Author’s response to reviews

Title: Effect of a Pedometer-based Walking Challenge on Increasing Physical Activity Levels amongst Hospital Workers

Authors:

Abdulla Al-Mohannadi (abdulla.almohannadi@aspetar.com)
Suzan Sayegh (Souzan.AlSayegh@aspetar.com)
Izzeldin Ibrahim (Izzeldin.Ibrahim@aspetar.com)
Ahmad Salman (asalman@qu.edu.qa)
Abdulaziz Farooq (mohammed.farooq@aspetar.com)

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Author’s response to reviews:

To the reviewers,

Thank you for the valuable comments and feedback. To the best of our ability, we have now addressed all comments and amended the manuscript. We are grateful for the critical comments. The manuscript quality has now improved based on your suggestions. We appreciate the valuable support in careful attention given by the reviewers.

Reviewer reports:

Reviewer #1: Reviewer comments to the author

Physical activity is indeed a public health issue that needs to be encouraged, which is the main purpose of this study. Therefore, the goal of this study is very interesting, but a major revision of the manuscript is definitely necessary. It cannot be published in the current format.

In general
- The English language needs to be revised by a native speaker
- Paragraphs need to be restructured and revised
- Too much repetition
- Better describe the Methods part
- The fact that comparison of the samples was not possible is a big shortcoming to me, as well as the small sample size (low response rate)

A native English language expert has carefully revised the whole manuscript and much of the repetition is now removed. The method part is described in detail and limitations of the study are highlighted and only valid conclusions are drawn.

Abstract
Line 39 : add 'in' before 'April-August 2017'
OK
Line 45 : Drop 'Around' since I suppose that 212 and 194 are the exact numbers
OK
Line 45 : add 'respectively' before 'at baseline and post intervention'
Done
Line 46 and 50 : I do not understand the word 'secular' in the sentence

The secular is a technical word used to describe changes that were measured using two cross-sectional surveys in the same sample over two time periods or more. For the cross-sectional samples, we use secular, but for the sub sample that had pre and post data in same individual we use longitudinal changes.

Line 49 : reformulate 'from baseline'
OK
Line 51 : I propose tow cut this sentence in two, so start with a new sentence with 'However.'
OK
Introduction

Line 60-61 : I think this sentence is not correct
We have rephrased the sentence.

Line 63 : I would write '26% of men and 36% of women' and so drop 'respectively'
Done
Line 64 : same remark (12% of men and 24% of women)
OK
Line 65 : specify the WHO recommendation
We have not specified the WHO recommendation.
Line 65 : I would drop 'these adults' or reformulate
Whole section is now rewritten.

Line 62-66 : 'Physical inactivity … [4]' => I would put this part in the beginning of the second paragraph
This is now done
Line 74 : I would replace 'for male and female individuals' by 'for both males and females'
Done
Line 74 : [8] is in Italic
This is now fixed
Line 74 : [8] this study concerns only women. But what about men? Is it necessary to mention this study?
Sayegh et al., is one of the few studies in Qatar that has reported objective PA in Qatar population. Therefore, we would like to keep this reference to support local data. But we have now added Qatar in the sentence to make it relevant to the current study background.

Line 75-76: I would replace 'during a 1-year-pedometer-based observation' by 'based on a 1-year pedometer observation'

Done

Line 76: 2 times 'some' in the same sentence
OK, corrected

Line 79-80: sentence is not clear to me
This is now rewritten

Line 82: This information is already mentioned in Line 73-74 (repetition).
Repeated information is removed

Line 85: 'decreases' instead of 'decreased'
OK

Line 86: 'sick leave' and 'absenteeism' => is not this the same?
It is according to published paper, we have rewritten this.

Line 91: Here you use worksite, but most of the time you use workplace
We have used workplace all through the manuscript

Line 92: improvements in health => Ok, but what do you mean with improvements of workplace?
This is now elaborated based on published paper.

Line 94: replace 'lower' by 'decrease' focus
OK
Line 95: replace 'investigators have not focused on' by 'the focus was not on'

OK

Line 96-97: This part of the sentence is not quite clear to me

This was deleted

Line 98-99: Also better formulate this sentence.

Done by the English editor

Line 99: Replace 'This focus has' by 'Such programmes have' => in Line 100 'as they are convenient'

OK

Line 98-103: I miss some references here

Added reference here

Line 99 versus Line 102-103: maybe put this in one sentence since it is almost the same

OK

Methods

Line 109-113: Explain this part better please. I would not abbreviate the name of the month.

Corrected now

Line 115: 'Participants' => at this stage they are not yet participant => Maybe combine the sentence of Line 115 and 116?

This is now merged.

Line 117: Maybe better to change the sentence to 'only 212 invited staff members were willing to participate'.

So the response rate is only 26.5%, which is quite low.
Yes, we agree this is quite low. The response rate of all surveys performed via corporate email advertisement is around 25-30%. This could not have been due to large size of the survey, because, only few were excluded due to incomplete data.

Line 117: Figure 1 => see also my remarks concerning this figure at the end
OK

Line 119-120: Again, I do not think 'participants' is the right descriptions. I suppose that all the 800 staff members received this e-mail, but only 26% of them participated?
Yes, we have now corrected this.

Line 121-122: 'At the time …' also this is again a repetition of something that was already mentioned in the first paragraph (Line 116).
Any repetition was now deleted.

Line 124: Around? I suppose 212 is the exact number => drop around. Also this number was already mentioned in the first paragraph.
We did not want to start a sentence with a number, instead of around, we replaced it with eventually. The repeated information is now deleted.

Line 117 and 126: once (Figure 1) was written in bold and the other time not
So conclusion concerning the first and second paragraphs (Study design and population): these needs to be revised and better structured!
The whole section is now restructured.

Line 129: 'used' instead of 'utilised'.
Done
Line 131: 'announced' instead of 'advertised'

Done

Line 131: the text contains a mix of the words 'programme' and 'program'

This is now corrected

Line 134-135: Please better explain this part. Is there a difference between members and participant?

What do you mean with 'sub-communities' and the 'Aspetar community'? Subsample, does it concerns the 54 participants?

Yes, this is correct. The sub-community is just like groups on social media.

Line 136-138: 'All hospital staff … ' => I have the feeling that this part belongs at another place

We have moved this sentence to up just before registration.

Line 141: I do not think weight, height and smoking (Table 1) are 'sociodemographic information' => replace it by 'Background information'

Done

Line 146: Again I have the impression that this was already described elsewhere (Line 129) => make one sentence of it

OK

Line 147-148: Please improve this sentence.

OK

Line 150: Already mentioned in previous paragraph (Line 142-134)

OK

Line 154: also mentioned in Line 133

OK
Line 157-158: 'By targeting …' => not clear to me

So conclusion concerning the paragraphs of 'Intervention': too much repetition, please reorganise!

The whole section is now reorganised and well structured.

Done

Line 162: Did you use the short or the long version of IPAQ?

We used the short version and now mentioned this clearly in methods.

Line 163: does the word 'respectively' needs to be included after to determine?

OK, corrected now.

Line 164-166: Again this part is a repetition of the previous sentences. Please integrate and reformulate it better.

OK

Line 167: Maybe better to indicate that it concerns validated instruments.

Yes, this section is rewritten to reduce information.

Line 169: replace 'encompassing' by 'measuring'

OK

Line 173-174: Only mention once [17]

OK

Line 174-177: Is it necessary to indicate this part?

This is now restructured.

Line 180-182: the same remark. Maybe better to just mention that it concerns a validated instrument (see remark concerning Line 167)

Section is reduced to include only reference to validity
Line 185-188: same remark.

Section is reduced to include only reference to validity

Conclusion: I would shorten the part 'Questionnaires'.

OK, done

Line 198: I would suggest 'number' instead of 'count'

OK

Line 222: I suggest 'Participation was voluntary'

OK, done

Results

Line 227: now you are talking about 'pre-intervention'. Before, as in 'Methods', you were talking about 'baseline period'. Maybe it is better to use everywhere the same description. For me 'pre-intervention' is clearer.

Sorry but for me it is not clear (based on the Methods) if the pre-intervention sample contains the same participants as the post-intervention sample. I suppose so. So if this is the case, than there is a drop-off of 8 participants (which is possible of course). Nevertheless, what I do not understand then, how it is possible that in the pre-intervention there are for ex. 64 women and in the post-intervention 69 women, so 5 more. Based on this I would conclude that it does not concern the same sample. However, the goal of this study is the compare the evolution of the PA status of a population before (pre) and after (post) the intervention. For me this needs to be better described (in Methods).

You have made a correct observation. Two cross-sectional surveys were performed in the same population at two time points. Therefore, it is not necessary the samples are the same.

But a sub sample of participants who participated in the Step into Health program and provided objective PA data (pedometer steps/day) was analysed longitudinally.

Line 229: This was also the case in the post-intervention sample. Also, I would talk just about the pre-intervention sample and the post-intervention sample, instead of the total (study) population (confusing). Same remark for age.
Yes, this is due to the fact that there were two cross-sectional surveys. And we wanted to demonstrate that the characteristics of the sample in both surveys were more or less similar. We have clarified this in the methodology as well as the results.

Line 231-232: previously, the prevalences were without decimal => adapt. Why don't you mention for ex. the participants are in most cases married (84%)?

OK

Line 234: The results of SF36v2 are not discussed. I suppose since there are no differences between the pre-intervention and the post-intervention. Maybe mention this in a short sentence.

OK, we have done this.

Line 237: cross-sectional increase => it increased to … after intervention (or post-intervention).

Since it is cross-sectional sample, we could either add secular increase or better just higher in the post-intervention sample compared to pre-intervention.

Line 238: I would drop 'consequently'

OK

Line 240-241: I would formulate it otherwise: The prevalence of participants with a low PA level decreases for 22% before to 11% after intervention. And what about the prevalence of participants with a high PA level? This increases. Not worth mentioning it?

We are avoiding the use of ‘increase’ or ‘decrease’ due to the cross-sectional samples pre and post intervention. We have reworded to focus more on the moderate and high levels of PA, rather than low.

Line 241-243: Time spent sitting is similar => not worth mentioning it. However, the time sitting at work has increased! I thought the purpose was to decrease it with the intervention. On the contrary, time spend sitting on other leisure activities has decreased.

So you are talking about increases/decreases, but are they significant? I do not think so because of the small sample
Yes, we did observe this. But since this is two cross-sectional surveys, appropriate statistical analysis cannot be performed except in the case of sub sample that was longitudinally followed up.

Line 247: no * (p=0.048) was added in the Table among 'After' and here in the text you indicate that the number of steps were significantly higher during post-intervention.

Line 251-253: What do you mean? That the difference between men and women in pre-intervention and post-intervention was not significant, so only significant during the intervention. Then I would drop this sentence 'However, … (p=0.420).

In case something is not significant, I would not mention it: so this concerns 'age' and BMI. Are mention it in a shorter version.

Discussion

Line 264-265: Is this sentence referring to the decrease of the prevalence from 22% (before) to 11% (after)? Or to the results of table 3? In case of table 3 (I suppose so) => I would drop 'low' in Line 265 (confusing).

Yes, it refers to results from Table 3. We have changed accordingly.

Line 265-266: but I thought there was only a significant difference during intervention?

Yes, that is correct. We reworded this to during the 3-month intervention period.

Line 273: sorry, but where/how did you get these numbers?

This is computed WSQ (sitting questionnaire) at working day and non working day. Instead of ranges, we are now providing the mean total sitting time at working day. We have reworded the sentence.

Line 275: [28] is indicated in a different way as the rest of the references

Done.
I do not understand this: you compare vitality and social functioning with guidelines of PA

This is an error, we have removed this paragraph and addressed the issue of PA elsewhere.

Line 291-292: where do come these data from? In the results you never mentioned the results of SF36.

Line 294-299: sorry, not clear.

Some of the results were not shown because it was not the main aim of the study to compare SF36, physical activity and sitting according to some demographic factors. Therefore these results were not included in the main results. We are now excluding such analysis that do not align with the main aim of the study.

Line 301-303: so the mental health didn't improve in this study?

Line 307-309: sorry but I do not understand why comparison is not possible. The pre- and post-intervention concern the same sample?

Yes, the major limitation of the study was the cross-sectional surveys at two time points but representing the same confined population of staff in a hospital. So statistical comparison will not be appropriate or valid.

Line 311: sorry, but again I can't find these data back in Table 2 (/week so I have divided the numbers by 7 - using total activity and total (MET-minutes per week))

The IPAQ questionnaire scoring sheet automatically computes the total activity per week. Which is reported in Table 2. We deduced the total activity by dividing by 5 instead of 7. Therefore, there was an error in the calculation. This is much now lower than reported. We have now corrected this.

Line 329-330: 10.000 steps is a guideline, but I do not think it is the same guideline as being 30 minutes moderate PA per day. Indeed no participants achieved the goal of 10.000 steps.

We have now removed the reference to WHO (30 minutes) here.
Line 346: what is 'bad weather' in your case? Too hot? Depends maybe by country? Probably in other countries it is rain and cold…

Sorry for not making it clear. Usually, bad weather is understood as hot weather in this region where there is no rain, very cold winters. Bad is reworded as hot.

Line 355-362: I really do not understand why comparison was not possible. For me this is a very big shortcoming of this study, as well as the small sample size (low response rate).

Yes, we acknowledge this limitation of the study, and we have now also added the low response rate to the limitations. But the results present some objective data.

References

Line 476: problem with a name

Ok, we fixed this now.

Figure

Source-box: 800, is this the exact number? Maybe indicate it as (n=800).

The source population is divided in three types of study population? So one group participated in the e-survey, one in the e-survey at follow-up (but is not this the same as the first group?) and the third used the pedometer (but is not this a subpopulation of the first group?). I have the impression that this figure is not well design. In addition, I miss the numbers in every box.

The figure has been redesigned.

Tables

Table 1:

Please put a space between the number and the percentage. In addition, I would put the number between brackets and put the percentage first, i.e. 30.2 (64). On the other hand, the number is not even necessary when you put the total number in the heading.
Adapt the title: replace 'Sociodemographic characteristics' by 'Background information' (see comments in Method)

This is now corrected.

Table 2:

Adapt 'IPAQ … n(%)' to 'IPAQ … n (%), but is it necessary to add n (%) here since it is also mentioned in the 2 columns on the right.

You also mixt 'n' and 'N' => uniform

Time spend sitting - on a Non workday => there is an item 'at work': I don't understand this since it concerns 'Non workday'

This is possible for some individuals to visit work even on non-work day. This is personal choice not enforced by institution. In some cases it could be on call staff.

In the Table you use P, but in the text p => uniform

Maybe better to indicate * p<0.05 => this * can also be used to indicate the significant difference between men and women during intervention (p=0.024)

OK. Done

Reviewer #2: 1. In the abstract, the authors must explain what the quality of life questionnaire is.

2. In the results of the abstract, the authors must give the results of the quality of life questionnaire and the work sitting questionnaire.

Since it is secondary outcomes of the study, we decided to keep the main findings in the abstract. And to be in word count. The cross-sectional nature of the quality of life questionnaire and the work sitting questionnaires did not allow to perform any important statistical analysis.

3. The authors must follow the CONSORT or the STROBE guidelines for the writing of their manuscript.

Thank you and we have used the strobe guideline in the revised manuscript.

4. It is not very clear how the subsample was designed. As a matter of fact, this is very surprising that all participants did not provide the pedometer data.
This is correct, we have addressed this very clearly in the methodology. Most of the participants did not participate in the program and upload their step count data. Only participants who shared the stepcount data were analysed.

5. The introduction is far too long and must be reduced by 30%.

We have substantially reduced the introduction in the revised manuscript.

6. The duration of the post intervention period is not clear.

Post intervention was the whole month of February (1-28 Feb 2017)

7. In table 1, the third column must include ONLY the 18 subjects not included in the final analysis. Please also include p-values.

The two columns are the two cross-sectional studies of the same target population. Independence cannot be assumed and moreover, we cannot be sure exactly same subjects participated in the post intervention survey. We acknowledge this limitation and present it clearly in the methodology. There are no valid statistical methods to compare the two columns. Hence p-value cannot be computed.

8. In table 2, the second and the third columns must focus on 194 subjects only. Please also include p-values.

The same reply as in Table 1.

9. In table 3, please include standard deviation and a p-value comparing before, during and after.

We have now added the Standard error which is provided from the analysis, three pair wise comparisons were made. Pre vs. During, During vs. Post and Pre vs. Post. And the p-value is not added because 1) there will be lot of p-values and 2) all were not significant except one. And this is mentioned in the footnote.