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Innovation and Integrity in Intervention Research: Conceptual Issues, Methodology, and Knowledge Translation

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Abstract

In this article, we introduce the special issue entitled *Innovation and Integrity in Intervention Science*. Its focus is on essential problems and prospects for intervention research examining two related topics, i.e., methodological issues and research integrity, and challenges in the transfer of research knowledge into practice and policy. The main aims are to identify how to advance methodology in order to improve research quality, examine scientific integrity in the field of intervention science, and discuss future steps to enhance the transfer of knowledge about evidence-based intervention principles into sustained practice, routine activities, and policy decisions. Themes of the special issue are twofold. The first includes questions about research methodology in intervention science, both in terms of research design and methods, as well as data analyses and the reporting of findings. Second, the issue tackles questions surrounding the types of knowledge translation frameworks that might be beneficial to mobilize the transfer of research-based knowledge into practice and public policies. The issue argues that innovations in methodology and thoughtful approaches to knowledge translation can enable transparency, quality, and sustainability of intervention research.

Keywords Research methodology · Research integrity · Knowledge translation · Evidence-based intervention · Child and adolescent mental health

What are current conceptual and methodological challenges and prospects in intervention research, including standards of evidence, bias, and statistical issues? What are essential approaches to knowledge translation and how can we make knowledge about children's and adolescents' development and health useful for interventions? This special issue examines central challenges and innovations in intervention research in the areas of conceptual issues and intervention theory, research methodology, and knowledge translation. It brings together scholars in the field of methodology and intervention science and highlights their work on integrity, research methodology, and knowledge translation. Why is this important? A thoughtful discussion of conceptual and methodological issues relevant in the field of intervention is timely now that prevention programs are being implemented and disseminated on a large scale, yet many methodological concerns remain, such as the problem of biases in data analyses and selective reporting of findings. In addition, the relevance and need for effective translation of research evidence into practice and policy decisions is widely acknowledged. However, there continues to be significant challenges in translating knowledge sustainably. To our knowledge, no existing publication has gathered together a group of international scholars from different disciplines to discuss conceptual and methodological challenges and prospects, as well as innovations in integrating research evidence into practice and policy.

The first theme of the special issue focuses on current methodological and conceptual challenges in intervention research. Author teams discuss these issues using examples of their work by offering solutions that can contribute to increased quality and rigor in intervention research. The first three articles address the issue of how to increase the

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quality of research designs, data analyses, and reporting of findings for the purposes of innovating intervention research and guiding practice and policy.

When it comes to research designs, Hallberg et al. (2016) address how pretest measures of a study outcome can reduce selection bias in observational studies in education. Overall, the authors show that pretests are useful in bias reduction. If bias elimination is to come under better research control, however, then pretests need to be complemented by other covariates measured prior to the intervention that are explicitly derived from analysis of what the true selection bias might be (Hallberg et al. 2016). Next, Lang and Little (2016) focus on current issues regarding missing data methodology and reporting in intervention research. Two modern principled missing data treatments are discussed, and recommendations for handling missing data in prevention research are provided (Lang and Little 2016).

In the next article, Gorman (2016) discusses recent developments pertaining to conflict of interest in intervention research (Ioannidis et al. 2014). It addresses the challenge that the majority of published studies report positive results and argue for a need to introduce measures to improve research quality in general, rather than focusing on problems specific to research in which there is an identifiable conflict of interest (Gorman 2016). This includes the introduction of transparency measures, such as making data and study methods open to other researchers, to avoid analytical flexibility and selective reporting of research findings, while increasing the quality of research (Gorman 2016).

Together, the first theme of this special issue focuses on ideas for methodological innovation in intervention research that can help increase transparency in research design, practice, and reporting. Ultimately, this will also require a change in the culture of research training by introducing more research transparency and educating future researchers on the relevant tools, resources, and strategies to produce and communicate unbiased results (Gorman 2016).

The second theme across the publications addresses one of the remaining challenges in current intervention research, i.e., the translation and integration of research knowledge into practice and policy. Despite the widely acknowledged need to integrate knowledge into "usual care" settings and policy decisions, mobilizing knowledge of evidence-based interventions remains a major challenge (Ghate 2016; McLennan et al. 2006; Grimshaw et al. 2012).

Specifically, Malti et al. (2017) discuss the need to systematically use screening and assessment tools to facilitate effective translation of knowledge on child development into preventive intervention practice as well as the proper selection of intervention strategies and approaches. As a case example, the authors illustrate the use of social-emotional assessment tools for use in the prevention of psychopathology and promotion of mental health in children and youth (Malti et al. 2017).

Wathen and MacMillan (2015) argue for the utility of an integrated knowledge translation (IKT) process to translate and mobilize research-based knowledge into health care practice and policy (Kothari and Wathen 2013). This approach focuses on researcher-knowledge user partnerships for evidence uptake and use, emphasizing the development of a relationship between researchers, practitioners, and policy makers. This may increase an understanding of both researchers' and knowledge users' everyday experiences and realities. By doing so, it can create more involvement and engagement in a partnership (Wathen and MacMillan 2015).

Biglan (2016) discusses the ultimate purpose of translational research. While it is widely recognized that translational research focuses on getting evidence-based programs implemented in real-world settings, the author argues for a broader perspective if knowledge about human development and adaptation is going to be translated into population-wide improvements in human adaptation. This includes whole-system improvements and related changes in policies and cultural practices that affect the quality of family, school, and community environments (Ghate 2016). The paper describes a broad cultural movement that puts the nurturance of communities and environments at the core of public policy to enhance human development, health, and adaptation (Biglan 2016).

Focusing on challenges in translating evidence-based intervention programs into community practice, Spiel et al. (2016) argue for a systematic integration of intervention and implementation research when transferring knowledge. This includes the creation of a partnership with policymakers and analysis of factors that support or hinder the establishment of policies that are based on evidence-based research (Spiel et al. 2016). Importantly, this approach argues for a participative approach, in which the design, implementation, and evaluation of an intervention systematically consider the needs of all stakeholders, including the target population, community, and policymakers.

Taking the perspective of stakeholders further, Bromme and Beelmann (2016) discuss challenges in implementing evidence-based prevention programs from a science communication perspective. Because implementation of knowledge is inherently embedded in a public understanding of knowledge gathered by science, the authors argue that transfer entails the need to consider the knowledge base, attitudes, and beliefs toward research, programs, and science in general, as they are related to processes of credibility, trust, and communication. Science communication entails not only communication of evidence-based knowledge but also requires the communication of knowledge about science, methodology,

and tools to generate knowledge. As such, this framework can help enhance the transfer of evidence-based programs to and for the target populations (Bromme and Beelmann 2016).

Lastly, Beelmann et al. (2018) discuss the main themes of this special issue and derive suggestions for future research in the areas of intervention theory, research methodology and integrity, and knowledge translation (Beelmann et al. 2018). The authors identify a need to move from programs to principles in intervention research and encourage the implementation of more research on potential mechanisms underlying intervention effectiveness. In addition, current methodological issues in intervention research are highlighted, including advancements in methodology and statistical procedures, extended outcome assessments, replication studies, and a thorough examination of potential biases. When it comes to knowledge translation, the authors argue for enhanced communication between practitioners, policy makers, and researchers when disseminating knowledge. Finally, the authors briefly touch on the need to discuss both the relations between single intervention programs and contextual conditions, and the efforts to change outcomes at the micro- and macro level. Collectively, the special issue offers a selection of articles that describe innovative approaches to conceptual questions, research methodology, data analyses, and knowledge translation to increase the uptake of evidence-based interventions into routine practice and policy. Taken together, the papers urge for a need to integrate theoretical approaches that are informed by knowledge about child development, mechanisms of change, and implementation concepts and principles (Beelmann 2011; Malti et al. 2016; Spiel et al. 2016). They also point to promising ideas of how to use innovative research designs and data analytic approaches to move the field forward. Future work will need to reduce biases in the reporting of research findings, improve research quality, and facilitate integrated knowledge transfer to increase sustainability of impact. Ultimately, implementing these directions of research can guide future practice and influence policy concerning children and families.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interest.

Ethical Approval   This article does not contain any studies with human participants or animals performed by any of the authors.

Informed Consent   Informed consent is not applicable.

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