

## The role of vaccine literacy and health literacy in the health prevention decision-making process

Claudia Isonne, Carolina Marzuillo, Paolo Villari, and Valentina Baccolini 

Department of Public Health and Infectious Diseases, Sapienza University of Rome, Rome, Italy

**ARTICLE HISTORY** Received 6 February 2024; Revised 1 February 2024; Accepted 17 February 2024

**KEYWORDS** Vaccine literacy; health literacy; vaccination behavior; preventive behavior



### Dear editor,

We read with interest the letter of Biasio et al.<sup>1</sup> that commented our meta-analysis.<sup>2</sup> We agree that, although health literacy (HL) and vaccine literacy (VL) are strictly related concepts that have been both investigated as determinants in the vaccination decision-making process, they are only partially overlapping. Indeed, as pointed out by the Authors, according to its most recent definition<sup>3</sup> VL entails the knowledge, motivation, and competencies to access, understand, appraise and apply information regarding vaccination and related services, thus involving elements that are specific for the vaccination context, especially in relation to the motivational dimension. However, the association of both VL and HL with vaccine uptake has been found to be weak or only marginally significant,<sup>2,4,5</sup> a result that suggests that other factors need to be considered to better understand what influences vaccination adherence.

This finding is further supported by the fact that HL has instead been shown to be a relevant predictor of adherence toward preventive behaviors in other scenarios, such as cancer screening.<sup>6</sup> The discrepancy in these results could be at least partially explained by the different preventive behaviors, with vaccination that concerns primary prevention whereas cancer screening secondary prevention.<sup>3,7</sup> In this regard, vaccinations act to protect against a disease never contracted, whereas cancer screening programs allow an early diagnosis of a condition that already exists and that is commonly considered more dangerous than an infection.<sup>8</sup> Furthermore, differently from screening procedures that involve mostly undergoing minimally invasive tests, vaccinations include the injection of a substance into the body of healthy people, an action that may require strong vaccine confidence.<sup>9</sup> In addition, there are other motivations underlying adherence to these two interventions that are likely to be different: while for screening the benefits to undergo a diagnostic test are clearly individual, vaccinations may be perceived to contribute more to increase population health than to protect individuals.<sup>10</sup> Another important difference to take into account regards the target population. Unlike vaccinations, in which there are vaccines available for almost the entire

population according to the age category, cancer screening adherence concerns mainly adults (or young adults in the case of cervical cancer) who may be more sensitive to the importance of prevention for their age because of family experiences. This hypothesis could help explain the weak association found between HL and vaccine uptake in the elderly,<sup>4</sup> who could have a greater risk perception and more awareness of the serious consequences that may follow avoidable diseases.<sup>11</sup> Finally, as already mentioned,<sup>1</sup> a reflection should be made on the different decision paths that lead to the uptake of vaccinations and screening tests. In fact, while people more or less independently choose to adhere to screening programs, parents usually make the decision for their children in pediatric vaccinations, similarly to family or social beliefs that might continue to influence the vaccination choices of both adolescents and young adults.<sup>12</sup>

For these reasons, we agree with the Authors that vaccinations, probably more than other preventive behaviors, require consideration of factors other than those at the individual level, including the contextual aspects. To this end, a recent position paper<sup>13</sup> by the World Health Organization (WHO) has drawn the attention to investigating social and behavioral determinants of childhood and COVID-19 vaccination, defining them as “beliefs and experiences specific to vaccination that are potentially modifiable to increase vaccine uptake.” In this WHO framework, four domains of behavioral and social drivers of vaccinations are mentioned: i) thinking and feeling; ii) social processes; iii) motivation; and iv) practical issue, confirming the need to consider several aspects in addressing barriers and facilitators to vaccination uptake. Therefore, as the Authors pointed out,<sup>1</sup> the concepts of a vaccine literate environment and healthcare organization should be better explored to provide a more in-depth analysis of the relationship between personal VL and vaccination uptake. Accordingly, further efforts should be made in a few methodological aspects: for example, developing a tool that also analyses community and organizational VL levels could surely improve the understanding of the dynamics behind individual vaccination choices. In

**CONTACT** Valentina Baccolini  [valentina.baccolini@uniroma1.it](mailto:valentina.baccolini@uniroma1.it)  Department of Public Health and Infectious Diseases, Sapienza University of Rome, Piazzale Aldo Moro 5, Rome 00185, Italy.

© 2024 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

addition, studies of high quality, and that do not refer to an emergency context only (as opposed to the majority of those included in our meta-analysis,<sup>2</sup> could also help clarify the role of VL in the vaccination decision-making process. Lastly, consideration should be given to the type of literacy to investigate: we acknowledge that the multitude of factors influencing the population's health behaviors, including the uptake of prevention interventions, make particularly challenging to find an assessment instrument that takes into account all various aspects, but as many tools continue to be developed, some of which specific to a health field (e.g., vaccination, cancer) and some others completely targeted to a particular condition (e.g., COVID VL), there is a potential risk of producing fragmentary and inconclusive evidence. Furthermore, the presence of few comprehensive and standardized VL tools<sup>14</sup> facilitates the proliferation of *ad hoc* instruments, which are frequently used without clear validation processes.<sup>2</sup> In this regard, identifying a tool that investigates HL as a general assessment of the individual ability to find, understand and use information to make health-related decisions, and when necessary enriched it with specific sections and items, for example including the contextual and motivational factors related to the health outcome under investigation (e.g., vaccinations, cancer screening), could be an alternative viable option.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

### Funding

The author(s) reported there is no funding associated with the work featured in this article.

### ORCID

Valentina Baccolini  <http://orcid.org/0000-0002-7873-7817>

### Authors' contribution

C.I. and V.B. drafted the letter; C.M. and P.V. revised it.

### References

1. Biasio LR, Lorini C, Zanobini P, Bonaccorsi G. The still unexplored mediating role of vaccine literacy. *Hum Vaccin Immunother.* 2024;20. doi:10.1080/21645515.2024.2310360.
2. Isonne C, Iera J, Sciurti A, Renzi E, De Blasiis MR, Marzuillo C, Villari P, Baccolini V. How well does vaccine literacy predict intention to vaccinate and vaccination status? A systematic review and meta-analysis. *Hum Vaccin Immunother.* 2024;20:1–16. doi:10.1080/21645515.2023.2300848.
3. Lorini C, Del Riccio M, Zanobini P, Biasio LR, Bonaccorsi P, Giorgetti D, Allodola Ferro V, Guazzini A, Maghrebi O, Lastrucci V, et al. Vaccination as a social practice: towards a definition of personal, community, population, and organizational vaccine literacy. *BMC Public Health.* 2023;23:1–11. doi:10.1186/s12889-023-16550-6.
4. Siena LM, Isonne C, Sciurti A, De Blasiis MR, Migliara G, Marzuillo C, De Vito C, Villari P, Baccolini V. The association of health literacy with intention to vaccinate and vaccination status: a systematic review. *Vaccines.* 2022;10:1832. doi:10.3390/vaccines10111832.
5. Lorini C, Santomauro F, Donzellini M, Capecci L, Bechini A, Boccalini S, Bonanni P, Bonaccorsi G. Health literacy and vaccination: a systematic review. *Hum Vaccin Immunother.* 2018;14:478–88. doi:10.1080/21645515.2017.1392423.
6. Baccolini V, Isonne C, Salerno C, Giffi M, Migliara G, Mazzalai E, Turatto F, Sinopoli A, Rosso A, De Vito C, et al. The association between adherence to cancer screening programs and health literacy: a systematic review and meta-analysis. *Prev Med.* 2022;155:106927. doi:10.1016/j.ypmed.2021.106927.
7. Eiden AL, Barratt J, Nyaku MK. Drivers of and barriers to routine adult vaccination: a systematic literature review. *Hum Vaccin Immunother.* 2022;18. doi:10.1080/21645515.2022.2127290.
8. Weller DP, Campbell C. Uptake in cancer screening programmes: a priority in cancer control. *Br J Cancer.* 2009;101:S55–9. doi:10.1038/sj.bjc.6605391.
9. Pourrazavi S, Fathifar Z, Sharma M, Allahverdipour H. COVID-19 vaccine hesitancy: a systematic review of cognitive determinants. *Health Promot Perspect.* 2023;13:21–35. doi:10.34172/hpp.2023.03.
10. Rodrigues CMC, Plotkin SA. Impact of vaccines; health, economic and social perspectives. *Front Microbiol.* 2020;11. doi:10.3389/fmicb.2020.01526.
11. Rollet Q, Tron L, De Mil R, Launoy G, Guillaume É. Contextual factors associated with cancer screening uptake: a systematic review of observational studies. *Prev Med.* 2021;150:106692. doi:10.1016/j.ypmed.2021.106692.
12. Qian GR, Ding A. Parental influence on adolescent COVID-19 vaccination opinions. *Open J Soc Sci.* 2023;11:225–38. doi:10.4236/jss.2023.114017.
13. World Health Organization. Understanding the behavioural and social drivers of vaccine uptake: WHO position paper – May 2022. *Wkly Epidemiol Rec.* 2022;97:209–24. <https://iris.who.int/handle/10665/354460>.
14. Biasio LR, Zanobini P, Lorini C, Bonaccorsi G. Relevance of vaccine literacy assessment tools. *Int J Public Health.* 2023;68:1605945. doi:10.3389/ijph.2023.1605945.