Author’s response to reviews

Title: Influencing walking behavior can increase the physical activity of patients with chronic pain hospitalized for multidisciplinary rehabilitation: An observational study

Authors:

Philippe Terrier (Philippe.Terrier@he-arc.ch; ph.terrier@gmail.com)

Caroline Praz (Caroline.Praz@crr-suva.ch)

Joane Le Carré (Joane.Lecarre@crr-suva.ch)

Philippe Vuistiner (Philippe.Vuistiner@crr-suva.ch)

Bertrand Léger (Bertrand.Leger@crr-suva.ch)

François Luthi (Francois.Luthi@crr-suva.ch)

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Answers to the reviewer

- Julius Sim (Reviewer 3):

Thank you for your suggestions.

- Line 90. Change patients' to patient's

This has been corrected

- Line 175. Change 'turned back' to 'returned'.

This has been corrected

- Line 221. Here, 0.05 is a threshold or cutoff, not a limit.

Thank you for the comment. This has been corrected.
- Line 237. I don't think the word 'indeed' fits here. Presumably the model with 12 parameters was simply the basis for the sample size. Maybe the sentence could begin 'This was based on the fact that…'

Yes, we agree: your suggestion makes the sentence clearer. This has been added.

- Line 270. I would make the derivation of the percentage difference from the model coefficients more explicit, explaining to the reader how the exponentiating of the log coefficients provides these estimates. In Table 3 and Table 4, why not give the bounds of the CI in terms of the differences (the exponentiated coefficients) rather than the log coefficients, so that they are more readily interpreted? I think that this has been done in Figure 4.

As explained in our first answer, the manuals of style advice to consider that readers have a professional knowledge of statistics and mathematics. The transformation of exponential coefficient to percent change is basic logarithms and does not deserve further explanation.

Here is the explanation:

GLM gamma with log link function for a given value $y_0$ given a $x_0$ value:

$$\log(y_0) = \beta_0 + \beta_1 x_0$$

If we now increase the covariate by 1, we obtain $y_1$

$$\log(y_1) = \beta_0 + \beta_1 (x_0 + 1) = \beta_0 + \beta_1 x_0 + \beta_1 = \log(y_0) + \beta_1$$

Take the exponential on both side:

$$y_1 = \exp(\log(y_0) + \beta_1) = y_0 \exp(\beta_1)$$

So, the mean of $Y$ is multiplied by $\exp(\beta_1)$ when we increase $x$ by 1 unit. Subtracting 1 to $\exp(\beta)$ gives the percent change (i.e. if a value is multiplied by 1.25, the percent change is $1.25 - 1 = 0.25 = 25\%$).

Regarding your comments about confidence intervals, we have added CIs transformed to percent changes in the tables.

- Line 648 & 651. These are useful graphs, but I would indicate in the legend how the width of the plots should be interpreted. It will be clear to a statistician, but may not be so to all readers.
Yes, we forgot to precise the meaning of the width. This has been corrected in the figure legends.

- Figure 1. I think 'logistical' would be a more usual adjective in this context than 'logistic'.

  This has been corrected

- Figure 5. Readers might be confused by the different size of the black and red circles - presumably this difference does not signify anything? In the middle plot in the last column, some of the red circles appear to have been cut off. You consider using different type of marker, rather than different coloured markers, so that it will be easier for somebody to distinguish them if they print the figure off in monochrome rather than colour. Similarly, in Figure 2 and 3, it might be wise to adjust the colouring so that the lines indicating the quartiles are clearer in monochrome.

  The way the figure was generated makes it difficult to change it. We reworded the legend to “Large black circles are rehabilitation days and small red circles are days off.”, which makes the interpretation unambiguous even for readers that will print the final pdf in black&white.

  The issue of the cut off red circles has been solved.

  As you suggested, we have modified the color of Fig. 2 & 3 for a better contrast.

- There is some inconsistency in the use of 'N' and 'n' to indicate number of participants. I would suggest using 'n' throughout.

  This has been corrected throughout the manuscript and in the figures