PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Barriers and facilitators to Orthopaedic Surgeons' uptake of decision aids for Total Knee Arthroplasty: A qualitative study
AUTHORS	Bunzli, Samantha; Nelson, Elizabeth; Scott, Anthony; French, Simon; Choong, Peter; Dowsey, Michelle

VERSION 1 – REVIEW

REVIEWER	David Hamilton University of Edinburgh, UK
REVIEW RETURNED	27-Jul-2017

GENERAL COMMENTS	This paper sought to evaluate the barriers to/facilitators of the uptake of patient decision aids in atoll knee replacement amongst a group of orthopaedic surgeons. I congratulate the authors on a well constructed and interesting study. The methodology seems sound and the evaluation thorough. I have no concerns as to the interpretation. The question of determining access to knee replacement surgery and who makes the decision as to the appropriateness of the intervention is a pertinent but challenging one. Shared decision making is promoted widely, but the formal uptake of protocols and decision aids in clinical practice is diffuse at best. i applaud this evaluation of why this may be the case adding much needed context to the literature base. I just have a couple of general comments; 1. it seems that the discussion centred around a hypothetical decision aid as opposed to a defined one. This is an important distinction as the value of the tool clearly impacts the credibility and enthusiasm for its use (amongst both patient and clinician). it is not clear if attitudes to tool implementation and usage would differ if an actual tool was being postulated for use. 2. The language in the scene setting introductory 2 paragraphs is a bit charged and not particularly well supported beyond a couple of notable papers. For example, it is difficult to support the the suggestion that 'indications for TKA vary widely', the surgical case-mix and clinical decision making processes employed by differing surgeon will of course vary, but ultimately the operation is a pain releasing one and based on the defined presence of OA (mainly) and pain symptomatology.

	3. I think the pejorative suggestion that it is important to 'reserve' TKA for those who stand to make a clinically meaningful improvement is misplaced here as we struggle as a community to predict the outcome of surgery beyond associative factor analysis. Simply i think the authors are overplaying their hand in trying to determine the 'need' for this analysis - to the detriment of an appearance of academic interest in the questions asked - and i would recommend a less accusatory approach - particularly due to the challenges of defining appropriate levels of minimal clinical improvements required to 'justify' the use of the intervention - there are cases, for example, where surgery is essential to maintain locomotion, but pain is minimal - and thus the measurable benefit difficult to contextualise.

REVIEWER	Dan Riddle Virginia Commonwealth University Richmond, VA, 23113 No Comepting Interest
REVIEW RETURNED	06-Sep-2017

GENERAL COMMENTS	This qualitative study examines a very important question in orthopaedic surgery knee replacement practice – barriers to the use of decision aides, and I commend the authors for not only taking this on but also using an appropriate design to explore the issue. Given the lack of evidence and understanding, a qualitative study seems an ideal approach to initiate work in this area. I have a few suggestions for improvements below. In addition, I generally found the paper far too long; a problem I frequently see in qualitative papers. Many who need to read this type of paper are, in my experience often deterred by the excessive length. I would encourage you to move many/all of the quotes to an online appendix and shorten the paper to facilitate reading the content. The highly interested reader can then access the quotes which would be available online. Abstract: Your first sentence is very provocative but there is no mention of this premise throughout the paper. Either you need to provide strong evidence for this statement in the introduction or you should delete the statement. I would encourage the latter. Line 104: Use of behavior change theory may increase the likelihood of designing studies that are better able to facilitate desired behavior but theory does not, in itself, increase the likelihood of desirable behavior change. This sentence needs rewording. Line 165: The qualitative research jargon will not be understood by the reader. Terms like inductive and deductive coding are distracting and will not be understood by the great majority of the readership. Rather, I suggest you imbed the material and the jargon in online material and “genericize” the text so the reader will be able to understand what you did and why. Line 178: Why not report the Kappa statistic here and get it out of the way? It’s unrelated to your question and really belongs here. Also, if you discussed disagreements and reached consensus, there is no need for analyzing agreement, it was virtually guaranteed, right? Or am I missing something here?

	Line 183: I don't understand what you mean by the phrase "generated belief statements." Please clarify. You imply that the statements related to influences on the surgeon's clinical behavior and I don't understand how you can do this. Line 191: You talk about a group discussion here but you do not say who was in the group or what you discussed. I found this entire section unclear – you need to better explain what you mean when you say that you linked beliefs to behavior (I'm paraphrasing here). You also talk about calculating frequencies here but you did not appear to consistently report these later in the results section when you use phrases like "Many participants" and "only a few participants" and "participants" without providing a frequency count. I would encourage a frequency count any time you report your findings in the results section. Please also move the quotes into an online appendix. I don't find them to be helpful and they add an unacceptable length to the paper. The other problem with quotes is that they are likely to be a biased reflection of the concept that you are describing. They are better placed in an appendix. Discussion: I generally found the Discussion to be highly credible and within the bounds of the findings. However, I did not find a limitations section and given the qualitative approach, a substantial and clear limitations section is needed. Overall, well done to the authors.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comment 1. it seems that the discussion centred around a hypothetical decision aid as opposed to a defined one. This is an important distinction as the value of the tool clearly impacts the credibility and enthusiasm for its use (amongst both patient and clinician). it is not clear if attitudes to tool implementation and usage would differ if an actual tool was being postulated for use.

Response: This study is part of a wider project seeking to implement a TKA decision aid into an Australian Orthopaedic clinic setting (including the hospital in which this study was conducted). The first phase of this implementation project was to explore Orthopaedic Surgeons beliefs and attitudes towards decision aids to assist in the early design phase. We prefaced the interviews by stating that the researchers planned to develop a decision aid, thus the interview was structured around a hypothetical decision aid rather than a defined one. Please see additional detail in the manuscript page 6 lines 114-118:

"This theoretically-informed qualitative study is the first phase of a wider project seeking to design and implement a decision aid into an Australian Orthopaedic clinic setting. The aim of this study was to explore the barriers and facilitators to uptake of a TKA decision aid through structured one-to-one interviews with Orthopaedic Surgeons".

And page 7, lines 143-145:

"Interviews were prefaced by stating that the researchers planned to develop a decision aid, thus the discussion was centered around a hypothetical decision aid rather than a defined one."

Comment 2. The language in the scene setting introductory 2 paragraphs is a bit charged and not particularly well supported beyond a couple of notable papers. For example, it is difficult to support the the suggestion that 'indications for TKA vary widely', the surgical case-mix and clinical decision making processes employed by differing surgeon will of course vary, but ultimately the operation is a pain releasing one and based on the defined presence of OA (mainly) and pain symptomatology.

Response: We have toned down the language in the introductory paragraphs and removed the statement ‘indications for TKA vary widely’. Please see revisions page 4 lines 69-78

“Up to one quarter of Total Knee Arthroplasties (TKA) are performed on inappropriate candidates according to evidence-based criteria1 and a similar proportion experience minimal clinical benefit from surgery.2 The rates of TKA are increasing3; differentiating who will derive a clinically meaningful improvement from TKA from others is a key challenge for Orthopaedic Surgeons. While the degree osteoarthritis (OA) severity, pain severity and the impact of pain, are key indicators for TKA, surgeons’ consideration of other evidence-based indicators such as psychosocial factors remains varied3-5 Observations of orthopaedic consultations suggest that other ‘unstated factors’ may also influence clinical judgments such as the surgeons’ beliefs in their own ability to conduct surgery and their ‘instincts’ about the patients ability to cope with pain.6”

Comment 3. I think the pejorative suggestion that it is important to 'reserve' TKA for those who stand to make a clinically meaningful improvement is misplaced here as we struggle as a community to predict the outcome of surgery beyond associative factor analysis. Simply i think the authors are overplaying their hand in trying to determine the 'need' for this analysis - to the detriment of an appearance of academic interest in the questions asked - and i would recommend a less accusatory approach - particularly due to the challenges of defining appropriate levels of minimal clinical improvements required to 'justify' the use of the intervention - there are cases, for example, where surgery is essential to maintain locomotion, but pain is minimal - and thus the measurable benefit difficult to contextualise.

Response; Please find the revisions made to the abstract and introduction as detailed in our response to reviewer’ comment # 2. We have adjusted the language to highlight the challenges faced by Orthopaedic Surgeons in selecting suitable candidates for TKA

Reviewer: 2

Comment 4. Abstract: Your first sentence is very provocative but there is no mention of this premise throughout the paper. Either you need to provide strong evidence for this statement in the introduction or you should delete the statement. I would encourage the latter.

Please find this statement removed from the abstract. Consistent with the introduction, the opening statements in the abstract page 2, lines 31-33 have been revised to:

“Objectives: The demand for Total Knee Arthroplasty (TKA) is increasing. Differentiating who will derive a clinically meaningful improvement from TKA from others is a key challenge for Orthopaedic Surgeons.”

Comment 5. Line 104: Use of behavior change theory may increase the likelihood of designing studies that are better able to facilitate desired behavior but theory does not, in itself, increase the likelihood of desirable behavior change. This sentence needs rewording.

Response: Please find this sentence revised page 5, line 103-104:

“Using theory not only assists in designing studies that are better able to facilitate behavior change,20 but also provides a basis for better understanding the processes underpinning behavior change.21”

Comment 6. Line 165: The qualitative research jargon will not be understood by the reader. Terms like inductive and deductive coding are distracting and will not be understood by the great majority of the readership. Rather, I suggest you imbed the material and the jargon in online material and “genericize” the text so the reader will be able to understand what you did and why.

Response: Please see the removal of jargon such as inductive and deductive coding; replacing phrases such as ‘raw data’ with ‘interview responses’; and the use of examples to illustrate the process of data analysis. See for example response to reviewers’ feedback #8 and another example page 8, lines 168-173:

“In the first stage, two researchers (SB, EN) independently coded interview transcripts by classifying each interview response or utterance into one of the 14 TDF domains. For example, the response “I think 22 per cent is the high end. But there are a lot of different papers that all suggest 10, 15, 20 per cent” was classified into the ‘Knowledge’ domain of the TDF.”

Comment 7. Line 178: Why not report the Kappa statistic here and get it out of the way? It’s unrelated to your question and really belongs here. Also, if you discussed disagreements and reached consensus, there is no need for analyzing agreement, it was virtually guaranteed, right? Or am I missing something here?

Response: We included a kappa statistic for the purposes of ensuring that the theoretical domains guiding our coding were sufficiently clearly defined such that two independent researchers using the codes could find similar meaning in the same sections of text. However we acknowledge that our final interpretations were based on consensus agreement, thus negating the need to report the kappa statistic in this paper. Please find this removed from the manuscript.

Comment 8. Line 183: I don’t understand what you mean by the phrase “generated belief statements.” Please clarify. You imply that the statements related to influences on the surgeon’s clinical behavior and I don’t understand how you can do this.

Response: We have drawn on an example to illustrate what we mean by generating belief statements. Please see revisions page 9, lines 184-194:

“In the second stage of analysis, one researcher (SB) generated ‘belief statements’ based on interview responses. For example, from the response: “I think 22 per cent is the high end. But there are a lot of different papers that all suggest 10, 15, 20 per cent”, classified in the ‘Knowledge’ domain, we generated the belief statement: ‘I am aware of the literature that up to 20% of patients do not have a clinically meaningful improvement from TKA’. Belief statements were worded such that they could describe similar responses from different participants. Belief statements were reviewed by two further researchers (EN, MD), before being interpreted as a likely ‘facilitator’ or ‘barrier’ to surgeon’s uptake of a decision aid.

Continuing the example above, the belief statement: ‘I am aware of the literature that up to 20% of patients do not have a clinically meaningful improvement from TKA’ was interpreted as a facilitator to uptake, in that we considered surgeons would be more likely to use a decision aid if they were aware that a substantial proportion of TKA’s resulted in suboptimal outcomes.”

Comment 9. Line 191: You talk about a group discussion here but you do not say who was in the group or what you discussed. I found this entire section unclear – you need to better explain what you mean when you say that you linked beliefs to behavior (I'm paraphrasing here). You also talk about calculating frequencies here but you did not appear to consistently report these later in the results section when you use phrases like "Many participants" and "only a few participants" and "participants" without providing a frequency count. I would encourage a frequency count any time you report your findings in the results section. Please also move the quotes into an online appendix. I don't find them to be helpful and they add an unacceptable length to the paper. The other problem with quotes is that they are likely to be a biased reflection of the concept that you are describing. They are better placed in an appendix.

Response: We have been careful to articulate clearly that when we refer to surgeons' behavior, we are referring to uptake of a decision aid, rather than how they select patients for TKA. Please see revisions e.g: page 9, line 189-191:

"Belief statements were reviewed by two further researchers (EN, MD), before being interpreted as a likely 'facilitator' or 'barrier' to surgeon's uptake of a decision aid"

And another example page 9, lines 197-198:

"In the third stage of analysis, we identified the domains most likely to influence surgeon's behaviour (i.e. using a decision aid or not)"

In Table 2 we provide frequencies (out of 20) for how many interviews a given belief statement appeared in. We have added detail to refer the reader to Table 2 in page 10 lines 207-210:

"We present frequencies of beliefs (see Table 2) to provide the reader with a better understanding of the range of interview responses and to assist us in identifying 'relevant' domains of the TDF".

We have revised the main text in response to this feedback to provide more detail on frequencies, while maintaining the narrative style e.g. page 12 line 257-258:
"Seven surgeons emphasised the importance of 'asking the right question in the right way. (Q6, Q7)."

We have also removed the quotes from the main text and placed them in a Table. We have placed quote numbers in the main text to assist the reader in identifying the quotes that support each finding as illustrated in lines 257-258 above.

Comment 10. Discussion: I generally found the Discussion to be highly credible and within the bounds of the findings. However, I did not find a limitations section and given the qualitative approach, a substantial and clear limitations section is needed. Overall, well done to the authors.

Response; Please see an addition section in the discussion titled: Limitations. Page 22, lines 489-497:

"Qualitative studies involving Orthopaedic Surgeons are rare. The strength of this study is the 100% participation rate by Orthopaedic Surgeons in one tertiary hospital setting. While the sampling

strategy means the generalizability of these findings to other contexts may be limited, we have documented significant similarities with international studies. We acknowledge that while beliefs, attitudes and intentions can predict behaviors with a degree of accuracy, they are distinct from actual behavior43. Thus the themes elicited in this study do not provide evidence of the actual influences on uptake of a decision aid".