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Response to the Letter: “A Response to: Human Fall Detection Using Passive Infrared Sensors with Low Resolution: A Systematic Review” [Response To Letter]

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Dear editor

We read with interest the commentary proposed by Priastana & Simbolon: “A response to: Human Fall Detection Using Passive Infrared Sensors with Low Resolution: A Systematic Review”.¹ We hope our present answers will help readers to fully appreciate the article.

Regarding the non-registration of our study in any international database of prospectively registered systematic reviews, we specified this information at the beginning of the section *Materials and Methods*, sub-section *Protocol and Registration*.² This study was therefore not registered, for example, in the PROSPERO database. We agree with Priastana & Simbolon on the additional precautions brought by registration in this type of database particularly to avoid duplication of scientific effort. However, the affirmation “to be reviewed by peers” is not correct. Indeed, PROSPERO is a registration system (accessible on the website <https://www.crd.york.ac.uk/prosperto/>), which help researchers to comply with PRISMA recommendations and improves transparency of the review process. No peer review is carried out by the PROSPERO team. The latest PRISMA guidelines³ recommend to specify the registration information if the study was submitted, or, if it is not the case, to state that the review has not been registered, which we did (see also the PRISMA 2020 Checklist on the website <http://www.prisma-statement.org/>).

Regarding the understanding of our flow chart, it is noticeable that the four studies were not “excluded” from the analysis as mentioned in the letter.¹ All the precise details of the inclusions of the articles are given at the beginning of the section *Result*, sub-section *The Steps of Articles Selection Process*.² We can summarize differently in this response why we mentioned 15 “real” reports of included studies out of 19 included articles. The article selection procedure led us to identify 19 articles after the successive exclusions which did not correspond to the topic of our systematic review (see our flowchart in²). Out of these 19 articles, we have four teams of researchers who have published their own work twice in two different journals or databases (ie, two articles with Fan as first author,^{4,5} two articles with Hayashida as first author,^{6,7} two articles with Tao as first author,^{8,9} and two articles with Taramasco as first author^{10,11}). For each of these four teams, we therefore grouped their two articles (and not excluded) in the same analysis, ie in the same report. In the end, we have 15 reports. To help readers understand our flowchart, we recommend to read through our Table 1, which is divided in 15 lines (without counting the line of titles), each presenting a report. Eleven of them refer to a single study. Four of them refer to two studies.

The latest recommendations from the PRISMA call for being more comprehensive regarding the description of selection article process and more specific regarding the vocabulary used (see the glossary in Box 1 of³), as we did. We studied the latter guide³ with great attention to carry out a methodologically rigorous systematic review. Note that our systematic review was submitted to the journal *Clinical Interventions in Aging*, which carried out the standard procedures for examining systematic review. Our systematic review and the PRISMA 2020 checklist were submitted for examination by several reviewers.

We plan to publish soon a different approach to detect falls in older adults (with this type of sensor and others). Such different approach could help design fall detection systems, which would be more accurate and better adapted to houses and medical units.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Priastana IKA, Simbolon JL. A response to: human fall detection using passive infrared sensors with low resolution: a systematic review [Letter]. *Clin Interv Aging*. 2022;17:163–164. doi:10.2147/CIA.S360525
2. Ben-Sadoun G, Michel E, Annweiler C, Sacco G. Human fall detection using passive infrared sensors with low resolution: a systematic review. *Clin Interv Aging*. 2022;17:35–53. doi:10.2147/CIA.S329668
3. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372:n71. doi:10.1136/bmj.n71
4. Fan X, Zhang H, Leung C, Shen Z. Robust unobtrusive fall detection using infrared array sensors. In: 2017 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI); 2017:194–199. doi:10.1109/MFI.2017.8170428
5. Fan X. Fall detection with unobtrusive infrared array sensors. In: *Multisensor Fusion and Integration in the Wake of Big Data, Deep Learning and Cyber Physical System*; Springer; 2018:253.
6. Hayashida A, Moshnyaga V, Hashimoto K. The use of thermal ir array sensor for indoor fall detection. In: 2017 IEEE International Conference on Systems, Man, and Cybernetics (SMC); 2017:594–599. doi:10.1109/SMC.2017.8122671
7. Hayashida A, Moshnyaga V, Hashimoto K. New approach for indoor fall detection by infrared thermal array sensor. In: 2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS); 2017:1410–1413. doi:10.1109/MWSCAS.2017.8053196
8. Tao L, Volonakis T, Tan B, Jing Y, Chetty K, Smith M. Home activity monitoring using low resolution infrared sensor. *ArXiv181105416*. 2018. Available from: <http://arxiv.org/abs/1811.05416>. Accessed May 25, 2021.
9. Tao L, Volonakis T, Tan B, Zhang Z, Jing Y, Smith M. 3D convolutional neural network for home monitoring using low resolution thermal-sensor array. In: 3rd IET International Conference on Technologies for Active and Assisted Living (TechAAL 2019); 2019:1–6. doi:10.1049/cp.2019.0100
10. Taramasco C, Rodenas T, Martinez F, et al. A novel monitoring system for fall detection in older people. *IEEE Access*. 2018;6:43563–43574. doi:10.1109/ACCESS.2018.2861331
11. Taramasco C, Lazo Y, Rodenas T, Fuentes P, Martínez F, Demongeot J. System design for emergency alert triggered by falls using convolutional neural networks. *J Med Syst*. 2020;44(2):50. doi:10.1007/s10916-019-1484-1

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