PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	How do participant experiences and characteristics influence engagement in exercise referral? A qualitative longitudinal study of a scheme in Northumberland, United Kingdom.
AUTHORS	Hanson, Coral; Oliver, Emily; Dodd-Reynolds, Caroline; Allin, Linda

VERSION 1 – REVIEW

REVIEWER	Soo Chan Carusone Director of Research Casey House, Canada, Assistant professor (part-time), McMaster University, Canada
REVIEW RETURNED	04-Jul-2018

GENERAL COMMENTS	"Understanding engagement and non-engagement: a longitudinal qualitative study of participant experiences of an exercise referral scheme" provides important qualitative insight into the barriers of participation in exercise referral programs and the experience of the associated struggles. It would be helpful for readers if some additional information was provided about the ERS, the interview process, and the participants. Introduction: - I find the first two paragraphs of the Introduction difficult to follow. For example, "Despite this global levels of PA are low, hence the cost of PA to health-care systems in 2013 was estimated to be 53.8 billion international dollars." I suggest breaking this into two sentences and I assume you meant the cost of inactivity was estimated to be… And, at the end of the opening paragraph it is written that "there is an inverse relationship between PA and indicators of disadvantage such as socio-economic status and multiple co-morbidities." And in the following sentence "PA promotion initiatives must therefore consider how to target the least active." Don't you mean initiatives must consider the context and barriers and facilitators to participation specifically in these populations (low SES, multimorbidity) in order to have the greatest impact? I suggest the opening paragraphs be reorganized and rewritten. Methods: - It states that the later interviews were purposively sampled, how was this done and on what factors were participants purposively sampled on? - It would be helpful to provide additional information on the types of questions and coverage of the two interview guides. - Would it be possible to present the stage of change for the participants? Were all participants identified as 'ready to change' from the initial consultation? Or, were some of the "non-starters"

	those that are indicated in Figure 1 as “Not ready to change”? Or were they “Non-attenders” who received phone or postal encouragement (it would be helpful to use consistent language)? If the latter, were they asked about these reminders? - The authors state that recruitment continued “until the emergence of new concepts from initial interview analysis ceased”, this is surprising that no new concepts emerged after only 11 participants. I imagine new concepts and sub-themes would have emerged or important variables related to success, perhaps no new overarching themes (in addition to success, struggle and defeat) emerged? Results: - P 13, first sentence in the “struggle” section states that “…highlighted different approaches, or additional measures, may be necessary to encourage sustained increases in PA”. Did participants specifically identify that additional supports or a different approach would have suited them better? If not, and this was an interpretation of the authors, discussion of this would better fit in the Discussion section. - It would be helpful for at least some of the quotes (for example from Brian in the first paragraph of the “struggle” section) to provide context of how far into the program the interview was conducted. I imagine that concerns about the end of the program would be different depending on how close they are to exit. - Did participants complete a demographic survey? It would be helpful in the participant characteristics to understand individuals’ previous involvement in exercise or physical activity and socioeconomic status (especially as cost and employment are identified as a barriers). - On page 14, there is a quote in which Peter refers to the cost of the program. Do participants have to pay for the ERS? Or, is he referring to the cost of continuing a membership after the program is completed? It would be helpful for readers to provide information on both. - On p 16, it indicates that the scheme includes telephone support. It would be helpful at the start of the paper to provide additional information about the ERS. For example, in the consultation sessions was a plan identified for which activities the individual would participate in or was it completely up to the individual? Were all the participants in the options listed (ie gym usage, circuit classes, racquet sports, aqua aerobics and swimming) participants of the ERS or were they open programs for the fitness centre? Also, in Figure 1 it refers to “Supervised group physical activity session” does this mean the “gym usage” and “swimming” are group programs or are they drop-in, unstructured, activities? (If so, I suggest these activities are renamed.) It would also be helpful to give more details of what the “exit routes” (as identified in Figure 1) included. Discussion: - It would be helpful in the discussion to include further discussion and reference to more recent literature especially for

	potential modifications or interventions to address issues that emerged in the ‘defeat’ theme.

REVIEWER	Linn Karlsson Linkoping University, Institution of Medicine and Health. Sweden.
REVIEW RETURNED	18-Jul-2018

GENERAL COMMENTS	Thank you for an interesting and important study. You provide a deeper understanding about the need for more individually tailored exercise referral schemes, and highlights that engagement is complex and probably need to be addressed specifically to get a positive result of exercise. I have some comments about your manuscript: 1 & 3: The objective is not equal in the abstract and in the manuscript. In addition, the objective is described in terms of understand what, for whom and why exercise referrals work. I do not think that this study is able to fulfill all this.This qualitative study gives a deeper understanding about experiences from a prescribed exercise referral scheme. Please, rewrite the objective to be in line with what the study examines. Furthermore, the aspects of engagement and non-engagement are highlighted in the title and results. I miss the component of engagement and the probable importance of engagement in the introduction. Please insert a part about engagement in the introduction. 4: I have a few comments about the method: Please clarify the sample: You describe the sampling in two paragraphs - all patients refereed to the exercise scheme were eligible and, on the other hand that the sample were identified by convenience. Consider to wright all about the sample in the same paragraph and also, describe what convenience meant in this study. Please clarify what "Previous quantitative ERS performance analysis informed the study" means. Please, include the semi-structured interview guides, it seems that there were two guides with different focus for the first and second interview? You mention potential researcher bias due to insider knowledge - please clarify what type of insider knowledge you mean in the method. You discuss about this issue in the discussion, but it is difficult to understand how this aspect might have influenced the study. Please, clarify. It is not clear whether the exercise were performed in a group, individually or if it was optional. This is important for the result about social anxiety. Please clarify. 12: Limits of the study: I miss a discussion about the qualitative method you use, and possible limitations with the method. Furthermore, I wonder if you are satisfied with how you were able to answer the research objective. A short comment about further research would also be interesting. The thematic illustration of your results is nice and clear. I have no further comments about the results section.

VERSION 1 – AUTHOR RESPONSE

Reviewer/Editor comment	Response

Reviewer 1	
"Understanding engagement and non-engagement: a longitudinal qualitative study of participant experiences of an exercise referral scheme" provides important qualitative insight into the barriers of participation in exercise referral programs and the experience of the associated struggles. It would be helpful for readers if some additional information was provided about the ERS, the interview process, and the participants.	Thank you for your very constructive and helpful comments. We hope that in addressing your concerns we have now created a more cohesive paper.
Introduction:	
I find the first two paragraphs of the Introduction difficult to follow. For example, "Despite this global levels of PA are low; hence the cost of PA to health-care systems in 2013 was estimated to be 53.8 billion international dollars." I suggest breaking this into two sentences and I assume you meant the cost of **inactivity** was estimated to be… And, at the end of the opening paragraph it is written that "there is an inverse relationship between PA and indicators of disadvantage such as socio-economic status and multiple co-morbidities." And in the following sentence "PA promotion initiatives must therefore consider how to target the least active." Don't you mean initiatives must consider the context and barriers and facilitators to participation specifically in these populations (low SES, multi morbidity) in order to have the greatest impact? I suggest the opening paragraphs be reorganized and rewritten.	As suggested, we have rewritten the first two paragraphs of the introduction (Page 5, lines 3-20). We feel that it is now easier to follow and addresses the points that you have made. *'Regular physical activity (PA) has a beneficial effect on cardiovascular disease risk, diabetes, some cancers and all-cause mortality.[1] The global cost of inactivity to health-care in 2013 was estimated to be 53.8 billion international dollars[2] and therefore increasing PA levels is a high priority to reduce non-communicable diseases.[3] Participation in PA has been widely described in terms of demography, with inequalities apparent.[4] For example, there is an inverse relationship between PA and indicators of disadvantage such as socio-economic status[5] and multiple co-morbidities.[6] In order to have the greatest impact, PA promotion initiatives must therefore consider the context, and barriers and facilitators to engagement specifically in disadvantaged populations.* *Emerging evidence indicates that current PA programmes can fail to engage or retain more disadvantaged participants. Lower socioeconomic status, and increasing number of health conditions, medications and depressive symptoms have been reported to negatively predict adherence.[7] Factors affecting participation are complex, however, with personal and social factors such as positive childhood PA experience and social support for PA known to positively*

	influence activity levels.[8-12] Understanding how and why existing programmes engage, or do not engage, participants with differing personal circumstance can inform future equitable practice.' You were correct in pointing out that we meant inactivity rather than physical activity. We have amended this, thank you. Please note that we have added in some detail about positive influences on engagement at the suggestion of the other reviewer.
Methods:	
It would be helpful to provide additional information on the types of questions and coverage of the two interview guides.	We have included the two interview guides as supplementary files. For the initial interviews, we have added *'(supplementary file 1)'*on page 9, line 9. We have also included *'Topics covered included past and present PA, influences on activity, perceptions and expectations of the ERS, and perceived barriers and facilitators to taking part'* on page 9 line 9-11 to provide in-text details about initial interview topics. For second interviews, we have added '*(supplementary file 2)*' on page 9, line 14. We feel that there is already sufficient in-text details about interview focus.
Would it be possible to present the stage of change for the participants? Were all participants identified as 'ready to change' from the initial consultation? Or, were some of the "non-starters" those that are indicated in Figure 1 as "Not ready to change"? Or were they "Non-attenders" who received phone or postal encouragement (it would be helpful to use consistent language)? If the latter, were they asked about these reminders?	We are unable to present data about stage of change from the initial consultation as we only have these data in anonymised format. We did not request permission in our ethics application to link any of the data collected by the scheme provider to this study. From these data (which are unpublished), we know that only 0.9% of those who attended the initial consultation were identified as 'not ready to change'. It is more likely that those who were 'not ready to change' did not attend in the first place as we have previously identified that 20% of those referred did not attend the initial consultation. https://bmjopen.bmj.com/content/3/8/e002849

	Your comments about consistency of language are very helpful and we have made some changes: From second interviews in this study, we know that Paul, one of the 'non-starters' was medically excluded from the scheme. We have amended his participation status to '*medically excluded*' in Table 1. The other 'non-starter' (Jackie) has been reclassified as a non-attender (not excluded and during her second interview stated that she received phone encouragement to attend). We have amended her participation status in Table 1 to 'non-attender' to reflect this and ensure that our language is consistent with Figure 1. We have changed 'non-starter' to 'non-attender' in the legend of Table 1 and added the following to the legend: *Medically excluded:* attended initial consultation but was excluded from scheme participation due to medical reasons (physiological measures above scheme acceptance guidelines e.g. blood pressure ≥180/100 mmHg or resting heart rate ≥100 beats per minute) In the results section we have also made the following amendments to reflect the above (page 15, line 23-55, page 16, line 2-5) and provide further clarity about telephone support: *Some participants never attended an exercise session, being medically excluded (Paul), prevented by ill health (Dan) or social anxieties (despite telephone support):* Jackie: '*The thought of coming here on my own, with nobody else, I like staying in my comfort zone …'(staff) phoned; she says about the sessions and that… and I was being honest with her… so she left it a couple of weeks and then phoned back and she says… would you not like to come along by yourself? And I went no'* We have searched the paper for the term 'non-starter'. It was used on only one other occasion. This was in reference to those who do not attend the initial consultation, and so did not engage with

	the scheme at all. We have changed this from 'non-starter' to '*did not attend the initial consultation'* on page 21, line 23 to provide more clarity. Please not that a failure in the telephone support system was highlighted in the initial submission (page 17 lines 9-14 in the resubmission): *The scheme had a system of telephone support, but in Dorothy's case, implementation appeared to be lacking:* *Dorothy: 'I 'phoned in several times to explain. I left messages but nobody got back to me. I think if maybe someone had 'phoned me back and said 'well come in and you can do the things a different way' it might have encouraged me to go back in again.'*
The authors state that recruitment continued "until the emergence of new concepts from initial interview analysis ceased", this is surprising that no new concepts emerged after only 11 participants. I imagine new concepts and sub-themes would have emerged or important variables related to success, perhaps no new overarching themes (in addition to success, struggle and defeat) emerged?	We agree that different variables may have developed within the overarching themes. We have amended the sentence in the sample section (page 8, line 21-22) to read: *'Recruitment continued until no new overarching themes developed from initial interview analysis'*
It states that the later interviews were purposively sampled, how was this done and on what factors were participants purposively sampled on?	In the sample section we have clarified the factors that participants were sampled on and how this was done, by amending the following sentence (page 8, line 18-21): *'Later sampling was purposeful, based on developing themes (those with multiple medical conditions and referrals under 50 years old) from earlier initial interviews. ERS staff were asked to invite referrals with only these characteristics to take part later in the study.'* Although there were other initial themes (such as previous participation in physical activity), we were only able to sample based on information that was available on the referral form. We were

	particularly interested in those under 50, but unfortunately three of the people recruited in this age group did not take part in the second interview and so were excluded from the analysis. We have highlighted this in the results section by adding the sentence '*Three of the four were under 50 years old*' (page 10, line 17).
Did participants complete a demographic survey? It would be helpful in the participant characteristics to understand individuals' previous involvement in exercise or physical activity and socioeconomic status (especially as cost and employment are identified as a barriers).	Participants were asked to give details of their age, gender, primary reason for referral, who had referred them and their employment status at the beginning of the interview. Postcodes (which would have allowed SES to be recorded) were not part of this survey. The semi-structured interviews asked about physical activity history. We have added in two further columns to Table 1; self-reported PA history and employment status in order to provide more detail.
On page 14, there is a quote in which Peter refers to the cost of the program. Do participants have to pay for the ERS? Or, is he referring to the cost of continuing a membership after the program is completed? It would be helpful for readers to provide information on both.	Yes, participants did have to pay for this ERS. We have added in the following statement in the context section (page 7 line 10-13) '*Each ERS session cost £3.40. Participants could purchase a discounted direct debit fitness and swimming membership while taking part and after completion (£24/month).'*
On p 16, it indicates that the scheme includes telephone support. It would be helpful at the start of the paper to provide additional information about the ERS. For example, in the consultation sessions was a plan identified for which activities the individual would participate in or was it completely up to the individual?	Further detail has been added in to the context section (page 7, line 7-9): *'It consisted of three one-to-one consultations and 24 weeks of twice-weekly supervised exercise sessions (Figure 1). During consultations, participants chose which exercise sessions to attend. Staff attempted to contact those who did not attend for one week by telephone or post.*
Were all the participants in the options listed (ie gym usage, circuit classes, racquet sports, aqua aerobics and swimming) participants of the ERS or were they open programs for the fitness centre? Also, in Figure 1 it refers to "Supervised group physical activity session" does this mean the "gym usage" and "swimming" are group programs or are they drop-in, unstructured, activities? (If so, I suggest these activities are renamed.) It would also be helpful to give more details of what the "exit routes" (as identified in Figure 1) included.	The scheme comprised of ERS only supervised sessions, with different activities offered at different times. In addition, participants could choose to use the leisure centre on a casual basis to go swimming, use the gym or attend fitness classes. We have clarified this by changing in the information in Figure 1 to read: **'*Supervised ERS group physical activity sessions***

	12 weeks, 2 sessions per week *Options include gym usage, circuit classes, racquet sports and aqua aerobics* ***Individual non-ERS supervised physical activity options*** *Swimming, casual gym or fitness class attendance'* We have also added more detail to the exit route box, so that it now reads: '***Exit routes*** *(similar ERS supervised exit sessions, reduced cost fitness and/or swimming memberships)* ***or independent activity****'*
Discussion: It would be helpful in the discussion to include further discussion and reference to more recent literature especially for potential modifications or interventions to address issues that emerged in the 'defeat' theme.	In the discussion section we have added the following (page 20 line 11-19): *Promisingly, there is emerging evidence of practice with the potential to better support patients with struggle or defeat-style narratives. Those with poor health may benefit from individualisation of exercise,41 those with social anxiety from more online delivery and support,42 and the complex needs of patients are more likely to be catered for appropriately with increasing use of scheme co-production.43 Calls at national policy level for better use of triage or a 'stepped approach to delivery'21 may further assist with both enhancing support for those with challenging circumstances and modifying or reducing it for those that risk becoming scheme dependent. Testing the effectiveness of these ideas should be a priority for future research.*
Reviewer 2	
Thank you for an interesting and important study. You provide a deeper understanding about the need for more individually tailored exercise referral schemes, and highlights that engagement is complex and probably need to be addressed specifically to get a positive result of exercise. I have some comments about your manuscript:	Thank you for your positive comments and constructive points about how we could improve our manuscript. We have detailed our changes and responses on a point-by-point basis.

The objective is not equal in the abstract and in the manuscript. In addition, the objective is described in terms of understand what, for whom and why exercise referrals work. I do not think that this study is able to fulfil all this. This qualitative study gives a deeper understanding about experiences from a prescribed exercise referral scheme. Please, rewrite the objective to be in line with what the study examines.	We have amended the objective of the study in the abstract to be: *Exercise referral schemes are internationally widespread. This study aimed to give an in-depth understanding of experiences of patients referred by healthcare professionals to one such scheme in the United Kingdom.*
Furthermore, the aspects of engagement and non-engagement are highlighted in the title and results. I miss the component of engagement and the probable importance of engagement in the introduction. Please insert a part about engagement in the introduction.	Based on both your comment, and comments from the other reviewer, we have rewritten the first two paragraphs of the introduction (Page 5, lines 3-20) *'Regular physical activity (PA) has a beneficial effect on cardiovascular disease risk, diabetes, some cancers and all-cause mortality.[1] The global cost of inactivity to health-care in 2013 was estimated to be 53.8 billion international dollars[2] and therefore increasing PA levels is a high priority to reduce non-communicable diseases.[3] Participation in PA has been widely described in terms of demography, with inequalities apparent.[4] For example, there is an inverse relationship between PA and indicators of disadvantage such as socio-economic status[5] and multiple co-morbidities.[6] In order to have the greatest impact, PA promotion initiatives must therefore consider the context, and barriers and facilitators to engagement specifically in disadvantaged populations.* *Emerging evidence indicates that current PA programmes can fail to engage or retain more disadvantaged participants. Lower socioeconomic status, and increasing number of health conditions, medications and depressive symptoms have been reported to negatively predict adherence.[7] Factors affecting participation are complex, however, with personal and social factors such as positive childhood PA experience and social support for PA known to positively influence activity levels.[8-12] Understanding how and why existing programmes engage, or do not engage, participants with differing personal circumstance can inform future equitable practice.'*

I have a few comments about the method: Please clarify the sample: You describe the sampling in two paragraphs - all patients referred to the exercise scheme were eligible and, on the other hand that the sample were identified by convenience. Consider to wright all about the sample in the same paragraph and also, describe what convenience meant in this study.	Based on both your comments and those of the other reviewer we have amended the sampling paragraph to be (page 7, line 7-22): *'The Northumberland ERS provided a convenient sample, [27] which was easily accessible to CLH, given her employment. All those invited to attend initial consultations during the first two weeks of the recruitment period (n=25) received an invitation to participate. During initial telephone contact, ERS staff informed referrals that the study consisted of two semi-structured interviews about their ERS experience. The first was conducted prior to starting, the second later in the 24-week period. Postal information was sent to interested referrals, who signed and returned the consent form to register for the study. ERS staff arranged interviews and the researcher had no access to personal details until consent was given. Participants were informed that the researcher was an employee of the scheme provider and that a research objective was to improve service delivery. There was no obligation to take part and ERS involvement was not dependent on this decision. Eight of those initially invited agreed to participate. Later sampling was purposeful, based on developing themes (those with multiple medical conditions and referrals under 50 years old) from earlier initial interviews.[28] ERS staff were asked to invite referrals with only these characteristics to take part later in the study. Recruitment continued until no new overarching themes developed from initial interview analysis.'* Please note that although there were other initial themes (such as previous participation in physical activity), we were only able to sample based on information that was available on the referral form. We were particularly interested in those under 50, but unfortunately three of the people recruited in this age group did not take part in the second interview and so were excluded from the analysis. We have highlighted this in the results section by adding the sentence '*Three of the four were under 50 years old*.' (page 10, line 17).

Please clarify what "Previous quantitative ERS performance analysis informed the study" means.	We have amended this sentence from 'Previous quantitative ERS performance analysis informed the study' to read (page 7, line 1-3): *'Previous binary logistic regression analysis of demographic and personal factors associated with engagement and adherence to the ERS[24] informed the study'*
Please, include the semi-structured interview guides; it seems that there were two guides with different focus for the first and second interview?	We have included the two interview guides as supplementary files. For the initial interviews, we have added *'(supplementary file 1)'*on page 9, line 9. We have also included *'Topics covered included past and present PA, influences on activity, perceptions and expectations of the ERS, and perceived barriers and facilitators to taking part'* on page 9 line 9-11 to provide in-text details about initial interview topics. For second interviews, we have added '*(supplementary file 2)*' on page 9, line 14. We feel that there is already sufficient in-text details about interview focus.
You mention potential researcher bias due to insider knowledge - please clarify what type of insider knowledge you mean in the method. You discuss about this issue in the discussion, but it is difficult to understand how this aspect might have influenced the study. Please, clarify.	We have added the following sentence in data collection and analysis: (page 8, line 7-8): *'CLH had 15 years' experience of working for the ERS but was not involved in delivery at the time of the study.'*
It is not clear whether the exercise were performed in a group, individually or if it was optional. This is important for the result about social anxiety. Please clarify.	The scheme comprised of ERS only supervised sessions, with different activities offered at different times. In addition, participants could choose to use the leisure centre on a casual basis to go swimming, use the gym or attend fitness classes. We have clarified this by changing in the information in Figure 1 to read: **'*Supervised ERS group physical activity sessions*** *12 weeks, 2 sessions per week* *Options include gym usage, circuit classes, racquet sports and aqua aerobics* ***Individual non-ERS supervised physical activity options*** *Swimming, casual gym or fitness class attendance'*

	We have also added more detail to the exit route box, so that it now reads: '***Exit routes*** *(similar ERS supervised exit sessions, reduced cost fitness and/or swimming memberships)* ***or independent activity***'
Limits of the study: I miss a discussion about the qualitative method you use, and possible limitations with the method. Furthermore, I wonder if you are satisfied with how you were able to answer the research objective. A short comment about further research would also be interesting.	We have added a subtitle 'Methodological considerations' (page 20-21). This includes some previous text from the discussion and some additional text about methodological limitations *Qualitative analysis is inherently subjective since it is influenced by the assumptions, beliefs and biases of the researcher.[42 44] In this case, the researcher was experienced in the management and delivery of the ERS studied. Potential biases were explored by the use of reflective field notes and in group discussions with all authors. Particular attention was paid to how existing knowledge may have affected discussion with participants and interpretation of results. That said, while in the past an outsider, objective stance was considered desirable in research terms to guard against identification, insider insight can now be considered legitimate and desirable due to the potential for increased empathy with participants.[43 45] After reflection, it was felt that researcher knowledge contributed positively to the interpretation of data through being able to understand the particular scheme that participants were discussing.* *For each participant, interviews took place on two occasions. Qualitative interviews are only able to uncover what participants recall or are willing to reveal about their experiences at a particular time rather than realities. As such they may reflect recall bias or inaccuracies. Participant knowledge of the researcher background may also have influence what was disclosed. Readers can make choices about whether the identified themes resonate with their own intuitive understanding of such situations, which arguably can improve practice through the process of naturalistic generalization.[46]*

	It is not known whether the experiences of those who declined to participate or dropped out of the study were different to those who took part. For example, we previously established that those under 55 years of age were less likely to engage in the first instance and more likely to dropout when they did.[24] However, only one participant from this demographic completed a second interview. Additionally, this piece of work did not examine barriers to scheme access for who did not attend the initial consultation. Understanding this group, however, is critical for determining who current services are failing and why. In response to the other reviewers comment, we have amended the discussion section (page 20 line 11-19). We feel that this also addresses your comment about further research: *Promisingly, there is emerging evidence of practice with the potential to better support patients with struggle or defeat-style narratives. Those with poor health may benefit from individualisation of exercise,41 those with social anxiety from more online delivery and support,42 and the complex needs of patients are more likely to be catered for appropriately with increasing use of scheme co-production.43 Calls at national policy level for better use of triage or a 'stepped approach to delivery'21 may further assist with both enhancing support for those with challenging circumstances and modifying or reducing it for those that risk becoming scheme dependent. Testing the effectiveness of these ideas should be a priority for future research.* We have carefully considered the wording of the title, objective and research aim – which we now are feel are consistent. We recognise that the study does not identify who the scheme works or does not work for, but rather highlights the complexity of engagement for this this type of scheme. We have touched on the complexity in our discussion and conclusion.

The thematic illustration of your results is nice and clear. I have no further comments about the results section.	Thank you for your positive comment.
Editorial requests:	
Please revise your title to state the research question, study design, and location. This is the preferred format for the journal.	We have changed the title to: *How do participant experiences and characteristics influence engagement in exercise referral? A qualitative longitudinal study of a scheme in Northumberland, United Kingdom*.
Thank you for providing a COREQ checklist along with your submission. Please revise the check-list, ensuring that all points are included and state the page numbers where each item can be found.	This has been updated as requested with page number and section details for each item.
Please revise the Strengths and Limitations section (after the abstract) to focus on the methodological strengths and limitations of your study rather than summarizing the results.	We have revised the strengths and limitations section to focus on methodological strengths and limitations as requested. It now contains the following points: ➢ *This study advances the predominantly quantitative literature on participant adherence to exercise referral by using a longitudinal qualitative design to gain a deeper understanding of the experience of patients with non-communicable diseases referred to an exercise referral scheme (ERS).* ➢ *The study provides insight into the complexity of ERS engagement and the experiences of a group that has been little researched; those who did not successfully engage with the ERS.* ➢ *The study was unable to engage some of the original participants in second interviews, meaning that the experiences of some who may have been least well-served by the intervention are unknown.* ➢ *The sample of participants were recruited from only one, albeit large-scale, ERS, meaning that findings relate to this particular scheme and sample.* ➢ *Qualitative interviews can only provide information on what participants recall or are prepared to reveal about their perceived experiences within a particular interview context, meaning that the potential for recall bias is always present.*

VERSION 2 – REVIEW

REVIEWER	Soo Chan Carusone Casey House, Canada
REVIEW RETURNED	16-Oct-2018

GENERAL COMMENTS	The authors did a thorough job in responding to the reviewer comments and making appropriate edits to the manuscript. There are a few places with grammatical errors or where sentences could be made clearer. E.g. In the 2nd paragraph of the introduction, the sentence that starts with "Factors affecting participation are complex..." is confusing. I suggest, making that a stand alone sentence and then identify personal and social factors as known variables influencing activity levels (in a separate sentence). And in the first sentence of the methods, I suggest indicating that "a longitudinal qualitative design" was used (i.e., adding 'a'). A few minor points: - The 2nd bullet of the strengths and limitations suggests that the focus of the study was on those who did not successfully engage with ERS. I think this should reworded to clarify that the population included a range of engagement levels including those who did not successfully engage with ERS. - In the last sentence of the methods, I suggest replacing the word "checked" ("... themes were checked with ERS staff via a workshop"). Do you mean the themes were presented, discussed and affirmed? Did these discussions result in any changes in the authors' interpretation or presentation of the findings?

REVIEWER	Linn Karlsson Institution of Medicine and Health, Linkoping University, Sweden
REVIEW RETURNED	28-Oct-2018

GENERAL COMMENTS	Thank you for an important study. You highlight the problem with a "one-fits-all" concept for exercise referrals and points at the need for more individually tailed interventions based on the individuals personal and social context. I have read an earlier version of the manuscript and I think you have improved the text substantially. It is now more tranparent and focused. I am going to recommend the journal to accept your manuscript for publication. I have just one comment about the lack of qualitative references about adherence to physical activity and also about behaviour change. It seems like adherence and exercise behaviour is a key factor for success, and thus could be more evident in the text.