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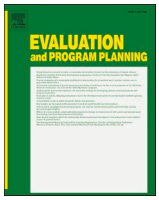

Experiences in the application of logic models in the context of workplace health promotion – A focus group discussion

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ABSTRACT

Gathering evidence on complex workplace health promotion interventions faces methodological challenges. Therefore, the application of logic models as a theory of change is recommended to support outcome and process evaluations. The present study explores challenges and opportunities of applying logic models in application-oriented intervention research on workplace health promotion. A focus group (n = 6), consisting of scientists and workplace health promotion practitioners, was conducted using a semi-structured interview guide. The recorded qualitative data were transcribed and analysed using the structuring content analysis method. According to the focus group, logic models provide several opportunities for planning and evaluating complex workplace health promotion interventions. Logic models support the communication between science and practice, and have benefits for the provider of workplace health promotion interventions. The main challenges in working with logic models were dealing with the complex and constantly developing intervention and with the derivation and implementation of reasonable evaluation methods. The focus group exposed repeated application and a shared understanding between stakeholders as facilitators for working with logic models. In conclusion, at the science-practice interface, logic models could enhance the integrative understanding and the further development of evidence-based workplace health promotion.

1. Introduction

The increased public expenditure in workplace health promotion (WHP) (Bauer et al., 2020) generates a rising demand for evidence-based interventions (De Bock & Rehfuess, 2021; GKV Spitzenverband, 2014; National Disease Prevention Conference, 2018). However, evidence development in the field of prevention and health promotion is still considered to be a great challenge (Barthelmes et al., 2019; Die Nationale Präventionskonferenz, 2019; Rudolf et al., 2019; Van den Broucke, 2012).

In the context of public health, the concept of evidence is understood as scientific evidence complemented by the knowledge and considered judgements of stakeholders, experts, and the target group (Europäisches Zentrum für die Prävention und die Kontrolle von Krankheiten, 2011; Rehfuess et al., 2021). This understanding was transferred from the tradition of evidence-based medicine (EBM), in which clinical expertise should be integrated with the best available external clinical evidence from systematic research when choosing an appropriate intervention (Sackett et al., 1996). For determining the best available external evidence, randomized controlled trials (RCTs) are considered the gold standard in EBM (Gordon et al., 1992; Sackett et al., 1996). However, due to their complexity, there are difficulties in conducting RCTs to determine external evidence of complex health-promoting interventions (Kemm, 2006). Complexity of health-promoting interventions arises from the following aspects: the number of interacting components; the number and difficulty of behaviours required of those delivering or participating in the intervention; the number of groups or organisational levels targeted by the intervention; the number and variability of outcomes; and the degree of flexibility or tailoring of the intervention that is permitted (Craig et al., 2008; Petticrew, 2011). In the case of WHP, not only the intervention but also the workplace as the setting in which WHP takes place, are termed complex (Patton, 2016). Since not all

Abbreviations: EBM, evidence-based medicine; COREQ, criteria for reporting qualitative research; MRC, Medical Research Council; PDCA, Plan, Do, Check, Act; RCTs, randomized controlled trials; WHP, workplace health promotion.

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intervention- and setting-related factors can be controlled as is desirable in RCTs, the complexity outlined causes various methodological challenges in the evaluation of WHP interventions on the individual and organisational level (Robert Koch-Institut, & Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit, 2012). Therefore, outcome and process evaluations are often characterised by methodological pluralism, including summative, formative, quantitative, and qualitative methods (Lobo et al., 2014). However, many literature reviews on WHP interventions report that the overall quality of WHP studies is not sufficient to provide any recommendations (Grimani et al., 2019; Maes et al., 2012; Pham et al., 2020; Pieper et al., 2019; Poscia et al., 2016; Proper & van Oostrom, 2019; Tam & Yeung, 2018). Subsequently, they advocate ensuring quality of interventions (Maes et al., 2012; Poscia et al., 2016) and conducting appropriate evaluations taking into account the complexity of WHP interventions (Pieper et al., 2019). For example, Crane et al. (2019) argue for a pragmatic evaluation approach encompassing theoretical flexibility, methodological comprehensiveness and operational practicality.

To manage the highlighted complexity and to identify and apply appropriate evaluation methods, working with a theory of change (Rogers, 2014), for example in the form of a logic model (Fig. 1), can be helpful. The intended benefit of a theory of change is to 'create a strong organising framework to improve programme design, implementation, evaluation and learning' (Vogel, 2012). According to a Logic Model Development Guide by the Kellogg Foundation, 'the program logic model links outcomes (both short- and long-term) with program activities/ processes and the theoretical assumptions/ principles of the program' (W.K. Kellogg Foundation, 2022). The use of (program) logic models (Fig. 1) supports the structured planning, implementation, and evaluation of complex interventions since they serve as a graphic representation of assumed causal linkages (chain of reasoning) (W.K. Kellogg Foundation, 2022). Starting from a relevant *Problem*, theoretical *Assumptions* are made about which *Inputs* and *Activities* could generate certain *Outputs* as direct products. Further on, desirable changes in target *Outcomes* are defined for short-term (1–3 years) and long-term (4–6 years) periods resulting in the *Impact* (7–10 years). At any stage, the *Context* also has to be considered. According to the chain of reasoning, the parts of a logic model are linked by 'if…then' statements which connect the program's parts. For example, if certain *Inputs* are provided, then the planned *Activities* can be accomplished. Therefore, logic models are suitable for supporting both outcome and process evaluation (Hawe, 2015; Rehfuess et al., 2018). During the development of logic models, as many key stakeholders as possible should collaborate to ensure that the intervention is appropriately represented (W.K. Kellogg Foundation, 2022). For the purpose of evaluation, the identified intended outcomes need to be operationalised appropriately on the basis of the model. Therefore, logic models are not directly related to specific evaluation methods. There is also the possibility of continuous program and evaluation adaptation, when the logic model is used iteratively (Fielden et al., 2007; Morell, 2018; Rehfuess et al., 2018). However, adapting logic models in the context of complex interventions has been described as challenging in healthcare research (Mills et al., 2019).

Some WHP interventions have already been developed using a logic model (Dale et al., 2016; Schaller & Hoffmann, 2021; Strickland et al., 2019). However, their systematic application does not seem to be widespread, at least not in research on WHP interventions. This might be due to practitioners perceiving the application of logic models as too complex and difficult (Renger & Hurley, 2006). Although logic models do not reduce the complexity of WHP interventions themselves, they may provide a useful basis for evaluating interventions and thereby increasing evidence. Based on the need for evidence development in WHP as described above, the question arises to what extent logic models can support application-oriented intervention research on WHP. This leads to the following research question for the present study: What are the challenges and opportunities in the application of logic models in the context of workplace health promotion?

2. Methods

2.1. Study design

The present qualitative study is reported based on the criteria for reporting qualitative research (COREQ; checklist in an additional file) (Tong et al., 2007). The study was conducted in the context of two WHP research projects in which WHP interventions ('KomRüBer' (Schaller & Hoffmann, 2021); 'BAGGer' (Bleier et al., 2021)) were planned, implemented, and evaluated on the basis of a project-specific logic model developed collaboratively by scientists and external WHP consultants. External WHP consultants support various companies in their health promotion process and are not employed by the company they are consulting. In order to better understand how the project staff perceived the application of a logic model during their project, a focus group discussion was conducted (Krueger & Casey, 2015). The study design was approved by the ethics committee of the German Sport University Cologne (reference number 074/22; 08.06.2022) and the participants provided written consent to confirm their voluntary participation.

2.2. Participants

Apart from the project leader, all scientists and external WHP consultants of the projects 'KomRüBer' (n = 2; Schaller & Hoffmann, 2021) and 'BAGGer' (n = 5; Bleier et al., 2021) who worked with a logic model were invited by e-mail to take part in the guide-based focus group discussion. Since one person worked in both WHP projects, six persons (5 females, and 1 male) were invited in total. All invitees had a collegial relationship (natural group), although working on different projects.

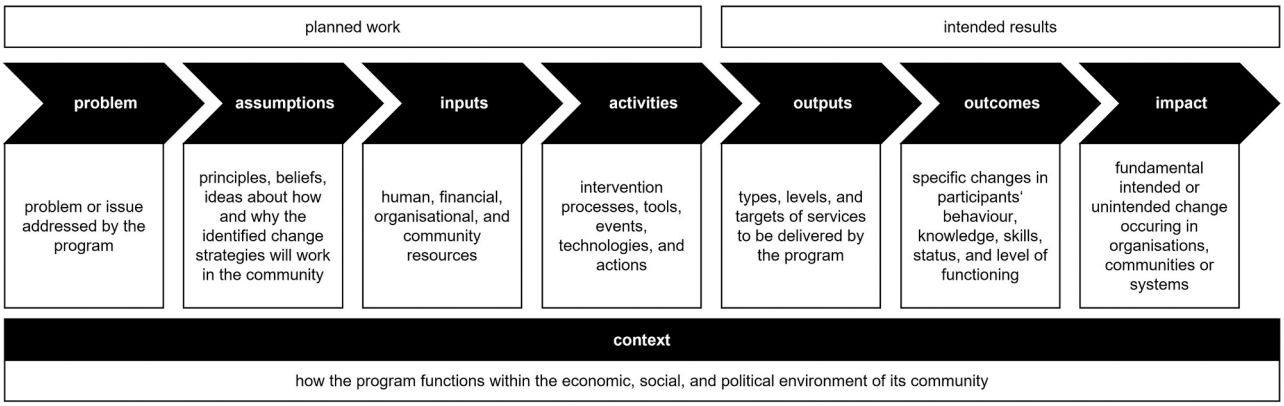

Fig. 1. Scheme of a logic model.

They were informed about the aim of the discussion and had the opportunity to pose questions. All those invited agreed to participate on the proposed appointment date and provided written informed consent.

Two participants were exclusively working as WHP consultants, one participant worked exclusively in science, and the other three participants worked in both fields. However, all participants already had professional experience in WHP practice (1–22 years) and 5 participants had scientific experience (1.5–10 years). The participants had worked with a logic model in the context of WHP for between 1 and 2.5 years.

2.3. Setting and data collection

Prior to the scheduled appointment (mid 2022), the participants received an information letter, a consent form to sign, and a brief questionnaire (to capture their gender, professional activity, and experience in science and WHP practice and the duration of their work with the logic model) via e-mail. The group discussion took place in a meeting room that was equipped with a round table and a large computer screen that could be used for the presentation of graphics.

The focus group discussion was conducted in German and followed a semi-structured interview guide. The development of the guide followed seven steps (brainstorm, sequence the question, phrase the question, estimate the time for each question, get feedback from others, revise the question, and test the question) proposed by Krueger and Casey (Krueger & Casey, 2015). Master's students at the German Sport University Cologne who were familiar with and used a logic model during their studies voluntarily evaluated the questions to pilot-test the interview guide, which was developed for a total meeting duration of 120 min. As recommended in the literature (Krueger & Casey, 2015), open-ended opening, introductory, transition, key, and ending questions were posed (see Table 1).

The discussion was moderated by a female Ph.D. candidate and scientist (MG). She had a minor collegial relationship with the focus group participants, who were informed of the objective of her doctoral research. The discussion was audio-recorded. In order to pseudonymise the statements, each person was given a code to say before they shared their contribution.

2.4. Data analysis

The 90-minute recording of the discussion was anonymised and subsequently transcribed by a professional typist according to Dresing and Pehl (Dresing & Pehl, 2018). The transcripts were then analysed using the structuring content analysis method (Kuckartz, 2018, 2019). The structuring content analysis method is comparable to the framework method for the analysis of qualitative data (Gale et al., 2013), but includes a more detailed coding process. Accordingly, thematic main categories were first developed deductively from the interview guide (Table 1) and inductively from the transcript. After the material was coded according to the main categories, subcategories were inductively identified in each main category. The definitions of main and subcategories were discussed and adjusted by the research team (MG, AAS) after which the dataset was analysed and coded according to the subcategories using MAXQDA Standard 2020 software (VERBI GmbH Berlin). Finally, the quotes from each category were summarised. Particularly meaningful quotes were selected and translated into English by a professional translator for the presentation of results. The authors checked the precision of the translation to ensure accuracy of the discussion.

3. Results

Overall, three main categories related to challenges and opportunities of logic models in the context of WHP were identified*: aim and opportunities, challenges,* and *prerequisites for application*. Table 2 shows an overview of the main categories and the related subcategories and subordinate characteristics.

Table 1
Interview guide (translated from German to English by a professional translator).

Phase	Time	Questions
arrival and welcome	10 min	• What is your name and how long have you been working with a logic model?
opening	10 min	• Brief presentation of the aim of the study and the logic model (seeFig. 1). • Is this comprehensible for everyone? • Please take a post-it and write three keywords that come to your mind about logic models.
introductory	5 min	• In which project or context did you work with a logic model?
transition	10 min	• Why was a logic model used in this project?
key	60 min	Based on your experience… • To what extent is a logic model suitable for the **planning** of WHP interventions? • To what extent is a logic model suitable for the **implementation** of WHP interventions? • To what extent is a logic model suitable for the **evaluation** of WHP interventions? • What are the benefits of using a logic model? • What are the challenges in applying a logic model? • How do you rate the applicability of logic models in the practice of WHP?
ending	20 min	• Are there any aspects that have not been considered so far and that you would like to add? Please look at your post-it again.
farewell, formalities, informal evaluation	5 min	• How do you feel about the discussion we just had? • Is there anything that would be helpful for the next time?

Table 2
Overview of the main categories and subcategories.

Main categories	Subcategories	Characteristics
Aim and opportunities	planning and evaluating complex interventions	• different building strategies • goal orientation • reflection • showing effects
	communication tool	• illustration of the project • science-practice-interface • WHP consulting
	benefits from the perspective of a WHP provider	• quality assurance • unique selling point • internal cost-benefit analysis
Challenges	working with the logic model	• complexity • evaluation • continuing development • different understandings • effort
	applicability in WHP practice	• finding balance • lack of practical relevance • contextual factors • data management • no explicit implementation phase
Prerequisites for application	learning effect	
	basic conditions	• temporal and personnel resources • commitment and shared understandings • technical requirements

3.1. Aim and opportunities

The main category *aim and opportunities* comprised the benefits and potentials of logic models in the context of WHP, not only in terms of what the respondents had experienced but also what they expect for future work. Three subcategories were identified.

The first subcategory referred to logic models as a systematic framework for *planning and evaluating complex interventions*. Thereby, different strategies of building logic models were reported, either starting from an identified 'problem' or from the 'impact', referring to long-term goals addressed by the intervention. However, an elaborated 'problem' as a starting point for developing an intervention was reported to not be trivial in the context of WHP.

'If you are explicitly asking about the planning process, in my opinion in order to go into planning successfully, it is chiefly due to the sharpening of the problem. And how do we achieve a beneficial sharpening of the problem for a successful planning in WHP?' (B2).

By mapping the process from an elaborated problem situation to the defined goal, the participants reported that the logic model provided orientation during the project as it reminded them of the necessary inputs and framework conditions for the success of the WHP intervention by creating the best possible preconditions, which was described as helpful.

'And that is why I think, with this step by step process, that this logic model really does make a contribution to raising my awareness of the target I want to achieve with this intervention. How do I get there? What issues do I want to actually address? And then to start this development planning process systematically.' (B4).

In order to include evaluation into the systematic development of a WHP intervention, the focus group participants reported that they had considered relevant outputs and outcomes and how they could be measured, even during the planning phase.

'To make me really aware of what I want to evaluate there? What is the whole process leading to? And then to look, okay, what are the factors and how can they be measured?' (B4).

According to the focus group, the chain of reasoning of a logic model offers an approach to show the effects of an intervention and thus to meet the demand for the evaluation of health-promoting interventions on the formative (outputs) and summative (outcomes) levels. From the perspective of WHP practitioners, evaluation results were used in the ongoing process to plan subsequent interventions or to improve the activities that have been implemented.

Statements about logic models as a basis to enable transparency and equal exchanges between different stakeholders were assigned to the subcategory of *communication tool*. On the one hand, the participants reported that a logic model is well suited to illustrate WHP projects, since the complexity and multifactorial effects of WHP interventions could be visualized. This was considered useful at the science-practice interface. On the other hand, the focus group reported that researchers and practitioners should collaborate intensively to decide about the inclusion of relevant parameters and aspects when scientists use the model for project documentation. In this process, practitioners have to ensure that the model is applicable in practice and aligns with the current circumstances. Furthermore, the participants suggested that the model could be applied in the context of consulting clients, which emerged as a central theme in the group discussion. The respondents proposed to use a logic model for transparency and illustration of the WHP processes taking place.

'We don't want to present the consultants with any old task and say „Here, do this", but rather it should be a common process, and we can meet (….) on equal footing when we say: „There were only three participants present. What could be the cause? What were the possible influencing factors?" And then to reflect once more on this process together.' (B4).

Logic models were also regarded as a basis for the rationale concerning the choice of interventions in consulted companies by highlighting systematic interrelationships. Instead of arbitrary intervention selection by company stakeholders, participants considered WHP consultants to be able to argue for or against certain interventions with the help of a logic model. Even once WHP interventions are completed, logic models could serve as a basis for discussion to specifically reflect on the success of the intervention with regard to the given framework conditions (context factors). However, the participants also questioned whether the model should be shown to the company representatives at all because the complexity increases rapidly in a model addressing multiple goals and the comprehensibility for this target group is still unclear. Therefore, the focus group assumed that it would be more appropriate for WHP consultants to use logic models as a background guide for consultancy.

Another subcategory that emerged concerned the *benefits from the perspective of a WHP provider*, i.e. at the organisational level instead of the individual WHP consultant's view. The application of a logic model as systematic tool in the mapping of cause-effect chains was perceived as an effective method in company-oriented WHP that contributes to quality assurance and distinction from competitors. Additionally, one participant proposed to consider the evaluation results in internal cost-benefit analysis by weighing up how many resources to invest in consulting a particular company, depending on the perspective of goal achievement.

3.2. Challenges

Besides *aim and opportunities*, the focus group also reported problems in the application of logic models. Statements relating to these problems were summarized in the main category *challenges* and two subcategories were identified.

The first subcategory of *working with a logic model* referred to problems that arise during the practical work with the model. The main issue that was addressed involved situations in which the logic model was too complex, fragmented, and confusing, even though the aim of application is actually a reduction of complexity.

'That is not what happened. So, from everything that I have experienced or FELT this has not occurred, instead it was enormously complex and became more complex the further you, so to speak, had to follow it through in more detail at every work stage, and put it into practice.' (B5).

Especially the parameters of outputs and outcomes were indicated as complex when the model included several goals and addressed the individual and environmental levels. When the participants wanted to derive an appropriate evaluation based on the logic model, they described difficulties in operationalising, documenting, and analysing the multifactorial influences and interdependencies within an intervention. Some respondents expressed a feeling of uncertainty about which parameters were needed for evaluation and about how to draw a conclusion from the collected data, especially in terms of the formative evaluation (outputs).

'It is merely a little bit, so to speak, open-ended – how does this picture we have ultimately painted look? What do we take away from it? How do we integrate it somehow? Indeed, what conclusion do we draw from it?' (B5).

The participants also expressed uncertainties concerning the continuing development of logic models. When new insights are gained in the course of the project, an adaptation of the model is frequently opposed in an attempt to maintain the initial model. As the project teams discussed their logic models, they experienced a tension between model adaptation and adherence and were struggling to find a balance.

'We have noticed that (…) we must be careful not to move too far away from our initial concept. However, not to hang on to our initial concept either, when we might have better, newer, OTHER insights.' (B6).

Additionally, the participants sometimes had different understandings of the components or the application of the logic model. Thus, on the one hand, the components were not sufficiently defined, and thus there was confusion concerning their meaning and allocation. On the other hand, the participants referred to different perspectives of WHP, whereby single WHP measures contrasted with a broader health

promotion process, incorporating several interventions. Overall, the participants considered the workload with a logic model to be high as both the development process and the implementation of derived evaluation measures into practice require a lot of time and effort, with the component of outputs being described as the most challenging aspect.

'We have invested a huge amount of time in these output tables.' (B5).

The subcategory *applicability in WHP practice* referred to challenges in matching a logic model with the practical work of WHP consultancy. The participants reported that they were constantly balancing accuracy and reduction of complexity when building the model for WHP practice. However, this was not always successful, as the level of complexity was described as being (too) high and the deduced evaluation contained a lot of detailed information that was not perceived as relevant and realistic by practitioners. WHP consultants explained that for them, instead of outputs, outcomes, or impacts, the contextual factors (organisational and interpersonal factors) were more important for the success of an intervention.

'I am coming back to the contextual factors, if I understand rightly, that it is really about the culture and local experiences and not about what was the content of this half hour training or that workshop. It is rather how this entire workshop is embedded within the whole context of the company and the WHP.' (B3).

It was emphasised that logic models are suitable to provide a basis for evaluation, but do not recommend any methodological approach. Both, the identification and subsequent documentation of relevant intervention parameters were described as a challenge. Because many different stakeholders were involved in data collection, a great deal of communication was needed, even to explain why the data was being collected at all. Additionally, one practitioner remarked that the logic model as presented in Fig. 1 includes a phase for planning and intended results, whereas the implementation phase is not made explicit.

3.3. Prerequisites for application

Despite the identified challenges and opportunities in the application of logic models, a third main category emerged. The main category of *prerequisites for application* included conditions that would enable or facilitate working with a logic model and was divided into two subcategories.

Statements in the first subcategory, *learning effect*, assumed that increased experience with logic models would make it easier to apply the model again.

The second subcategory contained *basic conditions* in the working environment that were considered to enhance the application of logic models in the context of WHP. The participants mentioned that all employees of the WHP provider must clearly commit to this kind of guideline-oriented evaluation of WHP interventions and the related work steps would have to be implemented in the daily processes. As a basic precondition for this, a shared understanding about the development and use of logic models including clearly defined components was mentioned.

'Everyone must have a unified comprehension of the model in order to integrate it in some way in the practice.' (B3).

Due to the emerging level of effort involved, temporal and personnel resources are needed within the extensive development process. In addition, the participants indicated that a standardised, user-friendly, and manageable technical medium should be developed by professional programmers and implemented in the company to support data management.

4. Discussion

In the present focus group study, the multifaceted role of logic models in the planning and evaluation of WHP interventions as well as their transfer into practice was examined. According to the focus group, logic models provide a useful orientation for practical planning as well as for the formative and summative evaluation of complex WHP interventions. The visual format also facilitates collaboration at the science-practice interface. However, the study participants were confronted with challenges in dealing with the complexity of the model and applying it in practice. In terms of evaluation, it was considered challenging to identify and operationalize relevant parameters that can be measured during the routine of everyday WHP practice. The focus group assumed that the use of logic models will be facilitated by increasing experience, the coordination of a shared understanding of the application, and the availability of temporal and personnel resources.

From a practical perspective, using a logic model can contribute to increasing the quality of WHP interventions. In this sense, working with logic models is strongly related to the PDCA (Plan, Do, Check, Act) cycle which is a common quality improvement method (Deming, 1982; Sokovic et al., 2010). Thereby, our results indicate that logic models mainly support practitioners during the planning phase (P) by structuring the process and providing an overall goal orientation. Gervais et al. (Gervais et al., 2015) also emphasised the reflective conceptualization work as a strength of the logic model approach when they applied it in the context of a father support program. Regarding the evaluation in the context of quality improvement, our results are in line with (Gervais et al., 2015) who reported that even though evaluation according to a program theory is appreciated among practitioners, the complexity of an intervention and the application of the resulting logic model were regarded as challenging to conceptualize the evaluation. In the context of quality development, evaluation is no longer only meant to prove the value of an intervention, but also to improve it (Stufflebeam, 2003), thereby emphasising the relevance of process evaluation, which is also referred to as formative evaluation (Craig et al., 2008; Moore et al., 2015). Interestingly, the focus group mentioned the possibility of developing the intervention (A) on the basis of evaluation, but had difficulties in continuously developing the logic model which could also indicate the need of evaluation competencies on the part of WHP practitioners (Baumann et al., 2021; Deutsche Gesetzliche Unfallversicherung e.V., 2016). As a result, evaluation approaches should be part of each of the various WHP consultant training pathways (Wedel et al., 2022).

From a scientific perspective, the evidence base for WHP interventions is still insufficient. In this context, it is important to take the multi-perspectival understanding of evidence-based public health into account. Even though the workplace is considered a promising setting for health promotion (Luxembourg Declaration on Workplace Health Promotion in the European Union; World Health Organization, 1986), there is insufficient evidence concerning the outcomes of WHP (Oakman et al., 2018; Pieper et al., 2019). As a result, specific WHP interventions which are particularly promising and therefore worthy of financial support, cannot be identified (Barthelmes et al., 2019; Rudolf et al., 2019; Schröer et al., 2014). For evidence development in WHP, the complexity of interventions, systems, and related factors in causal chains is considered a major challenge (Rickles, 2009). In general, the use of theories is recommended to estimate the impact of interventions (Van den Broucke, 2012) and considered necessary for the interpretation of the feasibility and impact of WHP interventions (Hutchinson & Wilson, 2012). This aligns with our results as, on the one hand, the focus group reported on the high level of complexity of evaluations in WHP, while on the other hand, the group members indicated that logic models might be a theoretical framework for the systematic development and selection of evidence-based WHP interventions. Moreover, the use of theories could increase the methodological quality of studies, which in turn is known to have an influence on the WHP participants' outcomes (Hutchinson & Wilson, 2012) and the WHP effect size (Rongen et al., 2013). However, the quality of health promotion studies is often rated low to moderate and information on methods and results are often lacking, which subsequently limits the conclusions for practice (Rudolf et al., 2019).

The results of our study also showed that WHP studies often address goals or indicators that are not relevant to practitioners. Given the

structure of logic models, researchers might be more interested in the *Outcomes* and *Impacts*, while WHP practitioners are more interested in the organisational and interpersonal *Context* of an intervention. From the perspective of WHP practice, the effectiveness of an intervention is often less interesting than the implementation and dissemination in the field (De Bock & Rehfuess, 2021; Jansen et al., 2010). Nevertheless, despite the high level of interest shown by practitioners in process evaluations, they are conducted less frequently than outcome evaluations, the quality of the studies is poor to average, and systematic approaches are lacking (Murta et al., 2007; Wierenga et al., 2013). Therefore, the demands and expectations of the practitioners and the target group in terms of profitability, applicability, and feasibility (Jansen et al., 2010) are not sufficiently taken into account in the sense of evidence-based public health (Europäisches Zentrum für die Prävention und die Kontrolle von Krankheiten, 2011; Rehfuess et al., 2021). It also contradicts the Medical Research Council (MRC) framework for developing and evaluating complex interventions, which states that "researchers should answer the questions that are most useful to decision makers rather than those that can be answered with greater certainty" (Skivington et al., 2021). According to our results, logic models could support the collaborative process of planning a structured and high-quality evaluation of WHP interventions that is meaningful for practitioners. Thereby, the logic model serves as a communication tool at the science-practice interface.

The use of a logic model was experienced as helpful for the communication between stakeholders. This is especially relevant as the different working cultures of those in science and practice can lead to conflicts. For example, an urgent practical problem, in combination with time and resource constraints, opposes a time-consuming and thorough scientific approach (Jansen et al., 2010) and the resource-intensive process of implementing theory into practice is frequently underestimated (Jansen et al., 2010). There are also concerns that the approach of the logic model might be misunderstood and taken lightly by practitioners (Renger & Hurley, 2006) whereby this was not the case in the present focus group, since a great effort was put into understanding and applying the logic model in question. The concerns that were addressed in this context are in line with Gervais et al., who reported a costly process and a significant amount of work resulting from the application of a logic model (Gervais et al., 2015). However, other theoretical approaches like the intervention mapping approach (Bartholomew et al., 1998), seem to face similar challenges and opportunities in the context of WHP (Bakhuys Roozeboom et al., 2021). The focus group assumed that repeated application of logic models will lead to a learning process that facilitates their application.

4.1. Limitations

The present study took advantage of the focus group method by gathering collective knowledge and using group dynamics to provoke more ideas and thoughts compared to individual interviews. However, the main limitation of this work is that only one focus group was included wherefore data saturation cannot be assumed and the present study is very exploratory. Considering the rare dissemination of working with logic models in the practice of WHP, however, it was not possible to sample further participants in Germany. The restriction to German participants was considered important because of the legal conditions of WHP (e. g. funding by social health insurances, quality criteria of the Guideline Prevention (GKV Spitzenverband, 2014)) and the practicability of meeting in person. Since the focus group participants had been working with a logic model in different WHP projects and had varying levels of experience in the application of logic models, a certain degree of heterogeneity was achieved. However, according to a classification of logic models, the participants mainly referred to so-called 'theory approach models' that are emphasizing the theory of change of an intervention in the planning phase, or so-called 'outcome approach models' that are connecting the resources and activities with the desired results of an intervention through evaluation (W.K. Kellogg Foundation, 2022). Since the participants' experience was limited, the so-called 'activities approach models' that focus the implementation process of an intervention by monitoring and management, were not discussed. At least, the participants could not compare the application of logic models in WHP to other health promotion settings. However, our study was not designed to identify such differences. Instead, we consider it a strength that experiences with logic models were systematically analysed explicitly for the context of WHP.

5. Conclusion

Since the active involvement of all participating stakeholders is needed to enhance evidence development (Learmonth, 2000), the use of logic models has great potential to support application-oriented research projects at the science-practice interface. Our study indicated that logic models provide a useful structure for planning WHP interventions. Thereby, they start with the identification of a relevant problem, which is the target of the intervention and the basis for systematic WHP consultancy. However, during the implementation of WHP interventions, stakeholders often have to balance program adaptation and fidelity, and deal with complexity. While logic models could also serve as a basis for the process and outcome evaluation of WHP interventions, they do not recommend specific evaluation methods. Therefore, participating stakeholders need to collaborate and WHP practitioners should be aware of the relevance of evaluation in WHP and have a basic understanding of evaluation approaches. The principles of evaluation should already be included in the training curriculum for WHP practitioners. Additionally, WHP providers should facilitate and establish the approach of applying logic models, as the application might improve WHP quality. In conclusion, we suggest to see our results on logic models in WHP as an example of applying logic models in the context of complex interventions. Thus, many results might also be transferred to other health promoting settings.

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CRediT authorship contribution statement

Conceptualization: AS, MG, Data curation: MG, Formal analysis: MG, AAS, PL, Funding acquisition: AS, Methodology: MG, Supervision: AS, Visualization: MG, Writing – original draft: MG, Writing – review & editing: AAS, AS, All authors agree with the publication of this manuscript.

Declaration of Competing Interest

The authors declare that they have no competing interests.

Availability of data and materials

The data presented in this study are available from the corresponding author upon reasonable request.

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Lessons learned

There is a great need to facilitate the cooperation between science and practice in the field of WHP. Logic models could be used as a framework in application-oriented WHP research, involving all stakeholders. Since the application of logic models might be challenging at a first glance, practitioners should be taught the basics of logic models and theory-based intervention development before the project starts. As a result, a shared understanding could be developed which emerged as an important prerequisite for working with logic models.

Consent for publication

Not applicable.

Ethics approval and consent to participate

The study was conducted according to the guidelines of the Declaration of Helsinki, and was approved by the Ethics Committee of the German Sport University Cologne (No. 074/2022; 08.06.2022). Informed consent was obtained from all participants.

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