Peer Review File

Reviewer A

Comment 1: The introduction presents useful background information on different topics like PA levels of African-American Adults and gamification in PA interventions. The use of focus groups is appropriate for the research question. I like the approach of regarding the future users as the experts and designing the intervention according to their needs. The methods are described clearly and in sufficient detail.

Reply 1: Thank you for the thoughtful comments.

Comment 2: For the possibility of a reproduction of the result the publication of the interview guideline would be a helpful improvement. Besides that the methods section is quite thorough and many emerging questions are already answered in the manuscript.

Reply 2: Thank you. We have included the focus group guide as a supplementary material item. We also integrated sample questions from the focus group guide into the manuscript.

Changes in the text: We added the following content (see Page 11, lines 240-261):

Examples of focus group guide questions included the following, with the full focus group guide content provided in Supplement 1::

What do you think about a team competition like this one [Columbia Moves]? How much, if at all, would this kind of competition motivate you to be more physically active? Why or why not?

What do you think about the shoe mascot and selecting a team name – is it something you feel is important to create team unity, and in turn, would it help motivate you and your team to be physically active? What types of images would you prefer to select from to represent you or your team in an online physical activity competition other than the shoe mascot (for example, something such as an avatar – an icon or figure that you can choose to represent you online in a game – or some other representation of your team and yourself, and if so, what?). Or do you like the shoe mascot idea alone?

What do you think about this idea [weekly challenge game]? How much, if at all, would you enjoy participating in this type of game with a team? How much would it motivate you to be more physically active? Why or why not? What types of challenges would appeal to you the most?

When thinking about participating in an online program such as this one [Columbia Moves]: How important would it be to you to be in a team with people you already know? How important is it to you to have teammates who have a similar starting activity level as you? How important would

it be for your teammates to be the same sex? How important would it be for your teammates to be Black? How important is to you to have teammates who live in the same geographic area as you?

Comment 3: In the results section the following expressions are used: "many participants" or "most participants", "overwhelmingly expressed", "frequently mentioned". Is it possible to specify what is meant by these expressions? In some but not all sections (e.g. theme 5, leader board) differing opinions are reported. In other sections this is missing. Did all participants rate competition positively?

Reply 3: Thanks for asking for this clarification. We elected to use this phrasing given these are not quantitative or representative data per se. Given these were focus groups, we also did not ask/require each participant to respond to every question, so counting and reporting responses may be a bit misleading. We also used phrasing that aligns with related recent published work in this area (e.g., Kariuki JK, Gibbs BB, Davis KK, Mecca LP, Hayman LL, Burke LE. Recommendations for a culturally salient web-based physical activity program for African Americans. Transl J Am Coll Sports Med 2019;4(2):8-15).

With that said, of those who voluntarily provided responses across focus groups in relation to the various themes that emerged:

All endorsed the overall gamification notion presented as being motivational (to capture that in the manuscript, we said, 'participants frequently endorsed')

All expressed that the combination of gamification elements and teams would foster a strong sense of accountability (to capture that in the manuscript, we said, 'participants overwhelmingly expressed')

Over three-fourths rated competition positively (to capture that in the manuscript, we said, 'The factor that the majority of participants across all focus groups frequently found attractive about the two main gamification aspects of Columbia Moves [team step competition and weekly PA challenge game] was the competitive element of each')

All were attracted to the idea of weekly challenges (to capture that in the manuscript, we said, 'Many participants across focus groups expressed preferences related to the structure of the Columbia Moves weekly PA challenge game. Beyond supporting the overall idea of challenges as evident in their discussions about motivation, accountability, and competition, there were some aspects they found more appealing than others.')

All were keen on the notion of a leaderboard and of those, most of them wanted to see step counts and active minutes but different preferences were expressed regarding the display of individual and team rankings (to capture that in the manuscript, we said, 'Most participants across all focus groups wanted to see leaderboard feedback in the form of step counts and active minutes from the Fitbit; However, participants had differing opinions about whether they wanted individual rankings displayed in addition to team rankings')

All endorsed the idea of a coach and relevant gamification features that promoted team unity especially in a way that would reflect their interests, race, and culture (to capture that in the manuscript, we said, 'Participants overwhelmingly endorsed')

Slightly more participants expressed that they preferred to have teammates of the same race versus those who said the race of their teammates did not matter (to capture that in the manuscript, we said, 'While some participants, including most of the Columbia Moves participants, stated that the race of their teammates did not matter as long as they were motivated to be physically active, other participants said that they preferred to have teams comprised exclusively of AAs')

A wide range of opinions were expressed about the nature of the social ties of teammates (to capture that in the manuscript, we said, 'Participants voiced a wide range of views')

Over half of participants were indifferent about their teammates' sex as long as they were motivated, although some shared preferences for a sex (to capture that in the manuscript, we said, 'Across focus groups, participants shared different views regarding preference for a team member's sex (male or female), although most were indifferent about their teammates' sex as long as they were committed to the team.')

Most participants who responded about the geographic location of their teammates were ambivalent – not a make or break if they lived near or far (to capture that notion in the manuscript, we said, 'Many participants were ambivalent')

Participants were somewhat evenly split about the starting PA level of their teammates (to capture that in the manuscript, we said, 'Participants shared various perspectives')

Changes in the text: We revised some of the phrases in the Results section to provide greater clarification.

For theme 1 (motivation) in the Results, we revised the phrase 'frequently endorsed this overall gamification notion as being motivational…' to 'consistently volunteered that this overall gamification notion would be motivational…" (Page 14, lines 306,307).

For theme 2 (accountability) in the Results, we revised the phrase 'overwhelmingly expressed' to 'consistently volunteered.' (Page 14, line 323).

For theme 3 (competition) in the Results, we revised the phrase 'The factor that the majority of participants across all focus groups frequently found attractive about the two main gamification aspects of Columbia Moves [team step competition and weekly PA challenge game] was the competitive element of each…' to 'Of those participants who voluntarily responded across focus groups about the competitive element of the two main aspects of Columbia Moves (team step competition and weekly PA challenge game), over three-fourths found it to be attractive…" (Page 16, lines 351-353).

For theme 4 (structure of weekly challenges) in the Results, we revised the phrase 'Many participants expressed preferences…' to 'Over half of the participants across focus groups voluntarily expressed…' (Page 16, lines 354,355).

For theme 5 (type of leaderboard feedback) in the Results, we revised the phrase 'Most participants across all focus groups wanted to see leaderboard feedback in the form of step counts and active minutes from the Fitbit' to 'Over half of the participants across focus groups voluntarily expressed preferences related to the leaderboard. Of those, most participants wanted to see leaderboard feedback in the form of…') (Page 17, lines 392,393).

For theme 6, (cultural relevancy of gamification elements) in the Results, we revised the phrase 'Participants overwhelmingly endorsed' to 'Participants consistently volunteered that they supported…' and added the word 'interests' (Page 18, lines 412-414).

For theme 7 (race) in the Results, we revised the phrase 'While some participants, including most of the Columbia Moves participants, stated that the race of their teammates did not matter as long as they were motivated to be physically active, other participants said that they preferred to have teams comprised exclusively of AAs' to 'While some participants, including most of the Columbia Moves participants, volunteered that the race of their teammates did not matter as long as they were motivated to be physically active, a slightly higher number of other participants volunteered that…" (Page 20, lines 443,444).

For theme 7 (existing social ties versus new social ties) in the Results, we revised the word 'voice' to 'volunteered' (Page 20, line 454).

For theme 7 (sex) in the Results, we revised the sentence 'Across focus groups, participants shared different views regarding preference for a team member's sex (male or female), although most were indifferent about their teammates' sex as long as they were committed to the team' to 'Of those participants who voluntarily responded across focus groups, over half shared that they were indifferent about their teammates' sex as long as they were committed to the team, while some expressed different views regarding preference for a team member's sex (male or female)' (Page 21, lines 470-473).

For theme 7 (geography) in the Results, we added the phrase 'volunteered that they' (Page 21, line 483).

For theme 7 (physical activity level) in the Results, we revised the phrase 'Participants shared various perspectives' to 'Participants were somewhat evenly split…" (Page 22, line 494).

Comment 4: The argumentation in the discussion section appears logical to me and interprets the results in regard to other research results.

Reply 4: Thank you.

Comment 5: As an additional limitation it should be mentioned that only persons with access to mobile technology were able to participate.

Reply 5: We included this eligibility criterion given we were inquiring about a fully delivered e/mHealth program (it would mimic the eligibility criterion for a study examining this type of intervention – reaching those who have access as a first line of inquiry), and smartphone

ownership is high among Black adults in the U.S. (close to 85% based on Pew Research Center 2021 data). With that said, it is true that those without access to a smartphone may have unique insights regarding this topic but were excluded. We agree that it should be mentioned as a limitation.

Changes in the text: We added the following phrases: '…who had access to a technological device with internet and a camera' and 'Thus,…those without access to the specified technologies…" (Page 27, lines 611-613).

Comment 6: The authors have conducted a study with potentially important implications for practice and development of mHealth interventions. I applaud the authors for focusing their study on exploring the experiences of African Americans who are an underrepresented group in this research area. The article is well-written and well organized and the authors provide a well-developed rationale for their study. However, in my view there are some important theoretical and analytical limitations of the study that I think need to be addressed before the article can be considered further. I have outlined my major concerns followed by some more specific concerns in the below.

Reply 6: Thank you for the thoughtful comments.

Major comments:

Comment 7: The use of theory to inform the study design is not well described. The authors provide a very surface-level description of the various theories that were reportedly used in the development of the Columbia Moves program. How were these theories aligned with the types of things the authors examined in their study? There was very limited consideration of theory as part of the rationale for the study.

Reply 7: Thank you for this suggestion. We agree that we can elaborate a bit more on the theoretical underpinnings of Columbia Moves and how that aligns with the topics under examination in the present study to provide better insights into the study rationale. The inclusion of the focus group guide will also help provide a more detailed overview of the Columbia Moves program, giving a clear context for the link between the program, its theoretical underpinnings, and the present study. The team-based gamification approach of Columbia Moves was primarily designed to target social support, social influence, social norms, and collective efficacy for physical activity. Thus, gaining insights from participants about various aspects of it (e.g., in general, would they indeed find a team-based gamification approach appealing [or not] and why; what constitutes optimal teammate characteristics in their view; etc.) was important to essentially determine whether their view of team-based gamification aligns with this theoretical orientation

or if other strategies might be more suitable for targeting collective efficacy and social support, influence, and norms in this population. These constructs are encompassed primarily by social cognitive theory and social network theory. Beyond the team aspect, specific gamification elements (e.g., leaderboard showing team rankings and step counts for the step competition and weekly challenge game; presentation of various weekly challenges in the context of a game designed with levels and points based on the notion of loss aversion and allowing participants to choose challenges at times; etc.) were designed to drive motivation for physical activity via various mechanisms (e.g., fostering social comparison, autonomy, aversion to potential loss; etc.). Once again, gathering perspectives from participants about various aspects of these specific features (e.g., in general, would they indeed find them appealing [or not] and why; if so, what specific preferences in relation to leaderboard feedback and types of challenges would they find most appealing; etc.) was important to ascertain which features of gamification they view as particularly motivational. These aspects are captured primarily by self-determination theory, social cognitive theory, and behavioral economics principles. As we addressed these topics during the focus groups, we simultaneously stayed attune to cultural oriented insights that emerged and probed further as needed. All of these areas are particularly relevant for informing practical intervention design considerations that may enhance efficaciousness.

Changes in the text: We added the following statements in the Methods where we discuss Columbia Moves:

'The intent of leveraging teams of individuals with existing social ties was to harness a social structure favorable to sustaining social support and fostering social influence, social norms, and collective efficacy for PA –key theoretical behavior change constructs and contributors to maintaining regular PA participation [73] – potentially ignited via gamification.' (Page 9, lines 213-217)

'Team rankings and step counts were displayed on a leaderboard. The weekly PA challenge game was characterized by the presentation of varying types of challenges, levels, and points centered around the principle of loss aversion (73). These specific gamification elements were designed to foster motivation for PA primarily by allowing for social comparison, reinforcement, and the facilitation of autonomy and aversion to potential loss (73,74).' (Page 10, lines 222-227).

We also included the focus group guide as a supplementary material item.

Comment 8: The use of grounded theory: To me, the authors have not conducted grounded theory analysis, but content analysis. Grounded theory is both a process and an outcome, and its end product should not merely be a list of themes (such as in thematic or content analysis) but generation of theory. For a good explanation of grounded theory, please see: Nicholas L. Holt. 2016, Doing grounded theory in sport and exercise from: Routledge Handbook of Qualitative Research in Sport and Exercise Routledge https://www.routledgehandbooks.com/doi/10.4324/9781315762012.ch3. The authors

developed a set of themes and did not generate a new theory which is the primary purpose of grounded theory.

Reply 8: Thank you for making this observation. Although we used aspects of grounded theory analysis, we agree that we did not fully develop any explanatory theories from the analysis, nor was that the intent of the study. Thus, it is certainly accurate to call it a content analysis.

Change in the text: We made the following modification: Replaced 'ground theory' with 'content analysis' (Page 3, line 86; Page 12, line 266). We also replaced reference 75 (Page 40, lines 919-921).

Comment 9: I would describe the themes as surface-level rather than deep-level (hence why I also suggest above that it was a content analysis that was actually conducted). What I mean by that is that the themes seem to describe what the participants say directly not necessarily the underlying meaning. Additionally, the themes are not particular new and most have been identified in previous research with other population groups. Deep-level themes would provide a greater insight into the population's experiences to demonstrate what is unique about this population that can provide new knowledge.

Reply 9: Thank you for this suggestion. Descriptions of the two dimensions of cultural sensitivity (surface and deep structure) put forth by previous investigators (1,2) informed our conceptualization of surface level and deep structure cultural targeting which we sought to target in the present study. Specifically, perceptions of how one's environment (including their social environment) might influence physical activity behavior reflects a deep structure dimension, whereas surface structure involves matching intervention materials and messages to observable "superficial" characteristics of the target population (1). Within the physical activity field, a conceptual framework for designing culturally relevant physical activity programs for African American women (developed based on the authors' research in this realm, other relevant seminal literature, sociological and theoretical perspectives, and key determinants of physical activity engagement) points to third-level (deep structure) considerations which include deeply rooted social factors (e.g., collectivism; experiential knowledge; kinship and social relationships) that influence physical activity among this target population and are of relevance to the present study (2). We agree that our study essentially pretested a novel e/mHealth gamification approach for physical activity promotion, meaning participants were generally reacting to the description of an established intervention. We gathered surface level perspectives about the gamification approach and app (e.g., teammate and coach characteristics; app symbols/aesthetics; etc.), but during this process we also identified the emergence of deeper structure elements (1,2) in participants' perspectives regarding the team-based gamification approach (e.g., foster accountability, support, motivation; etc.) based on the aforementioned conceptualizations (i.e., perceptions of how their social environment might influence their physical activity behavior). Even the discussion of teammate and coach characteristics began to touch on a previously identified deep structure factor (1,2) that might be salient to some but not other participants in the present study (i.e., experiential knowledge or valuing lived experiences, with one implication being that providing opportunities

for African American adults to participate with others or under the guidance of a coach who they perceive as similar or like themselves is perhaps important). With all that said, we definitely agree that we largely obtained and reported what participants said directly, so there is still room to dive even deeper into all these realms to better identify and understand the root underlying origins or meaning of participants' reactions (deep perspectives about their personal beliefs and experiences).

With respect to the newness of the themes, we respectfully purport that they are insightful when considering the specific context (e/mHealth team-based gamification for physical activity promotion) given that to our knowledge, only one gamification study (ref 55 in the manuscript) with African American and Black adults (of which few exist) was informed by formative work with the target population to ensure cultural relevancy (and it was designed as an in-person program). Certainly, considerable prior formative evidence points to the importance of social networks, collectivism, and social support for physical activity behavior change among African American adults. However, whether that would hold true in this specific context and why (e/mHealth team-based gamification for physical activity promotion) was unexplored (same notion for other identified themes that align with previous research such as competition, cultural relevancy of program features, etc.). Regardless of whether the themes were similar or different to prior research with other populations or in different settings/contexts, we scientifically answered an unexplored research question given our unique combination of contextual elements (custom team-based gamification approach for physical activity promotion among African American adults), yielding valuable insights. Further, we even explored some new areas within this research area (e.g., type of leaderboard feedback, a wide breadth of optimal teammate characteristics). As mentioned above, we agree that there is room to dive deeper into these areas from a deep structure perspective, but the present study yields important and requisite foundational insights from which to build.

Resnicow K, Baranowski T, Ahluwalia JS, Braithwaite RL. Cultural sensitivity in public health: defined and demystified. Ethn Dis 1999;9:10–21.

Joseph RP, Keller C, Affuso O, Ainsworth BE. Designing culturally relevant physical activity programs for African-American women: A framework for intervention development. J Racial Ethnic Health Disap 2017;4:397-409. https://doi.org/10.1007/s40615-016-0240-1

Changes in text: To better describe what we meant by deep structure aspects in the context of our study, we incorporated the following additions and modifications:

Page 4, line 98: 'and perceptions of the value of the social environment'

Page 4, line 104 (highlight box): 'some'

Page 6, lines 133,134: 'such as gauging perceptions of how the interpersonal environment might influence PA'

Page 23, line 523: '…, touching on deep structure factors'

Page 27, lines 618-622: 'Although this study started to touch on some deep structure aspects in relation to the influence of the social environment, the focus group discussions still largely gauged participant reactions to Columbia Moves as opposed to digging deeply into the personal beliefs and experiences underlying their reactions which should be a focus of future research.'

Page 27, line 624: "…and to some degree…"

In the Discussion, we deleted the phrase, '…and deep structure level (e.g., racial pride) in the paragraph discussing symbols and team names.

Specific comments:

Comment 10: Title: please include the word "physically" as "activity" doesn't necessarily imply physical activity.

Reply 10: We agree and have made the change.

Changes in text: Page 1, line 4: We added the word 'Physically'

Comment 11: There is no explanation why focus group interviews were used and not individual interviews. Please provide a conceptual argument for this choice.

Reply 11: Focus groups offer a format in which individuals can discuss ideas at a group level as opposed to solely interacting with a moderator. They provide an opportunity for critical feedback, interpretations, and group ideas and norms to emerge in conjunction with individual ideas and preferences. While interviews have the potential to yield even greater in-depth insights, using focus groups to gather group-level data best aligned with the goal of our study by allowing us to better understand the perspectives and norms of a specific target population. We expressed this sentiment in the revised manuscript. In the original text, we also had included missing out on the advantage of interviews (being able to go further in-depth) as a study limitation and kept that.

Changes in text: We added the following sentences: 'Focus groups offer a format in which individuals can discuss ideas at a group level as opposed to solely interacting with a moderator. They provide an opportunity for critical feedback, interpretations, and group ideas and norms to emerge in conjunction with individual ideas and preferences. Using focus groups to gather group-level data best aligned with the goal of our study by allowing us to better understand the perspectives and norms of a specific target population.' (Pages 8 and 9, lines 194-199).

Comment 12: P. 2, line 39: "promote enhanced outcomes" – this is vague, please clarify

Reply 12: We were referring to intervention engagement and physical activity outcomes and have now made this clear.

Changes in text: We added 'intervention engagement and physical activity' (Page 3, line 74).

Comment 13: P. 2, method: there is no mention of the gender distribution, please include this information

Reply 13: We have now added this information.

Changes in text: '93% female' (Page 3, line 84)

Comment 14: P. 2: the research question and the results section do not align well. You mention in the background that you will "seek input…" then provide a range of themes in the results which doesn't make much sense.

Reply 14: Thanks for mentioning this lack of alignment. We sought to gather perspectives from the participants to better identify themes that would help provide insights into areas to target for intervention adaptation. We have now expressed this sentiment in the background.

Changes in text: Instead of 'seek input,' we have now modified it to '…gather perspectives from African American adults residing in the Southeast United States and subsequently identify themes to help inform…" (Page 3, lines 78,79)

Comment 15: P. 2, line 58: please explain what you mean by "mixed preferences"

Reply 15: We have now elaborated on what we mean by "mixed preferences."

Changes in text: We added '…regarding ideal sociodemographic characteristics and starting physical activity level of teammates)' (Page 4, lines 93,94).

Comment 16: Highlight box: The numbering in the section "what is known and what is new" (second bullet-point) does not make sense. Please remove this numbering.

Reply 16: We have removed this numbering.

Changes in text (highlight box): We have removed the numbering in the highlight box (Page 4, line 104).

Comment 17: P. 5, line 155: please refer to the relevant table.

Reply 17: We believe the COREQ checklist will be provided via a link provided by the journal so we did not refer to a table. However, we did provide a reference for it.

Changes in text: We added a citation/reference for the COREQ checklist – reference 71 (Page 7, line 163; Page 39, lines 909-911).

Comment 18: P. 6, participants: why was the BMI range noted an eligibility criterion?

Reply 18: We used this eligibility criterion in Columbia Moves because we sought to target adults who did not have medical contraindications for safely engaging in a community-based walking program while being as inclusive as possible, and this criterion among others helped ensure that.

Given we seek to culturally adapt Columbia Moves for African American and Black adults, we wanted to initially get a sense of recruitment flow using key eligibility criteria that closely replicate those used in Columbia Moves and potential subsequent iterations.

Comment 19: P. 6, line 171: My understanding from the previous paragraph was that participants had to have participated in Columbia Moves?

Reply 19: We can see how this was confusing. We meant to convey that anyone who met the other eligibility criteria was eligible to participate plus former Columbia Moves participants who identified as African American. We have now made this clear.

Changes in text: "Additionally,…'also'…" (Page 7, lines 170 and 172).

Comment 20: Please provide the specific focus group questions in a table

Reply 20: The focus group guide contains background context about Columbia Moves plus questions. We have included the focus group guide as a supplementary material item. We also integrated sample questions from the focus group guide into the manuscript.

Changes in the text: We added the following content (see Page 10, lines 240-261):

Examples of focus group guide questions included the following, with the full focus group guide content provided in Supplement 1:

What do you think about a team competition like this one [Columbia Moves]? How much, if at all, would this kind of competition motivate you to be more physically active? Why or why not?

What do you think about the shoe mascot and selecting a team name – is it something you feel is important to create team unity, and in turn, would it help motivate you and your team to be physically active? What types of images would you prefer to select from to represent you or your team in an online physical activity competition other than the shoe mascot (for example, something such as an avatar – an icon or figure that you can choose to represent you online in a game – or some other representation of your team and yourself, and if so, what?). Or do you like the shoe mascot idea alone?

What do you think about this idea [Shoe Mascot Game]? How much, if at all, would you enjoy participating in this type of game with a team? How much would it motivate you to be more physically active? Why or why not? What types of challenges would appeal to you the most?

When thinking about participating in an online program such as this one (Columbia Moves): How important would it be to you to be in a team with people you already know? How important is it to you to have teammates who have a similar starting activity level as you? How important would it be for your teammates to be the same sex? How important would it be for your teammates to be Black? How important is to you to have teammates who live in the same geographic area as you?

Comment 21: P. 7, line 208: how were the personalized step goals decided upon?

Reply 21: The personal step goals (eventually work towards achieving 3,000 steps/d above personal average daily baseline step count) were based on evidence which shows that accumulating 3,000 steps in 30 minutes beyond habitual activity levels is approximately equivalent to at least 30 minutes of moderate-intensity walking in adults, based on a cadence of 100 steps per minute (1). It is easy for participants to understand and track while still approximating the recommended guidelines, and thus, it can be used as a meaningful heuristic physical activity goal (1). Setting the goal in relation to one's own average daily baseline step count helped personalize it. We have used this step goal in a previous study (2).

Tudor-Locke C, Hatano Y, Pangrazi RP, Kang M. Revisiting "How many steps are enough?" Med Sci Sports Exer. 2008;40(7):S537-S543.

Monroe CM, Bassett DR Jr., Fitzhugh EC, Raynor HA, Thompson DL. Effect of adding online social support tools to an adult walking program: a pilot randomized controlled trial. Health Prom Pract. 2017;18(1):84-92.

Changes in text: We made the following modification: "Participants also received graded personal step goals based on their accelerometer-measured average baseline daily step count…" (Pages 9 and 10, lines 217-218).

Comment 22: P. 7, line 213: what is meant by "near real-time"?

Reply 22: Near real-time was every five minutes. We have specified this time now.

Changes in text: We replaced 'in near real-time' with 'every five minutes' (Page 10, lines 227, 228).

Comment 23: P. 8, line 217: how were "authentic reactions" ensured? How would you know that they provided authentic feedback?

Reply 23: We agree that it is better to use different phrasing. We were trying to convey that we value authenticity, but it is more accurate to state that we sought to understand participants' perspectives and have now made that change.

Changes in text: We deleted 'authentic' and put 'sought to understand perspectives' (Page 10, line 231).

Comment 24: P. 8, line 227: be more specific about the time duration of the interviews.

Reply 24: We reported the average time duration in the Results but modified the statement you are referring to in the Methods to be even more specific.

Changes in text: We replaced 'lasted for 2 hours' with 'ranged from 80 min to 112 min in duration (Page 12, line 262).

Comment 25: Results: there is no indication of whether there was a gendered or age pattern to the results. Please consider this in both the results and discussion sections.

Reply 25: Thank you for this suggestion. Given culture informs gender and age roles, we agree that it is worthwhile to examine whether there were gender or age patterns to the results. We already identified and addressed sex as a theme with respect to teammate characteristics. We returned to our data to examine whether there were gender or age patterns to the result and did not identify any.

Changes in text: We added the following statements: '…and data were also examined for gender and age patterns' (Page 12, line 271) and 'No gender or age patterns emerged' (Page 13, line 300).

Comment 26: Discussion: Please include more specific suggestions for future research.

Reply 26: *We had integrated specific suggestions for future research throughout the Discussion related to the following topics listed below, but we also added two additional specific suggestions while simultaneously addressing other comments related to study limitations.*

Given the collective body of formative evidence predominantly pointing to the importance of social support from family and friends (11,12,26-34) in conjunction with the lack of evidence from rigorous and scalable PA promotion trials that directly leverage existing social ties among this population (45,60,62), future e/mHealth gamification studies should prioritize exploring this approach further.

Future research should continue to explore how levels of autonomous motivation and other individual characteristics relate to a broad array of perceived gamification-based PA facilitators and barriers among insufficiently active AA adults.

However, the optimal combination of characteristics among individuals on a team engaging in a culturally targeted e/mHealth gamification intervention for driving sustained PA participation is not clear and should be scientifically explored.

Given the enthusiasm for incorporating features that connote specific tailoring of the program for AA populations, future investigations in this space centered on gamification for PA promotion should be careful to ensure that the tested interventions integrate and retain these aspects regardless of what individual and team characteristics are being explored.

Thus, future investigations should consider designing and testing strategies that directly gamify social support for PA.

Future qualitative investigations should solicit perspectives on gamification and social support among AA men, as well as from a larger national catchment, to determine how their views might differ.

Changes in text: We made the following additions: "…and those without mobile technology.." (Page 27, lines 615,616). And 'Although this study started to touch on some deep structure aspects in relation to the influence of the social environment, the focus group discussions still largely

gauged participant reactions to Columbia Moves as opposed to digging deeply into the personal beliefs and experiences underlying their reactions which should be a focus of future research.' (Page 27, lines 618-622).