part of our unit, are likely to play a much more substantial role, this did not emerge as a theme from our study and so we can only mention this in our discussion, which we have done.

With regards the below four comments, we entirely agree and have amended the manuscript accordingly.

- We do not think the authors need to include the reference to generalizability and RCTs. Previous comments about the limitations due to the sample size did not relate to qualitative studies, rather that they had over-interpreted and over-stated the implications of their findings. The improved discussion of the limitations of this study has mainly addressed this. This is important exploratory work but unlikely to tell the whole story.
- There are still many typographical and grammatical errors throughout the title, abstract and text and these interfere with the quality of the written English and should be corrected. Some of the language used throughout the paper could also be clearer and more precise. For example: ‘grey media’ (abstract line 28) ‘more mature patients’ (p34, line 5).
- Minor points – “allocating numeric codes to all participant contributions” does not in itself maintain anonymity (and we suspect they mean confidentiality). A code may still be linked to identifying information.

- The authors use the term “media” and “Internet” interchangeably. In this paper they should stick to the latter.