PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	A conceptual model for pluralistic healthcare behavior: results from a qualitative study in southwestern Uganda
AUTHORS	Sundararajan, Radhika; Mwanga-Amumpaire, Juliet; King, Rachel; Ware, Norma

VERSION 1 – REVIEW

REVIEWER	Dr Serena Masino University of Westminster UK
REVIEW RETURNED	18-Oct-2019

GENERAL COMMENTS	- Literature review While the review touches on relevant aspects of the literature and theoretical background, at the moment it really appears more like a laundry list than a coherent discussion of pros and cons. I suggest connection between concepts and paragraphs is improved and the various points raised as well as literature contributions are put in conversation with each other - Participant selection They authors do not give much detail about how participants were selected, other than mentioning the context in which they were approached. Was selection done by snowballing? Was it random according to a patient list? Or what other criteria were used to select participants? - Rural / urban dimension Several characteristics of the participants are listed and it is mentioned they were all interviewed in the same district, were they also all interviewed in the same city? Or were some of them approached at healers' clinics in rural districts? If there is a difference in dwellings, this is likely to bias results and it should be explicitly included/controlled for and discussed - Results How do you explain the fact that educational levels and income levels seem to be lower across the biomedical patients sample? More discussion needs to appear on this Your biomedicine patients have almost no exposure to indigenous medicine (only two do). Is this not biasing comparison? Are the biomedical patient respondents reported under theme one those who have also attended healers? If so, are they not over represented? In other words, there is a large part of the biomedical sample that has no term of comparison, not having used indigenous medicine, whereas healers' patients do have experience of both sectors. This limitation should be

	acknowledged and discussed as it is likely to introduce significant bias. For example, most positive peer review effects about healers and negative peer review effects about hospital staff are related by indigenous medicine respondents. What does this say about the experience of all those biomedical patients who have no complaints about the biomedical treatment they received? In other words, the problem seems to be one of fundamental selection bias, whereby there may be characteristics of the people selected as respondents that drive them towards the choice of health-care providers but are not observed and thus account for certain responses. Ideally, you would need to have a much higher proportion of people in both sample who have experienced both methods of care, as at the moment you are only relying on one of the two samples to answer your research question of "why do people keep using both medical systems". - Discussion This section is very descriptive, there is hardly any conversation with the literature and hardly any contextualisation within it. Furthermore, the article is lacking on the implications side, i.e. what do we do with the results? What policy and practice implications can we draw? Most of the findings discussed in the article are already widely know in the literature, so what does this work add to the debate that we do not already know?

REVIEWER	Duangporn Kerdpon Stomatology Department Faculty of Dentistry Prince of Songkla University Had Yai Songkhla 90112 Thailand
REVIEW RETURNED	20-Nov-2019

GENERAL COMMENTS	Comments to the Authors A conceptual model for pluralistic healthcare behavior: results from a qualitative study in southwestern Uganda Manuscript ID bmjopen-2019-033410 This is a qualitative study as part of a mixed method study. This part investigated factors that motivate utilization of biomedical and traditional facilities to create a general, conceptual framework of pluralistic health behavior. The study is quite interesting since there has been little research specifically focusing on the aim. My comments are as follows: 1. In the topic of "Sampling and Recruitment", details of paragraphs 3 and 4 should be moved to be paragraphs 2 and 3 or rearranged for fluency of the details. 2. According to paragraph 2 of "Sampling and Recruitment", "After twentyfive interviews per group were conducted, the two authors agreed that interview content no longer contained new or surprising content. Five additional interviews per group were conducted to confirm thematic saturation" (last sentence of p 4 to first paragraph of p5). What is different from the in-depth interview of each person in each group (N=30) which is expected as part of the normal process in the in-depth interview? 3. Was the same number of participants recruited from each of the 4 specialty subgroups (herbalist, bone setter, traditional birth

	attendant, and spiritual healer) of a traditional healer? If not, would this have influenced the study results such as those from the spiritual healer group may having different reasons to engage in the treatment group from the others? 4. Please also specify subgroups of the traditional healer for the quote in “Qualitative Results”. Were participants from all subgroups being quoted in this part? 5. What does “PrEP” stand for? (line 12, p 12) 6. According to the limitation of the study stated in the last paragraph of the discussion, the topics out of the scope of the study may not be considered as limitations of the study

REVIEWER	Lily Kpobi, PhD University of Ghana
REVIEW RETURNED	23-Nov-2019

GENERAL COMMENTS	Thank you for the opportunity to review this paper which examines the factors that influence health-seeking itineraries of service users in southwestern Uganda. This is a clearly-written paper which discusses an important focus of health care interventions in resource-poor contexts. The following comments may be helpful to the authors: 1. Pg. 4: Could the authors provide us some more information about the consent process of this study? How was it decided that a participant was able to provide consent? I wonder because the health conditions of the participants were not specified. Consent from vulnerable groups, such as people with lived experience of mental disorder, is often slightly more nuanced. 2. In relation to the above point, could the type of conditions for which participants sought treatment have influenced their health-seeking avenues? Some studies have suggested that patients with more chronic, lifestyle conditions more often make use of alternative health systems. This is similar for conditions which are highly stigmatised. In that sense, perhaps the authors could briefly discuss their choice of healers, particularly why they chose to exclude Christian faith healers (who arguably form a large category of alternative health care, and where some biomedical patients may have attended) 3. I am a bit unclear about what new information was provided. How was comparison done between patients, i.e. what was the reason for two separate groups of patients especially since it was identified that many participants had been to other places? 4. Pg. 6: Could the biomedical patients’ denying care from traditional healers reflect the perceived disdain or disapproval of the use of alternative medical care by those in the biomedical health system? This attitude has been documented and has been suggested to influence patients’ willingness to report use. What is the position of traditional medicine in Uganda? Is it a formally accepted form of health care? 5. The fact that all traditional health patients had used biomedical care before is a further point that the reason for using traditional medicine is not necessarily about illness beliefs and access, as the

	authors state. This is especially so for non-stigma related conditions. In addition, the perception of the use of modern technology as reassurance of efficacy and quality is also evidence of the position and perceived hegemony of biomedicine in many post-colonial settings. This is a potential factor about healthcare itineraries which the authors may wish to explore 6. Pg. 13 lines 6-11: What did the authors mean when they said increase community acceptability of interventions? What suggestion can be made make for changes in the biomedical system given the reported attitudinal problems? These attitudes will certainly influence acceptability of any biomedical interventions. Is there any avenue for biomedicine to learn about care attitudes from traditional healers? 7. As the authors state, traditional healers are willing to work with biomedical systems, but to what extent is biomedicine willing to work with healers in an open, mutually directed manner? I think these factors must reflect in the discussion of this paper. 8. In relation to the previous point, I think some more engagement with the findings is warranted. The recommendations about interventions are ones that have been made before. Can the authors discuss how these public health interventions should look? 9. Also, can the authors talk a bit more about their model? As it is now, there is little discussion on the interactive effects of the identified factors. The model appears to suggest a stepwise effect of each factor, how does this work? I would think at some point these factors may be cross-functional, in that, the positive perception of diagnostic methods could influence perceptions about the legitimacy of peer testimony? I think it would be useful, if there is some more discussion about the model. In its current form, it appears to me to be merely a listing of factors

VERSION 1 – AUTHOR RESPONSE

Reviewer 1 –
1. While the review touches on relevant aspects of the literature and theoretical background, at the moment it really appears more like a laundry list than a coherent discussion of pros and cons. I suggest connection between concepts and paragraphs is improved and the various points raised as well as literature contributions are put in conversation with each other

Thank you for this comment. Revisions have been made to harmonize the literature review discussion and more clearly frame the study in the context of prior work on this topic. For example, in the second paragraph of the Introduction, we discuss prior research summarizing the services provided by traditional healers, and previously described factors underlying preference for traditional healer services in some contexts. In the third paragraph, we suggest that preference for healers could have negative public health effects, reviewing research linking healer use to poor clinical outcomes for both infectious and non-communicable diseases. Given the health implications of traditional healer use, we then summarize literature describing prior efforts to engage with healers to expedite medical diagnoses. This review now leads more clearly to the central question of our study: “why patients choose to utilize one healthcare resource, but not another”.

2. They authors do not give much detail about how participants were selected, other than mentioning the context in which they were approached. Was selection done by snowballing? Was it random according to a patient list? Or what other criteria were used to select participants?

More details of recruitment and consent processes have been added to help clarify these procedures on page 5. Potential participants were individually recruited by Ugandan research assistants following treatment at biomedical clinics, and at traditional healer locations. Recruitment visits were scheduled to take place on random days of the week to maximize variation of participants included in the study. A maximum of two eligible patients was enrolled during each site visit. This approach was used in order to allow for informed consent, interview, and translation/transcription. In addition, each interview was reviewed and feedback provided to RAs prior to conducting the next interview.

3. Several characteristics of the participants are listed and it is mentioned they were all interviewed in the same district, were they also all interviewed in the same city? Or were some of them approached at healers' clinics in rural districts? If there is a difference in dwellings, this is likely to bias results and it should be explicitly included/controlled for and discussed

We have added details to further clarify the recruitment locations on pages 4 and 5. The research activities were conducted in Mbarara District, Uganda, more specifically within the area of Mbarara town center. The Mbarara Municipality Clinic is located in the town center. All healer practices were located within 20 kilometers of the town center. These would all qualify as rural locations.

4. How do you explain the fact that educational levels and income levels seem to be lower across the biomedical patients sample? More discussion needs to appear on this

Thank you for raising this point. Based on the reviewer's input, we have modified table 1 to present continuous variables with median and interquartile range (page 7). We believe this better represents the characteristics of participants in the two groups, as the data are not normally distributed. Specifically, one participant in the healer group reported a very high monthly income, which drove up the mean. In addition, we added a brief discussion on the income differences between groups (page 7). Revised text now reads, "Biomedical participants were recruited from a government-run medical clinic, where they received health services at no cost. Therefore, we would expect lower household incomes, as they have preferentially sought to receive free medical care, rather than present to a fee-for-service facility. Other characteristics, including gender, household size, highest level of education, and religious affiliation, were similar between the two groups."
The differences in educational levels between group is by a factor of one additional person in the healer group with primary education or less. With this small sample size, we would consider these proportions approximately equal.

5. Your biomedicine patients have almost no exposure to indigenous medicine (only two do). Is this not biasing comparison? Are the biomedical patient respondents reported under theme one those who have also attended healers? If so, are they not over represented? In other words, there is a large part of the biomedical sample that has no term of comparison, not having used indigenous medicine, whereas healers' patients do have experience of both sectors. This limitation should be acknowledged and discussed as it is likely to introduce significant bias. For example, most positive peer review effects about healers and negative peer review effects about hospital staff are related by indigenous medicine respondents. What does this say about the experience of all those biomedical patients who have no complaints about the biomedical treatment they received? In other words, the problem seems to be one of fundamental selection bias, whereby there may be characteristics of the people selected as respondents that drive them towards the choice of health-care providers but are not observed and thus account for certain responses. Ideally, you would need to have a much higher proportion of people in both sample who have experienced both methods of care, as at the moment you are only relying on one of the two samples to answer your research question of "why do people keep using both medical systems".

Thank you for these comments. In response to this input, we have clarified the overall research question presented in the Introduction. Revised text now states: “There is a critical lack of understanding about why patients choose to engage with one healthcare resource, but not another.” (page 4) We acknowledge that not every participant in our study has direct knowledge or experience with both forms of healthcare. Each has their own lived experience that can provide contextual information on healthcare itineraries in this medically pluralistic setting. We employed an interpretive phenomenological approach to data analysis because our study sought to explore participants’ own experiences and perspectives, rather than describe their healthcare experiences in objective or quantitative terms (page 6).
We would additionally respond to reviewer concerns by suggesting that the strong concern for “selection bias” among our sample of participants is not directly relevant to the design or analysis of qualitative research. The concept of bias is rooted in a quantitative paradigm (Galdas, Int J Qualitative Methods, 2017; Noble & Smith BMJ Evid Based Nurs 2015). The participant groups are not meant to be equivalent. Qualitative samples are intended to be relevant to the study question, rather than representative of the general population, as would be important in a quantitative study. Our study participants were recruited in order to represent a range of lived experiences and gather detailed, “thick” descriptions from key informants relevant to our research question. In “Sampling and Recruitment” we have written (page 4): “In our case, key informants were selected to represent variation in experiences of receiving modalities of healthcare: biomedical and traditional”. While researcher bias is an important consideration for qualitative studies, that is not the issue raised by this reviewer (however, we have completed the SRQR checklist for qualitative reporting to ensure maximum transparency).

In response to the characterization that most negative accounts of biomedical care come from traditional patients, we would point out that both biomedical and traditional patients reported prior negative experiences. In section A (page 8-9) we present examples from one traditional and two biomedical patients illustrating experiences with disrespect in biomedical contexts. In section C (pages 11-12), we present examples of negative peer narratives about biomedical care from two traditional and one biomedical participant. Taken together, we believe these perspectives are balanced from both groups of participants.

6. This section is very descriptive, there is hardly any conversation with the literature and hardly any contextualisation within it. Furthermore, the article is lacking on the implications side, i.e. what do we do with the results? What policy and practice implications can we draw? Most of the findings discussed in the article are already widely know in the literature, so what does this work add to the debate that we do not already know?

We appreciate this suggestion. We have revised the Discussion section to better contextualize our results with existing literature, and emphasize that our primary contribution is to present an overall model for healthcare engagement in medically pluralistic contexts (pages 12-15). We added two paragraphs discussing the conceptual model and its implications for programs, policy and research (page 14).
We agree that each variable we discuss has been independently described by prior work, but our contribution is to consider these factors as components of an integral model. We have also made the policy and practice implications of our research clearer on page 14P. For example, we suggest that traditional healers should be included in planning and implementation of public health initiatives, providing an example of a clinical trial whose impacts were potentiated by healers in the community. In this same paragraph, we provide suggestions for decentralizing healthcare resources in pluralistic communities to increase potential engagement.

Reviewer 2 –
1. In the topic of “Sampling and Recruitment”, details of paragraphs 3 and 4 should be moved to be

paragraphs 2 and 3 or rearranged for fluency of the details.

These paragraphs have been re-ordered in this section, as recommended (pages 4-5)

2. According to paragraph 2 of “Sampling and Recruitment”, “After twenty-five interviews per group were conducted, the two authors agreed that interview content no longer contained new or surprising content. Five additional interviews per group were conducted to confirm thematic saturation” (last sentence of p 4 to first paragraph of p5). What is different from the in-depth interview of each person in each group (N=30) which is expected as part of the normal process in the in-depth interview?

The final interviews conducted to confirm thematic saturation were not different from the prior interviews, as described in the “Data Collection” section. We have updated the “Sampling and Recruitment section” text to clarify our data collection process: “After 30 interviews per group were conducted, the authors agreed that thematic saturation had been reached, and interview content no longer contained new or surprising content.” (pages 5-6)

3. Was the same number of participants recruited from each of the 4 specialty subgroups (herbalist, bone setter, traditional birth attendant, and spiritual healer) of a traditional healer? If not, would this have influenced the study results such as those from the spiritual healer group may having different reasons to engage in the treatment group from the others?

The number of participants recruited from each type of healer is shown in Table 1. Most were recruited from bone setters and spiritual healers. We acknowledge that patients seeking care from spiritual healers will not have the same motivations as patients seeking care from birth attendants. Our study intended to gather information from a diverse range of participants in order to develop a broad conceptual model for medical pluralism. As such, we continued to conduct interviews among clients of bonesetters and spiritualists in order to ensure we had reached data saturation among healer clients. We have added text to the “Sampling and Recruitment” section to clarify justification for recruitment. Revised text now reads (page 5): “Participants in the traditional medicine subgroup were recruited from twelve traditional healer practices which reflected the range of specialties in this region (herbalist, bone setter, traditional birth attendant, and spiritual healer). It is well established that men tend to have low uptake of in healthcare services in sub-Saharan Africa[30-32]. In order to ensure that male perspectives were represented, we recruited two-thirds of participants at healer practices who were known to provide services for men. Therefore, more bonesetter and spiritual healer patients are included in the traditional healer group.”

4. Please also specify subgroups of the traditional healer for the quote in “Qualitative Results”. Were participants from all subgroups being quoted in this part?

We appreciate this input and have updated all quotes in the results section from participants recruited from traditional healers to indicate which healer practice they were receiving care from on the day of enrollment. All subgroups are represented by the quotes included in the manuscript.

5. What does “PrEP” stand for? (line 12, p 12)

PrEP is an acronym for HIV pre-exposure prophylaxis. We have revised to clarify the meaning of the acronym. Revised text now reads (page 13): “Our data describing negative interactions with biomedical staff is consistent with prior work demonstrating how these interactions foster disengagement with HIV care among people living with HIV[48-50], decreased HIV pre-exposure prophylaxis (PrEP) utilization among key populations[51] and lack of healthcare facility use among pregnant women[52-54].”

6. According to the limitation of the study stated in the last paragraph of the discussion, the topics out of the scope of the study may not be considered as limitations of the study.

Thank you for this feedback. The limitations section of the Discussion has been revised accordingly, and those issues of the scope of the study have been removed as study limitations (page 15).

Reviewer 3 –

1. Could the authors provide us some more information about the consent process of this study? How was it decided that a participant was able to provide consent? I wonder because the health conditions of the participants were not specified. Consent from vulnerable groups, such as people with lived experience of mental disorder, is often slightly more nuanced.

We agree completely. Details of the consent process have been added as recommended, which now include description of processes undertaken to ensure a potential participant's ability to provide consent to participate (page 5). Health status and medical history were not collected as part of this study, with the exception of inquiring about symptoms and treatment received during the current visit. This point has been added as a limitation of our study (page 15).

2. In relation to the above point, could the type of conditions for which participants sought treatment have influenced their health-seeking avenues? Some studies have suggested that patients with more chronic, lifestyle conditions more often make use of alternative health systems. This is similar for conditions which are highly stigmatised. In that sense, perhaps the authors could briefly discuss their choice of healers, particularly why they chose to exclude Christian faith healers (who arguably form a large category of alternative health care, and where some biomedical patients may have attended)

Thank you for posing these important questions. We sought to recruit patients from healer practices who provide care for both acute and chronic health issues. Christian spiritual healers were excluded from this study because these services are not culturally marginalized in the same manner that traditional healers in our region are. While traditional healers are commonly utilized, these providers are frequently maligned by biomedical providers, and largely overlooked by policy makers. Therefore, less is known about people who utilize healers and why they chose to go there, particularly in Uganda. However, we recognize that additional work could include faith healers, since they are an important part of the healthcare landscape in sub-Saharan Africa. We have added this point to our study limitations (page 15); revised text in the "Limitations" section now reads "This study includes only people seeking healthcare from traditional healers, and similar work is needed for those seeking care from faith healers." We agree that healers manage very highly stigmatized conditions, and believe our data underscores some of the reasons they are preferred for sensitive conditions.

3. I am a bit unclear about what new information was provided. How was comparison done between patients, i.e. what was the reason for two separate groups of patients especially since it was identified that many participants had been to other places?

Thank you for this inquiry. Given the medically pluralistic health context, we expected many participants would have experiences with both traditional and biomedical resources. In order to capture the broadest range of perspectives, we recruited participants who were seeking healthcare from both modalities. By using a qualitative study design, our goal was not to compare the two groups, but to provide a detailed, contextual analysis. We believe this strategy allows us to have the best understanding of factors that motivate healthcare utilization, by including perspectives from many types of healthcare users. We have clarified our approach on page 6. The contribution of our work has also been clarified in final paragraph of the Introduction section (page 4).

4. Could the biomedical patients' denying care from traditional healers reflect the perceived disdain or disapproval of the use of alternative medical care by those in the biomedical health system? This attitude has been documented and has been suggested to influence patients' willingness to report use. What is the position of traditional medicine in Uganda? Is it a formally accepted form of health care?

We completely agree that such factors likely impacted low self-report of traditional healer use among biomedical patients. Traditional medicine is in the process of being formally recognized by the Ugandan Ministry of Health (there has been legislation under consideration for a few years), but there is currently no national oversight organization. Training and services rendered vary across practitioners. These points have been added to the "Methods – "Study Setting and Design" (page 4) and "Discussion" (pages 14-15) sections.

5. The fact that all traditional health patients had used biomedical care before is a further point that the reason for using traditional medicine is not necessarily about illness beliefs and access, as the authors state. This is especially so for non-stigma related conditions. In addition, the perception of the use of modern technology as reassurance of efficacy and quality is also evidence of the position and perceived hegemony of biomedicine in many post-colonial settings. This is a potential factor about healthcare itineraries which the authors may wish to explore

We have expanded our Discussion to include these excellent points. For example, revised text (page 13) in the Discussion now reads, "Our results speak to the hegemony of biomedicine in Uganda, and more broadly throughout post-colonial sub-Saharan Africa, where biomedicine is highly valued, and may be considered of superior quality and efficacy compared with traditional healing[11,12]. Some participants report gaining reassurance through laboratory and radiologic testing to guide diagnosis and therapy, describing this as "proper" treatment. We note that the desire for healthcare directed by "modern" test results is the central factor favoring biomedical healthcare utilization among our participants".

6. What did the authors mean when they said increase community acceptability of interventions? What suggestion can be made make for changes in the biomedical system given the reported attitudinal problems? These attitudes will certainly influence acceptability of any biomedical interventions. Is there any avenue for biomedicine to learn about care attitudes from traditional healers?

Thank you for allowing us to clarify our statement. We suggest that community-based health initiatives (such as diabetes or hypertension screening programs, HIV prevention, use of bednets for malaria prevention, etc) may have broader success if traditional healers are included in planning and implementation within the communities they serve. We have expanded our discussion on page 14, which now includes a specific example to better illustrate our point. We have also added suggestions that relate specifically to our conceptual model, specifically emphasizing that programs that rely entirely on biomedical facility referral will have limited success in medically pluralistic settings, and a more effective strategy may be to increase healthcare resources in communities. We describe a policy-level example of this approach in decentralization of HIV services, or "differentiated care".

With regard to changing attitudes among biomedical providers, we have expanded this discussion to provide some suggestions based on our study findings. For example, revised text in the Discussion now reads (page 14), "We recommend that researchers and policy makers involve traditional healers when designing and implementing community-based health initiatives because healers are well positioned allies for healthcare programs. Community members may consider healers more trustworthy than biomedical providers[49]. Biomedicine could learn a great deal from healers regarding the power of interpersonal relationships as part of the healthcare process[13,14]."

7. As the authors state, traditional healers are willing to work with biomedical systems, but to what extent is biomedicine willing to work with healers in an open, mutually directed manner? I think these factors must reflect in the discussion of this paper.

We have added discussion on this important topic in the Discussion section. Revised text on page 14 now reads, “Biomedical objections to traditional healing largely focus on use of alternatively explanatory mechanisms (such as belief that evil spirits or bad luck may cause physical symptoms), lack of standardized training and oversight of practices, and delivery of varying concentrations or mixtures of herbal therapies[15]. In fact, negative attitudes towards traditional medicine have been described as the primary barrier to true collaboration between traditional and biomedicine, as biomedical providers repeatedly downplay the skills and contributions of traditional healers[16,17]. Biomedical providers may express distrust and disapproval of traditional medicine in interactions with their patients[16-18].”

8. In relation to the previous point, I think some more engagement with the findings is warranted. The recommendations about interventions are ones that have been made before. Can the authors discuss how these public health interventions should look?

Thank you for this comment. We have expanded our recommendations about future work on page 14. Revised text in the Discussion section now reads, “Our findings provide insight on how patients decide to engage with particular healthcare resources, and can guide efforts to improve healthcare quality and interventions in medically pluralistic communities. Importantly, our conceptual model can direct strategies to engage those who may avoid biomedical resources, and have low uptake of conventional healthcare outreach program, which are frequently facility-based, and/or delivered by biomedical providers. Our data suggest that healthcare users value the interpersonal interactions and trustworthiness of healers, but also may gain reassurance through receipt of biomedical testing and diagnostic technologies. An ideal health resource in a pluralistic context would potentially incorporate all of these valuable attributes.”

9. Also, can the authors talk a bit more about their model? As it is now, there is little discussion on the interactive effects of the identified factors. The model appears to suggest a stepwise effect of each factor, how does this work? I would think at some point these factors may be cross-functional, in that, the positive perception of diagnostic methods could influence perceptions about the legitimacy of peer testimony? I think it would be useful, if there is some more discussion about the model. In its current form, it appears to me to be merely a listing of factors

Thank you for this feedback. We have revised the model shown in Figure 1, and added paragraphs of text to the Results (page 12) and Discussion (page 14) sections. We highlight how particular factors may of paramount importance to some healthcare users in driving utilization of one modality or another. Revised text in the Results section (page 12) now reads, “These variables interact to shape an individual’s therapeutic itinerary, but not necessarily in a stepwise manner. For healthcare users, one or more characteristics of a healthcare system may be of paramount importance in determining use of this resource, but each modality comes with potential disadvantages. Negative experiences could prompt users to switch to the alternate modality. We heard this process described by participants who believed their ailments were initially mismanaged by biomedical providers, and were subsequently healed using traditional approaches. Similarly, positive experiences contribute towards continued use of a healthcare modality, and an individual may become reticent to engage with the alternative in light of continued positive health outcomes”. In addition, we have included implications for healthcare programs, policy, and research based on this conceptual model into the Discussion section (page 14).

VERSION 2 – REVIEW

REVIEWER	Duangporn Kerdpon Stomatology Department Faculty of Dentistry Prince of Songkla University Had Yai SongKhla 90112 Thailand
REVIEW RETURNED	30-Jan-2020

GENERAL COMMENTS	Comments to the Authors A conceptual model for pluralistic healthcare behavior: results from a qualitative study in southwestern Uganda Manuscript ID bmjopen-2019-033410.R1 1. Abstract: The last sentence of the Introduction stated that the study's scope was "in a sub-Saharan African context", but on p 5, line 29 you adjusted it to "develop a general, conceptual framework". 2. Methods: p 6, line 7-8 stated about "Ugandan research assistants", if there were more than one person, was calibration performed prior to collecting the data and how? 3. P 6, last paragraph, line 52-53: Details of the sentence "Two authors…emerging themes" should be moved to a relevant paragraph to avoid confusing the reader. 4. P 7, second paragraph: It was described that the first author reviewed the transcript and then gave feedback to the RAs regarding reviewing techniques. What did the author do with the data if there were reviewing techniques that need to improved? Was there consistent quality of interview data that would affect the research result? 5. According to the traditional healer subgroup: herbalist, bone setter, traditional birth attendant, and spiritual healer, is it appropriate to include those from a spiritual healer since they may have different reasons to engage in the treatment group from the others? 6. Also, 2 quotations from those pertaining to the spiritual healer subgroup are not relevant to why they seek treatment in the group (p 11, last two quotations discussed about delivering a baby).

REVIEWER	Lily Kpobi, PhD University of Ghana
REVIEW RETURNED	27-Jan-2020

GENERAL COMMENTS	The authors have addressed my concerns in a thorough and thoughtful manner. I commend them for the detailed revision

VERSION 2 – AUTHOR RESPONSE

Reviewer 2 –

1. Abstract: The last sentence of the Introduction stated that the study's scope was "in a subSaharan African context", but on p 5, line 29 you adjusted it to "develop a general, conceptual framework".

The phrase "in a sub-Saharan African context" has been deleted from the final sentence of the Introduction as suggested. The manuscript now reads (page 4, last two sentences of Introduction

section), “We sought to explain therapeutic itineraries by conducting interviews with users of biomedical and traditional healthcare resources. These data were used to develop a general, conceptual framework that can inform future work in medically pluralistic settings.”

2. Methods: p 6, line 7-8 stated about “Ugandan research assistants”, if there were more than one person, was calibration performed prior to collecting the data and how?

We have revised this section to clarify the data collection procedures. Page 5, first sentence of “Data Collection” section now reads, “Three Ugandan Research Assistants (RAs) with prior experience in conducting qualitative interviews in southwestern Uganda collected data for this study”. The first sentence of the second paragraph (page 6), now reads, “Each study participant took part in a single, individual, in-depth interview with one of these RAs.”

We understand the reviewer’s question on ‘calibration’ to refer to procedures used to ensure the three interviewers were consistent in their approach to data collection and use of the interview guide. We have revised the “Data Collection” section to provide details on the strategies used by our study team to ensure that interviews conducted by the three RAs were consistently focused on topics of interest, as defined by the interview guide, and were of high quality. We describe the strategies in the first paragraph of the “Data Collection” section as follows, “Prior to initiation of data collection, all RAs took part in a three-day training session led by RS and JMA, which focused on the principles of qualitative research, approaches to conducting high quality interviews, and establishing standard procedures for interview translation and transcription. In addition, the RAs underwent intensive training with interview guide questions to ensure consistency of delivery and use throughout the study.”

We also added text describing the processes of creating and piloting the interview guide in the following paragraph (page 6), “The interview guide was created in English, translated to the local language (Runyankore), and back-translated into English to verify preservation of meaning. In addition, the interview guide was piloted with three traditional healers prior to initiation of data collection in August 2017; these responses were not included in our analysis.”

3. P 6, last paragraph, line 52-53: Details of the sentence “Two authors…emerging themes” should be moved to a relevant paragraph to avoid confusing the reader.

We appreciate this suggestion. The sentence has been moved from the “Sampling and Recruitment” section to the “Development of Codes” subheading under “Analysis of Data”. The beginning of this subsection now reads (page 6, last paragraph), “Two authors (RS and JMA) reviewed transcripts within 72 hours of completion and corresponded weekly to identify and discuss emerging concepts. Guided by these discussions, the first author (RS) produced an initial set of codes, or labels that described key concepts in the dataset. Using an inductive strategy, this process was conducted while interviews were ongoing, providing overlap between qualitative interviewing and data analysis, allowing for iterative engagement with the dataset to identify concepts of interest.”

4. P 7, second paragraph: It was described that the first author reviewed the transcript and then gave feedback to the RAs regarding reviewing techniques. What did the author do with the data if there were reviewing techniques that need to improved? Was there consistent quality of interview data that would affect the research result?

Thank you for these questions. While we recognize that each interviewer may have their own approach to conducting an interview, we conducting rigorous training on the study interview guide to ensure consistent focus on a few core topics, relevant to our study question. The procedures relevant to training on the interview guide are described in first paragraph of the “Data Collection” section (please see response to Question 2, above).

We have revised the section describing our quality assurance procedures to explain the purpose of the transcript review and feedback to RAs as a mechanism to ensure consistent quality of data,

expanding the description of our quality-monitoring process in the “Data Collection” section. Specifically, transcripts were produced by the interviewing RA within 72 hours of interview completing. The first author (RS) reviewed each transcript line-by-line. When review indicated a need for improvement in interviewing technique, the first author provided guidance on areas that could be improved, with suggestions for improvement via email to the RA. we trained our RAs to explore a participant’s unique thoughts and experiences while allowing for novel concepts to emerge during the in-depth interview. We provided tailored feedback for each RA to ensure consistent use of the interview guide, and to maintain quality of data across interviewers.

The text at the end of the “Data Collection” section now reads (page 6), “All transcripts were produced within 72 hours of the interview being completed. The transcripts were reviewed by the first author for quality, content, and to provide feedback to the RAs regarding interviewing techniques. This monitoring process allowed for RAs to receive consistent feedback to improve interviewing skills to ensure that interviews were of high quality, explored participants unique experiences, and facilitated consistency on interview guide topics across interviewers.”

5. According to the traditional healer subgroup: herbalist, bone setter, traditional birth attendant, and spiritual healer, is it appropriate to include those from a spiritual healer since they may have different reasons to engage in the treatment group from the others?

Thank you for this question. As mentioned in the Introduction (page 3, middle paragraph), “Patients may also seek out traditional therapies to address symptoms attributed to ancestral curses or bewitching, believed incurable by biomedicine[19].” We (Sundararajan et. al. 2015) and others (Finkler 1994, van Duijl 2014) have shown that spiritual healers in many parts of the world are sought for evaluation and treatment of fever, weakness, anemia, hypertension, malaria, epilepsy, pregnancy, and infertility. In Uganda specifically, spiritual healers are frequently visited for somatic complaints. Therefore, participants recruited from these sites have similar reasons to engage in treatment.

6. Also, 2 quotations from those pertaining to the spiritual healer subgroup are not relevant to why they seek treatment in the group (p 11, last two quotations discussed about delivering a baby).

We appreciate this feedback. The quotes by participants in these two instances are describing their experiences and beliefs about biomedical effectiveness generally, not in the specific context of their traditional healer visit. These two participants describe how biomedical interventions may be dangerous for pregnant women, and traditional approaches may be preferred. We highlighted these quotes in order to demonstrate the concept that biomedicine is not always favored, and may be perceived as a resource that should be avoided. We would argue that these insights are highly relevant to the fact that participants were receiving care from spiritual healers, as their decision to use traditional medicine may be motivated by their beliefs that biomedical can be harmful, as shown in our conceptual model.

VERSION 3 – REVIEW

REVIEWER	Duangporn Kerdpon Stomatology Department Prince of Songkla University Faculty of Dentistry Prince of Songkla University Songkhla Thailand
REVIEW RETURNED	04-Mar-2020

GENERAL COMMENTS	Comments to the Authors A conceptual model for pluralistic healthcare behavior: results from a qualitative study in southwestern Uganda Manuscript ID bmjopen-2019-033410.R2 1. The authors responded to my comment in the R1 manuscript by deleting the study's scope of "in a sub-Saharan African context" from the Abstract, and keeping "These data were used to develop a general, conceptual framework that can inform future work in medically pluralistic settings." (p5, last sentence of Introduction). To be relevant to the study design, the author should keep "in a sub-Saharan African context" and adjust the last sentence of the Introduction, so as not to overemphasize the study result. 2. How many "Ugandan research assistants" have been employed for collecting the data? 3. Regarding my comment in R1 "(p 7, second paragraph): It was described that the first author reviewed the transcript and then gave feedback to the RAs regarding reviewing techniques. What did the author do with the data if there were reviewing techniques that need to be improved? Was there consistent quality of interview data that would affect the research result?" The author responded by describing the reasons to give feedback to the RAs (R2, p7, last paragraph of Data Collection), which was not the answer to my question. 4. In consistency with my comment in R1, I am still concerned with the study design that includes those who seek spiritual healer practices into the traditional healer subgroup since they may have different reasons to engage in the treatment group from the others, namely: herbalist, bone setter and traditional birth attendant. Please can you discuss the reasons why you include those who seek care from spiritual healers. Also, 2 quotations from those pertaining to the spiritual healer subgroup are not the reason that seemed to lead to their decision to seek treatment in the group (p 12, first two quotations discussed about delivering a baby).

VERSION 3 – AUTHOR RESPONSE

We appreciate the opportunity to respond to a third round of reviewer comments and revise our manuscript accordingly. Our responses to Reviewer 2's comments are organized by comment number.

Reviewer 2 –
1. The authors responded to my comment in the R1 manuscript by deleting the study's scope of "in a sub-Saharan African context" from the Abstract, and keeping "These data were used to develop a general, conceptual framework that can inform future work in medically pluralistic settings." (p5, last sentence of Introduction). To be relevant to the study design, the author should keep "in a sub-Saharan African context" and adjust the last sentence of the Introduction, so as not to overemphasize the study result.

We appreciate this suggestion, and have revised the last section of the Introduction accordingly, reinstating the phrase "in a sub-Saharan African context," and changing the language so as not to overemphasize the study results, as recommended by the reviewer. The revised text (page 4) now reads,

“The goal of this study was to identify factors that motivate engagement with healthcare resources in a sub-Saharan African context, using qualitative research methods. We sought to explain therapeutic itineraries by conducting interviews with users of biomedical and traditional healthcare resources. These data were used to develop a general, conceptual framework that can inform future work in similar medically pluralistic settings.”

2. How many “Ugandan research assistants” have been employed for collecting the data?

Thank you for this inquiry. We have revised the first sentence of the “Data Collection” section, which now reads (page 5), “Three Ugandan Research Assistants (RAs), two female and one male, with prior experience in conducting qualitative interviews in southwestern Uganda collected data for this study.”

3. Regarding my comment in R1 “(p 7, second paragraph): It was described that the first author reviewed the transcript and then gave feedback to the RAs regarding reviewing techniques. What did the author do with the data if there were reviewing techniques that need to be improved? Was there consistent quality of interview data that would affect the research result?” The author responded by describing the reasons to give feedback to the RAs (R2, p7, last paragraph of Data Collection), which was not the answer to my question.

Thank you for this observation. We consider it standard practice to offer continuous feedback to research assistants collecting qualitative data when working across cultures, both to ensure the resulting data are of the highest possible quality, and as a contribution to the RAs’ professional development. Qualitative interview data result from open-ended questions; the responses, and thus the quality, are therefore varied, almost by definition. There is always room for improvement.

However, in our experience, room for improvement in interview technique rarely, if ever, renders transcripts useless as contributions to study results. In this study, the data were collected by experienced RAs and while varied, were generally of good quality. All of the transcripts were included in data analysis for the study, and are represented in the study results.

We have added text to clarify how interview strategies were corrected, if necessary, and to describe how data quality was ensured to produce rigorous results. The relevant text now reads (page 6), “The transcripts were reviewed line-by-line by the first author for quality, content, and to provide feedback to the RAs regarding strategies to improve interviewing techniques. This monitoring process allowed for RAs to receive consistent feedback to improve interviewing skills to ensure that interviews were consistently high quality, explored participants unique experiences, and focused on interview guide topics across interviewers. Though some variation is expected in qualitative interview data, we maximized the validity of our data by continuing enrollment until thematic saturation was reached in each participant group (please see “Sampling and Recruitment”, above).

4. In consistency with my comment in R1, I am still concerned with the study design that includes those who seek spiritual healer practices into the traditional healer subgroup since they may have different reasons to engage in the treatment group from the others, namely: herbalist, bone setter and traditional birth attendant. Please can you discuss the reasons why you include those who seek care from spiritual healers.

We welcome the reviewer’s insistence on greater clarity here. We agree that persons who seek services from spiritual healers may have different reasons from those of individuals seeking care from other types of traditional healers, and that is exactly the justification for including them in the sample.

The goal of this qualitative study, and others seeking to describe reasons or motivations for engaging in health behaviors, is to characterize as many different relevant reasons or motivations as possible. In order to achieve this, we construct a sample of participants that is deliberately varied. Including participants who seek services from spiritual healers, as well as those who seek services from herbalists, bone setters, and traditional birth attendants, is therefore part of an intentional strategy to construct a varied sample as the basis for yielding data representing a range of different reasons for consulting health care from traditional healers (in contrast with practitioners of biomedicine). Identifying and representing variation is a major contribution of descriptive qualitative research seeking to characterize influences on health behaviors. Finally, our inclusion of spiritual healers is justified by the WHO definition of "traditional medicine practices" (WHO Traditional Medicine Strategy 2014 – 2023) which includes spiritual therapies.

We have revised relevant text, which (page 4) now reads, "The World Health Organization defines "traditional medicine practices" to include both medication and procedure-based treatments, including use of herbal remedies, manual physical manipulation, and spiritual therapies[5,14]. The scope of treatments delivered by healers throughout the world varies by location. In Uganda, traditional healers practice herbalism and spiritual healing; they also set broken bones and attend births in the community. Spiritual healers attribute their powers to the Bachwezi, which are believed to be ancestral spirits from an ancient kingdom that previously occupied this region of eastern Africa[34,35]."

5. Also, 2 quotations from those pertaining to the spiritual healer subgroup are not the reason that seemed to lead to their decision to seek treatment in the group (p 12, first two quotations discussed about delivering a baby).

Thank you for allowing us to clarify this issue. We included these quotes to demonstrate that prior experiences with biomedicine, and general opinions about healthcare resources are likely to impact healthcare seeking among our participants. Though these individuals sought care from a spiritual healer on the day of enrollment, their opinions broadly illustrate broad opinions about biomedical therapies. Our interviews explored both specific understandings about why patients sought care from the healer on the day of recruitment, but also investigated general opinions and ideas relevant to healthcare utilization more broadly.

The topics of the interviews are described in the "Data Collection" section as follows (page 6), "Interviews were conducted following an interview guide that included the following topics: 1) details of the patient's therapeutic itinerary for his/her current symptoms; 2) symptoms that motivated him/her to seek healthcare; 3) attitudes towards, and experiences with, traditional and biomedicine; and 4) details of concurrent or recent biomedical and traditional healer visits" (emphasis added).

Indeed, many of the quotes presented in this manuscript do not refer to the patient's decision to seek treatment for that specific visit, but illustrate opinions based on prior experiences with healthcare services. For example, on page 9, we present a quote from a bonesetter patient describing a poor experience at a biomedical facility when seeking voluntary male circumcision. On page 12, we present a quote from a biomedical patient recounting her neighbor's poor experience receiving post-partum care at the hospital. In this light, we believe the two quotations from spiritual healers' patients in question are relevant to demonstrate general concepts about healthcare engagement in this medically pluralistic community.

VERSION 4 – REVIEW

REVIEWER	DUANGPORN KERDPON Faculty of Dentistry Prince of Songkla University Thailand
REVIEW RETURNED	28-Mar-2020

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.