

Behavior change in practice: Hand-on guides for research and intervention development

Gjalt-Jorn Y. Peters Many health psychologists
co-editor are involved with

Marta M. Marques behaviour change, be it
co-editor through developing
interventions, studying

ways to change behaviour or explaining why people engage in risk and health behaviors. Therefore, much of our communication is concerned with the primary research related to behaviour change. This issue of the *European Health Psychologist*, however, addresses a side of our work we rarely discuss in the literature: the practical side of developing or studying behaviour change interventions. Specifically, this issue will address the basic steps required in order to identify which beliefs and determinants to change, and which behaviour change methods can achieve these changes; how to utilize theory in the development of behaviour change methods/techniques; how to publish behaviour change interventions and how to assess and promote fidelity of intervention implementation; how to apply N-of-1 methodology and analyses to examine intervention effectiveness; and how one can go about working towards consensus regarding a specific behaviour change method. Each of these contributions offers practical guidelines that can be useful to students, Ph.D. candidates or other early-career researchers, and practitioners.

In addition, these contributions point out a number of avenues deserving of debate, such as the sometimes ambiguous terminology we use, the rigor of our research, and how to advance behaviour change science. For example, it becomes clear that while at first glance, different terminology may seem to refer to the same concepts, a closer look reveals useful differences in definition. Methods of Behaviour Change, a term original from Intervention Mapping

(IM; Bartholomew, Parcel, & Kok, 1998), may appear to be a synonym for Behavior Change Techniques (BCTs), a term coined by Abraham and Michie (2008) in their *Taxonomy of Behavior Change Methods*. Closer inspection, however, makes clear that while Methods of Behaviour Change are theory-based, and therefore in theory effective, Behavior Change Techniques are descriptions of potential ingredients of an intervention, explicitly detached from theory (Michie, Johnston, & Johnson, 2014). It is important to work towards an integration of these concepts, such that one coherent toolbox of behaviour change methods/techniques can be presented to intervention developers, along with guidelines as to when these methods/techniques are effective. This requires clear reporting of Behavior Change Interventions (BCIs), with a clear vocabulary that acknowledges the dynamics of behaviour change. We hope that the contributions in this issue can facilitate this process.

Content of the Special Issue

The first two contributions by Peters (2014, this issue) and Kok (2014, this issue) pave the way for developing effective theory and evidence based health behaviour change interventions, using the IM framework (Bartholomew, Parcel, Kok, Gottlieb, & Fernández, 2011). IM is a useful tool for planning health promotion interventions that considers a series of key steps. Peters (2014, this issue) presents the rationale to start planning an intervention by identifying target determinants/beliefs. Determinants/beliefs are essential for the development of effective behaviour change methods or techniques, as we need to know exactly what we

are aiming to change when we develop and apply these techniques. In this paper, the author provides a practical guide on how to identify which determinants/beliefs should be targeted, using both quantitative and qualitative methods, and concludes by drawing the reader's attention to the importance of setting clear behaviour change objectives for BCIs.

The article by Kok (2014, this issue) follows on this last point by describing how to link change objectives to theory-based behaviour change methods (or techniques). As illustrated by the author, this means choosing appropriate methods (e.g. modeling) to target selected determinants/beliefs (e.g. Self-efficacy), and correctly translate these to practical applications tailored to each identified situation (e.g. a role model story). In this paper, Kok emphasizes that to translate these methods to effective applications, planners need to respect a method's parameters for use, which are the theoretical constraints within which the method is effective (i.e. moderators of the effect size of a method).

Next, Silva, Marques, and Teixeira (2014, this issue), discuss how theory informs the development of behaviour change methods/techniques, illustrating with Self-Determination Theory (SDT; Deci & Ryan, 2000). The article describes the application of SDT in health behaviour change interventions, providing examples of behaviour change methods that target underlying key theoretical constructs (i.e. support for autonomy, competence, relatedness), which according to this theory lead to sustained behaviour change. The authors provide a summary of a systematic review testing the extent to which SDT-based interventions are theory-based, conducted using the Theory Coding Scheme tool (Michie & Prestwick, 2010). The authors also provide further insight into additional issues related to metatheoretical compatibility when using behavior change methods from different theoretical frameworks, and the need to consider the quality of participant-provider interactions (autonomy vs. controlled interpersonal climate) when delivering behaviour change techniques.

Marie Johnston (2014, this issue) compiles

valuable information on how to better report BCIs. Poor intervention reporting can lead to misinterpretations, which, in turn, will result in the development of BCIs that are not based on the best available research evidence. Based on the recently published Template for Intervention Description and Replication (TIDierR; Hoffman et al, 2014), the author provides a useful guide on what BCIs related procedures to follow and report, with an emphasis on the available tools for the identification, delivery and reporting of behaviour change techniques, such as the Behaviour Change Technique Taxonomy v1 (BCTTv1; Michie et al., 2013). Johnston also discusses the relevance of adequate training in delivering BCIs (i.e. what competence should providers have to be able to effectively deliver BCIs), illustrating this with the Health Behaviour Change Competency Framework (Dixon & Johnston, 2010).

Next, Knittle (2014, this issue) discusses the fidelity of delivery of planned BCIs, emphasizing that lack of fidelity assessment and reporting is an important flaw in behaviour change research. The author discusses the importance of assessing if, when and how behaviour change techniques are delivered in the context of BCIs, in order to increase rigour in behavior change research. Knittle also provides a useful guide on how to assess and promote fidelity, which starts by providing adequate training to intervention providers and by conducting rigorous fidelity assessments when delivering BCIs.

Felix Naughton and Derek Johnston (2014, this issue) present us with an introductory guide to N-of-1 methodology. N-of-1 trials, in which a single participant is the entire trial (within-subject experimental design), have clear advantages over other design methods in health behavior change research, but it is not yet widely used as many researchers (and students) do not know what it is and how to perform it. Naughton and Johnston (2014, this issue) use a case study (caffeine withdrawal for one individual) to illustrate how N-of-1 is applied. In this paper, the authors give an overview of the applications and benefits of using this methodology

in health psychology research, provide useful information on the available tools to conduct such studies, and share their dataset and analysis scripts to help readers to learn how to conduct N-of-1 analyses themselves.

This special issue ends with a contribution from Hagger and Luszczynska (2014, this issue) who report on this year EHPS Synergy Expert Meeting to illustrate how good practice in BCIs can be achieved through Consensus methodology. The purpose of this 2-day meeting was to develop a Consensus statement on Planning/Implementation Intentions interventions in health contexts, from an expert panel composed by researchers and practitioners with knowledge and experience in the field. Using as a starting point a recent review carried out by the facilitators of the meeting (Hagger & Luszczynska, 2014), the panel debated key issues in Planning in health care, such as identifying common features of interventions; salient gaps in the literature; priority topics for future research; and formulation of guidelines for best practice. In this paper, the authors provide an overview of the topic; the methodology used and planned activities; as well as a brief description of the outline of the Consensus statement that is currently under preparation.

In conclusion

This special issue combines a number of up-to-date practical guidelines for the development and research of behaviour change interventions. Because the European Health Psychologist is open access, these contributions can easily be integrated in teaching activities and trainings. This is further facilitated by the fact that many resources have been made publicly available by the authors. In addition to these practical uses, these pieces also offer opportunities for critical reflection on how our science progresses. For example, one question implicit in this issue is how we can deal with the different definitions (operationalisations) of determinants

between studies. And how can we merge the more extensive Intervention Mapping approach to methods of behaviour change with the reliably applicable BCT Taxonomy to work towards a vocabulary useful for both development and analysis of interventions? To what extent do we effectively develop theory- and evidence-based interventions? And how do we report these interventions and the decision process leading up to their development? How can we introduce fidelity registration and analysis in our projects? And should we still accept between-subject designs that examine associations that theory predicts exist within, but not necessarily between, participants? We hope the contributions in this issue can foster debate about the methodology of studying and applying behaviour change principles, and of course, the European Health Psychologist welcomes all responses!

References

- Abraham, C., & Michie, S. (2008). A taxonomy of behaviour change techniques used in interventions. *Health Psychology, 27*(3), 379-87. doi: 10.1037/0278-6133.27.3.379
- Bartholomew, L. K., Parcel, G. S., & Kok, G. (1998). Intervention Mapping: A process for developing theory- and evidence-based health education programs. *Health Education and Behavior, 25*(5), 545-563. doi:10.1177/109019819802500502
- Bartholomew, L.K., Parcel, G.S., Kok, G., Gottlieb, N.H., & Fernández, M.E. (2011). *Planning health promotion programs: An Intervention Mapping Approach* (3rd Ed). San Francisco, CA: Jossey-Bass.
- Deci, E., & Ryan, R. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(40), 227-268. doi:10.1207/S15327965PLI1104_01
- Dixon, D., & Johnston, M. (2010). *Health behavior change competency framework: Competences to deliver interventions to change lifestyle behaviours that affect health*. Scottish Government. Retrieved from

- http://www.phorcast.org.uk/document_store/1318587875_wBBR_health_behaviour_change_competency_framework.pdf and <http://www.healthscotland.com/documents/4877.aspx>
- Hagger, M., & Luszczynska A. (2014). Implementation intention and action planning interventions in health contexts: State of the research and proposal for the way forward. *Applied Psychology: Health and Well-being*, 6(1), 1-47. doi:10.1111/aphw.12017
- Hagger, M., & Luszczynska A. (2014). Planning interventions for behaviour change: A protocol for establishing best practice through Consensus. *The European Health Psychologist*, 16(5), 206-213.
- Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., ... Michie, S. (2014). Better reporting of interventions: Template for intervention description and replication (TIDieR) checklist and guide. *BMJ*, 348, g1687. doi:10.1136/bmj.g1687
- Johnston, M. (2014). Improving the reporting of behavior change interventions. *The European Health Psychologist*, 16(5), 181-189.
- Knittle, K. (2014). Fidelity in intervention delivery: A rough field guide. *The European Health Psychologist*, 16(5), 190-195.
- Kok, G. (2014). A practical guide to effective behaviour change: How to apply theory-and evidence-based behavior change methods in an intervention. *The European Health Psychologist*, 16(5), 156-170.
- Michie, S., Johnson, B. T., & Johnston, M. (2014). Advancing cumulative evidence on behaviour change techniques and interventions: a comment on Peters, de Bruin, and Crutzen. *Health Psychology Review*, 8. doi:10.1080/17437199.2014.912538
- Michie, S., & Prestwick, A. (2010). Are interventions theory-based? Development of a theory coding scheme. *Health Psychology*, 29(19), 1-8. doi: 10.1037/a0016939.
- Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., ...Wood, C. E. (2013). The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Annals of Behavioral Medicine*, 46(1), 81-95. doi:10.1007/s12160-013-9486-6
- Naughton, F., & Johnston, D. (2014). A starter kit for undertaking N-of-1 trials. *The European Health Psychologist*, 16(5), 196-205.
- Peters, G-J. Y. (2014). A practical guide to effective behavior change: how to identify what to change in the first place. *The European Health Psychologist*, 16(5), 142-155.
- Silva, M. N., Marques M. M., & Teixeira P. J. (2014). Testing theory in practice: The example of self-determination theory-based interventions. *The European Health Psychologist*, 16(5), 171-180.



Gjalte-Jorn Y. Peters
Open University of The Netherlands,
The Netherlands
gjalte-jorn@behaviorchange.eu



Marta M. Marques
Faculty of Human Kinetics, University
of Lisbon, Portugal
martamarques@fmh.ulisboa.pt