

Ensuring the Use of Effective Interventions in Nursing and Health Science: Implementation Mapping

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Over the years, considerable progress in health promotion has been made by developing evidence-based interventions that employ theory- and evidence-based methods and practical applications to change people's behaviors [1]. Nevertheless, the Achilles' heel in this process lies in long-term implementation. Intervention developers tend to concentrate primarily on the theory- and data-driven aspects of their interventions, yielding positive outcomes in controlled experimental evaluations. However, they often overlook the systematic development of effective strategies for future large-scale implementation or under the different environments. This is possibly why the field of implementation science has recently received great interests among the nursing sciences [2]. In this editorial, we highlight "Implementation Mapping" as a valuable tool to better equip intervention developers for sustained, long-term implementation [3] and advocate its use in nursing and health science research.

The selection of implementation strategies is often not systematic, which is problematic: the impact of any health promotion program hinges not only on the efficacy of the intervention itself but also on the quality of its implementation. This entails questions like: Are the target populations aware of the program? Do they make the decision to engage with it? Do they effectively utilize the program? And most cru-

cially, do they maintain their engagement with the program over time? At each of these four phases, obstacles may cause individuals to discontinue their involvement, resulting in them missing out on the potentially positive impacts of the program.

Furthermore, there is considerable potential in encouraging health promoters to consider not only changing the behaviors of patients and the general public but also influencing the behaviors of those who routinely deliver interventions aimed at patients, the public, and other stakeholders within the broader healthcare system. This approach opens up a plethora of theories and methodologies rooted in health psychology and health promotion that can be applied, tested, and enhanced in the context of altering healthcare provider behavior [4]. Implementation can, therefore, be perceived as a behavior change intervention in its own right. There is a wealth of literature to support health promoters in this endeavor, and implementation science offers valuable insights for the systematic deployment of health promotion interventions to achieve the desired impact.

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HOW CAN WE FACILITATE THE IMPLEMENTATION OF POTENTIALLY EFFECTIVE INTERVENTIONS?

Implementation Mapping [3], an extension of the Intervention Mapping process [1] that incorporates insights from the implementation science field (e.g., Nilsen [5]), offers a systematic solution. Implementation Mapping comprises five specific tasks: (1) conducting a needs assessment and identifying program adopters and implementers; (2) defining adoption and implementation outcomes, outlining performance objectives, identifying determinants, and creating matrices of change objectives; (3) selecting theoretical methods and devising or selecting implementation strategies; (4) generating implementation protocols and materials; and (5) assessing implementation outcomes. These five tasks operate iteratively, with planners revisiting previous stages to ensure the comprehensive coverage of adopters, implementers, outcomes, determinants, and objectives.

The systematic, theory- and evidence-based process of developing behavior change interventions can be time-consuming. However, in times of urgency, this development process must become more efficient without sacrificing scientific rigor [6]. For instance, Ten Hoor et al. [7] described the just-in-time, planned development of an online intervention within higher education aimed at promoting COVID-19 vaccination among university students just before they became eligible for vaccination. They demonstrated that intervention development can proceed rapidly while maintaining empirical and theoretical support. Both Intervention Mapping and Implementation Mapping played pivotal roles in guiding decision-making at every step. They underscored the importance of trust in the program developers' quality and emphasized that the focus should be placed on applying theory rather than testing it. Hanney et al. [6] identified four key approaches to reducing time lags: (1) augmenting resources, (2) parallel workstreams, (3) initiating work at risk (as waiting may not be an option), and (4) learning from the process to enhance future processes. Varol et al. [8-10] and Ten Hoor et al. [7] followed a similar process when developing COVID-19 health promotion interventions for Maastricht

University students in the Netherlands.

Fernandez et al. [11] introduced a special issue in *Frontiers in Public Health*, where a wide array of papers details the applications of Implementation Mapping and how this can contribute to bridging the research-to-practice gap to improve health and health equity. They highlighted the unfortunate reality that many evidence-based interventions either remain unimplemented or face significant delays in their deployment. Implementation Mapping offers a practical methodology for planning implementation strategies that can optimize their effectiveness. Just as Intervention Mapping has enhanced the effectiveness of interventions, the utilization of Implementation Mapping has the potential to improve the suitability, quality, and impact of implementation strategies and outcomes. This, in turn, can lead to increased adoption, more successful implementation, and sustained deployment of evidence-based interventions, ultimately resulting in improved population health.

Nurses and health scientists need to successfully adopt, apply, and maintain effective evidence-based interventions to improve health and healthcare in rapidly changing clinical environments and the community. This is a great challenge for them, and Implementation Mapping can be used as a valuable tool to guide them at each decision-making step.

CONFLICTS OF INTEREST

Park, Jiyoung has been the editorial board member of *JKAN* since 2022 but has no role in the review process. Except for that, no potential conflict of interest relevant to this article was reported.

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REFERENCES

- Fernandez ME, Ruiters RAC, Markham CM, Kok G. Intervention Mapping: Theory- and evidence-based health promotion program planning: Perspective and examples. *Frontiers in Public Health*. 2019;7:209. <https://doi.org/10.3389/fpubh.2019.00209>
- Boehm LM, Stollard DP, Jeffery AD. Implementation science training and resources for nurses and nurse scientists. *Journal of Nursing Scholarship*. 2020;52(1):47-54. <https://doi.org/10.1111/jnu.12510>
- Fernandez ME, Ten Hoor GA, van Lieshout S, Rodriguez SA, Beidas RS, Parcel G, et al. Implementation Mapping: Using intervention mapping to develop implementation strategies. *Frontiers in Public Health*. 2019;7:158. <https://doi.org/10.3389/fpubh.2019.00158>
- Presseau J, Byrne-Davis LMT, Hotham S, Lorencatto F, Potthoff S, Atkinson L, et al. Enhancing the translation of health behaviour change research into practice: A selective conceptual review of the synergy between implementation science and health psychology. *Health Psychology Review*. 2022;16(1):22-49. <https://doi.org/10.1080/17437199.2020.1866638>
- Nilsen P. Making sense of implementation theories, models and frameworks. *Implementation Science*. 2015;10:53. <https://doi.org/10.1186/s13012-015-0242-0>
- Hanney SR, Wooding S, Sussex J, Grant J. From COVID-19 research to vaccine application: Why might it take 17 months not 17 years and what are the wider lessons? *Health Research Policy and Systems*. 2020;18(1):61. <https://doi.org/10.1186/s12961-020-00571-3>
- Ten Hoor GA, Varol T, Mesters I, Schneider F, Kok G, Ruiters RAC. Just-in-time, but still planned: Lessons learned from speeding up the development and implementation of an intervention to promote COVID-19 vaccination in university students. *Health Promotion Practice*. 2023;24(5):921-931. <https://doi.org/10.1177/15248399221095077>
- Varol T, Crutzen R, Schneider F, Mesters I, Ruiters RAC, Kok G, et al. Selection of determinants of students' adherence to COVID-19 guidelines and translation into a brief intervention. *Acta Psychologica*. 2021;219:103400. <https://doi.org/10.1016/j.actpsy.2021.103400>
- Varol T, Schneider F, Mesters I, Ruiters RAC, Kok G, Ten Hoor GA. A safe return to campus in times of COVID-19: A survey study among university personnel to inform decision makers. *Vaccines*. 2022;10(3):371. <https://doi.org/10.3390/vaccines10030371>
- Varol T, Schneider F, Mesters I, Ruiters RAC, Kok G, Ten Hoor GA. Facilitating informed decision making: Determinants of university students' COVID-19 vaccine uptake. *Vaccines*. 2022;10(5):704. <https://doi.org/10.3390/vaccines10050704>
- Fernandez ME, Powell BJ, Ten Hoor GA. Editorial: Implementation Mapping for selecting, adapting and developing implementation strategies. *Frontiers in Public Health*. 2023;11:1288726. <https://doi.org/10.3389/fpubh.2023.1288726>