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Towards the effective introduction of physical activity interventions in primary health care

Huijg, J.M.

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Author: Huijg, Johanna Maria

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Chapter 1

General Introduction



The gap between science and practice

In the past decades, much research and funding have been invested into the development of effective prevention and health promotion interventions targeting behaviors such as smoking, healthy eating, alcohol use, and physical activity [1–3]. Health care is an important setting for the provision of population-level health behavior change interventions and health care professionals are an important means of delivering these interventions [2,3]. Unfortunately, often the transfer of such evidence-based interventions into routine health care practice does not happen as desired [1,4–8]. Specifically, interventions do not reach all of those who need them, and health care professionals do not deliver interventions as intended [4,9]. This gap between research and practice reduces the impact that effective interventions can ultimately have on public health [1,3,4,7,10–16]. That is, health behavior change interventions delivered by means of health care professionals can only improve population health outcomes when they are effectively introduced in health care practice.

The introduction process

The gap between our knowledge on health behavior change interventions and their delivery in routine health care may be explained by the complexity of the introduction of innovations in health care settings [5,15,17–22]. A multitude of theoretical frameworks describe the introduction of innovations in health care (for an overview of frameworks see Damschroder et al. [8], Tabak et al. [23], and Grol et al. [22]). Several of these frameworks indicate that the introduction process involves multiple stages and that the process is influenced by a variety of factors (e.g., [17,24–29]).

In an attempt to integrate a number of prominent theories and models regarding the introduction of innovations in health care, Fleuren et al. [17] developed a theoretical framework representing the main stages of the process and related categories of influencing factors. According to this framework, health care organizations and professionals move from being aware of the intervention (i.e., the dissemination stage), through the decision to start working with the intervention (i.e., the adoption stage), to delivery of the intervention as intended (i.e., the implementation stage), and finally, long term intervention delivery in which working with the intervention becomes routine practice (i.e., the continuation stage). Furthermore, the framework summarizes the main categories of factors that influence the process as factors related to characteristics of the innovation, socio-political context, organization, adopting person, and innovation strategy.

Health care professionals' behaviors

Health care professionals' behaviors and the factors that influence their behaviors play an important role in the effective introduction of innovations in health care. After all, health care professionals are the ones that need to adopt an intervention, deliver it as intended, and continue to use it over a longer period of time. Consequently, changing health care professionals' behaviors seems crucial for the improvement of the introduction process [6,30–32]. For this, it is important to understand the factors that influence health care professionals' behaviors, which can be guided by individual behavior change theories [6,30–32]. Based on a large number of behavior change theories, Michie et al. [31] developed a comprehensive set of theoretical construct domains covering the full range of current scientific explanations for human behavior. Following this so-called Theoretical Domains Framework (TDF) [31], factors potentially influencing health care professionals' behaviors include their knowledge, skills, social/professional role and identity, beliefs about capabilities, beliefs about

consequences, motivation and goals, memory, attention and decision processes, environmental context and resources, social influences, emotion, behavioral regulation, and the nature of the behaviors.

Improving the introduction process

Knowledge of the factors that determine the success of the introduction of innovations in health care is crucial for developing effective introduction strategies [1,6,7,17,22,33–39]. Taking into account the different stages of the process, various scholars suggest that different factors may be of critical importance within these stages [5,17,18,20] and, therefore, that specific strategies may be required for each stage [5,15,17,18,20,22]. In the first part of this thesis, Fleuren et al.'s [17] theoretical framework, representing both the different stages of the process and related categories of influencing factors, is used to identify factors influencing the introduction process. The framework has previously been proven successful for this purpose in studies using both qualitative and quantitative methods [40–42].

Using behavior change theory to investigate factors influencing health care professionals' behaviors can provide information on how to develop theory-based strategies to change their behaviors [30–32,35,37,43]. In the second part of this thesis, the TDF [30,31] is applied to identify factors associated with health care professionals' implementation behaviors. The TDF has been used in a number of studies in the past and was demonstrated to be useful for the development of qualitative [44,45] and quantitative [46–48] measurement tools to assess potential determinants of health care professionals' behaviors.

The introduction of physical activity interventions in primary health care

Different factors might play a role in different innovations, and they may vary across potential adopters, settings, and countries. Hence, it is important to identify the factors that influence the introduction of a specific innovation in a specific context in order to design an adequate introduction strategy [38,49]. The present thesis focuses on physical activity (PA) interventions and their introduction in primary health care (PHC) as a field of application. Similarly to the introduction of other evidence-based behavior change interventions in routine health care practice [1,4–8], the introduction of PA interventions in PHC does not always happen as desired. Specifically, rates of PA promotion by PHC professionals are far from optimal [50–52] and PA interventions are not delivered as intended by the intervention developers [1,9,53–57]. Based on a systematic literature review, VanWormer et al. [52] estimated that 30–50% of the US physicians regularly counsel their patients on PA. When delivering PA interventions, PHC professionals fail to accurately assess patients' motivation to change their PA behavior [53], set PA treatment goals [56], tailor PA advice to patients' goals and stage of behavior change, and provide follow up appointments [55]. Moreover, there is a lack of research on PA interventions' introduction in PHC and the factors that influence this process [12,58,59]. As a first step to bridge the gap between evidence-based PA interventions and their delivery in PHC practice, the main aim of this thesis is to investigate what factors influence the introduction of PA interventions in PHC.

Outline

The first part of the present thesis describes the factors that influence the introduction of PA interventions in PHC, including PHC organizations' and professionals' adoption, implementation, and

continuation of PA interventions. In *Chapter 2*, a systematic literature review on factors influencing PHC professionals' PA promotion practices is presented. The main aim is to identify factors described in the literature to be influencing PHC professionals' PA promotion practices (Figure 1). A secondary aim is to examine which methods are used to identify influencing factors and to take these methods into account when interpreting the results.



Figure 1. Factors previously described in the literature to influence PHC professionals' PA promotion practices

Following this literature review, a series of studies is conducted to further investigate factors influencing the introduction of PA interventions in PHC. *Chapter 3* presents a qualitative study to identify these factors. The main research questions in this study are: 1. which factors are perceived by stakeholders to be influencing the introduction of PA interventions in PHC, and 2. are factors perceived as specifically important to the distinct stages (i.e., adoption, implementation, and continuation) of the process (Figure 2)? Stakeholders' perceptions are investigated through 28 semi-structured interviews with intervention managers, PHC advisors, intervention providers, and referring general practitioners of five PA interventions delivered in PHC.

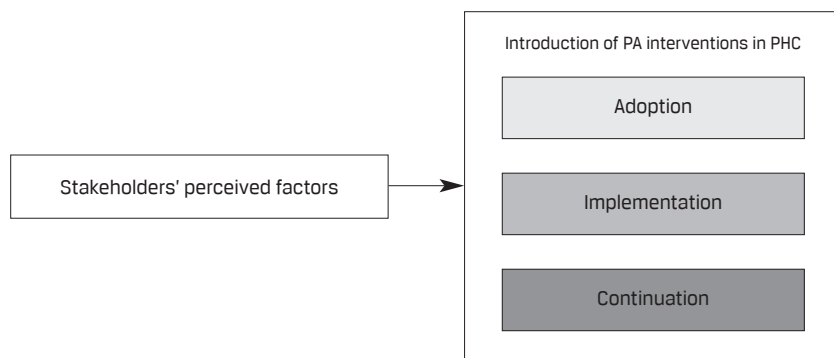


Figure 2. Factors perceived by stakeholders to influence the introduction of PA interventions in PHC

The systematic literature review and qualitative study resulted in an extensive list of factors potentially influencing the introduction of PA interventions in PHC. In *Chapter 4*, the relevance of these factors for each stage of the introduction process is investigated by a two-round Delphi study in which experts are asked to rate the importance and changeability of the factors. The research questions are: 1. which factors, as identified by the systematic literature review and qualitative study, are perceived by experts as most important for the adoption, implementation, and continuation of PA interventions in PHC, and 2. how changeable are these factors according to experts (Figure 3)?

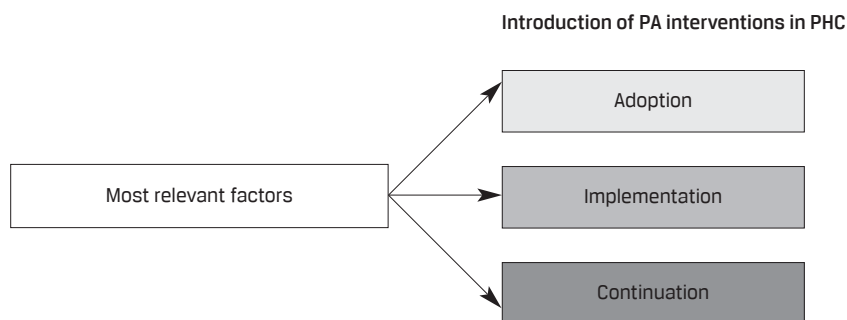


Figure 3. Factors most relevant (i.e., important and changeable) to the adoption, implementation, and continuation of PA interventions in PHC

The second part of the present thesis focuses on the implementation stage of the introduction process, as the extent to which interventions are implemented as intended is an important influence on intervention outcomes [21]. Specifically, the factors influencing PHC professionals' implementation of PA interventions (i.e., delivery as intended) are investigated. For this purpose, a questionnaire is developed to measure theory-based factors underlying health care professionals' implementation behaviors. The development of this questionnaire is based on the results of the previous studies (Chapter 3 and Chapter 4) and the TDF domains of potential behavioral determinants. *Chapter 5* describes the first step in the development of this questionnaire, including the investigation of questionnaire items' discriminant content validity based on judgments of a sample of experts on behavior change theory.

In *Chapter 6*, the development and initial validation of the Determinants of Implementation Behavior Questionnaire (DIBQ) are described. The psychometric properties of the DIBQ are tested in a health care professional sample. The aim is to answer the following research questions: 1. does confirmatory factor analysis support the pre-defined structure of the TDF-based questionnaire (i.e., construct validity), 2. is the questionnaire able to measure TDF domains in a reliable way (i.e., reliability), and 3. are the domains of the questionnaire discriminately measurable (i.e., discriminant validity)? Health care professionals' implementation of PA interventions is used as an example behavior to illustrate how such a questionnaire might be developed.

In *Chapter 7*, the DIBQ is used to examine which factors are associated with physical therapists' implementation of PA interventions. By means of a cross-sectional study, the following research questions are investigated: 1. to what extent do physical therapists deliver all PA intervention components to all of their patients (i.e., completeness), 2. how well do they deliver PA interventions (i.e., quality of delivery), and 3. which TDF domains are associated with physical therapists' completeness and quality of delivery of PA interventions (Figure 4)?

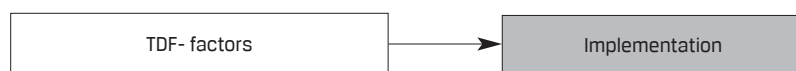


Figure 4. TDF-based factors associated with physical therapists' implementation of PA interventions

Finally, in *Chapter 8* the main findings of the thesis are summarized and discussed. Furthermore, the thesis' strengths and limitations are considered, in addition to its' main practical and scientific implications.