



Implementing the capability approach in health promotion projects: Recommendations for implementation based on empirical evidence

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ABSTRACT

Objective: The aim of this paper was to develop a framework for the use of the capability approach in health promotion projects, which could guide future projects as well as improve the comparability of the projects' effectiveness.

Method: The study involved a three-stage process comprising a total of six steps. We first developed a theoretical model and then analyzed data from four empirical studies that had implemented projects using the capability approach between 2015 and 2018 in the settings of kindergartens, schools, vocational training, and communities to promote an active lifestyle. Finally, we developed a framework for the use of the capability approach in health promotion projects based on the analysis of the data.

Results: We developed a theoretical model of the "capability cycle," which was used for further analysis. There were divergent understandings of the capability approach due to existing theoretical constructs that are commonly used by the scientific teams of the projects. Further, the conceptualization, implementation, and evaluation of the capability approach within the four settings showed discrepancies, which inhibited a comparison of their effectiveness. The developed framework comprises recommendations regarding the planning of a project, its implementation, and especially its evaluation in future comparisons of project effectiveness.

Conclusion: This paper provides a comprehensive analysis of four projects for which we developed a framework using a participatory approach. The findings can help research teams in the conceptualization, implementation, and evaluation of future projects that focus on improving capabilities in the field of health promotion. Further, the established framework will help facilitate comparisons of capability-oriented health promotion projects in terms of their effectiveness.

1. Introduction

Ever since the adoption of the World Health Organization's (WHO) Ottawa Charter in 1986, a key focus of public health has been on health promotion. The Charter defines health promotion as "the process of enabling people to increase control over, and to improve their health" (World Health Organization, 1986). It also outlines some prerequisites considered essential for health, which include "peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice and equity" (World Health Organization, 1986). A rather new perspective in health promotion is the capability approach (CA), which

acknowledges these prerequisites but breaks new ground in conceptualizing efforts that enable people to increase control over their own lives and health (Abel & Schori, 2009; Ruger, 2010; Sen, 1980, 1993).

Nobel Prize winning economist and philosopher Amartya Sen first introduced the CA in the context of economic equality in the 1980s (Sen, 1980) and subsequently adapted his approach to conceptualize populations' well-being in welfare economics, claiming that the CA "is concerned with evaluating [well-being] in terms of [a person's] actual ability to achieve various valuable functionings as part of living" (Sen, 1993). The CA rests on the idea that available commodities (e.g. resources, goods, or services) are converted by different types of mediating

Abbreviations: CA, Capability Approach; WHO, World Health Organization; PA, Physical Activity; C4H, Capital4Health.

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factors into a set of personal opportunities that are referred to as *capabilities*. Every individual is equipped with his or her own set of capabilities and is free to choose which of the available opportunities to realize in the form of behaviors or states of being (or *achieved functionalities* in the terminology of the CA). Ruger (2010) conceptualized and operationalized the CA for health, suggesting that health capabilities consist of an individual's actual health status as well as the ability to make healthy choices. The CA was specifically introduced to the field of health promotion by Abel and colleagues (Abel & Frohlich, 2012; Abel & Schori, 2009; Frahsa et al., 2020).

The CA constitutes a suitable and comprehensive approach for use in health promotion projects for several reasons. First, it respects the health prerequisites mentioned above that appear in the Ottawa Charter. Second, it does not solely focus on directly impacting individuals' health behavior or status. Instead, it concentrates on the actual opportunities that are available to people in different contexts to actively choose from to achieve a healthy lifestyle. Third, the CA is a multidimensional approach that addresses the interplay of structure and agency (Abel & Frohlich, 2012; Giddens, 1984; Rütten & Gelius, 2011) by considering both personal factors (such as current health status or health literacy) as well as contextual aspects (e.g. society and the environment), which can be used for designing and evaluating health promotion projects.

Recent findings suggest a shift of research focus from health status to a rather broader perspective of capabilities for well-being (Mitchell et al., 2015). Mitchell et al. (2015) have demonstrated in their study that there is a link between achieved functioning (i.e. health status) and capabilities. The effects of different major diseases (such as depression, arthritis, asthma, cancer, and diabetes) on scores for health-related capabilities indicate that these diseases "are associated with relatively different impacts" (Mitchell et al., 2015). For example, depression, compared to other diseases, has the greatest negative effect on perceived capabilities for well-being. This direct connection indicates that a shift of focus is needed in the rehabilitation of diseases as well as in prevention, and therefore in future health promotion programs, and their evaluation. A recent literature review (Mitchell et al., 2017) provides additional evidence on the growing utilization of the CA approach in health-oriented fields, such as physical activity (PA), diet, patient empowerment, multidimensional poverty, and the assessments of health and social care interventions.

However, using the CA in health promotion practice comes with certain challenges, which are partially due to its unspecified nature and a lack of studies reporting on how it can be successfully applied (Chiappero-Martinetti et al., 2012; Hollywood et al., 2012; Mitchell et al., 2017). For instance, Mitchell et al. (2017) report that the CA is "being applied in different ways, [and] researchers have different interpretations of what it means to employ a capability perspective". Further, all available studies measure capabilities differently, using various questionnaires such as the ASCOT, ICECAP-A, or OxCAP-MH. Therefore, a comparison of outcomes is hardly feasible, as there is no overarching approach or measurement tool available for the design and evaluation of capability-oriented health promotion projects (Helter, Coast, Laszewska, Stamm, & Simon, 2020; Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2020).

This article uses data from a German research consortium that employed the CA to promote PA throughout the life course to fill some of these gaps. Specifically, this article will address (1) the refinement of Frahsa et al.'s (2011) capability model for specific use in health promotion, (2) empirical results on the differences in implementation and evaluation of the CA by the four consortium projects deployed in different settings, and (3) a set of recommendations for future projects using the CA, developed jointly by a consortium of projects focused on capability and PA using a participatory research approach.

2. Methods

Research for this study was conducted in the context of

Capital4Health (C4H), a German research consortium that applied the CA in four different empirical projects designed to influence capabilities for an active lifestyle in various settings (Table 1) (Gelius et al., 2020; Rütten et al., 2019). The consortium comprised researchers from different academic disciplines, including sport science (with sub-disciplines like sport pedagogy, sport sociology, etc.), rehab science, public health, and the social sciences. Based on the idea of trans-disciplinary research (Bergmann & Schramm, 2008; Ferschl et al., 2021), all projects used a participatory intervention method to achieve their goals: *Cooperative Planning* is a structured process that actively involves target group representatives, policy makers and practitioners (i.e. people or institutions that transfer knowledge to others or have decision-making power), and researchers in the joint development of actions for health promotion tailored to the needs of the target group and the specific context of the setting (Rütten, 1997). Also, two cross-cutting projects supported the entire consortium by providing information regarding theory, methods, research collaboration (CAPCOM project), and by conducting evaluation (EVA project). Research for this article was conducted by the team of the CAPCOM project.

We employed a participatory three-stage process with a total of six steps (see Fig. 1) – sometimes overlapping or occurring in parallel – supported intermittently by additional desk research. Stages included (I) theoretical model refinement (Step 1), (II) empirical data analysis covering the implementation and evaluation of the CA in the four projects of the C4H consortium (Steps 2, 3 and 4), and (III) participatory development of recommendations on how to apply the CA in future health promotion projects (Steps 5 and 6).

2.1. Stage 1: theoretical model development

To support the use of the CA in C4H, CAPCOM's researchers started developing a theoretical model conceptualizing capabilities for PA and health in the early consortium phase (Frahsa et al., 2020). To adapt this original version for the empirical analysis of the consortium, we conducted a workshop with researchers from all C4H projects (Step 1). This yielded a simplified model, which was further adjusted as the projects progressed (see below).

2.2. Stage 2: empirical data analysis

Using the adjusted model as a basis, we conducted desk research on consortium documents produced between 2015 and 2018, which included the original project proposal, annual reports, and the final reports of the first of the two C4H funding phases. The first author analyzed all documents deductively to assess how the projects operationalized the CA in terms of (a) project goals, (b) interventions, (c) actions planned using a participative method, (d) measurements taken, and (f) number of levels (i.e. target groups and policymaker/practitioner levels) involved in the projects.

Results were visualized separately for each project using a graphic representation of the theoretical model.

Table 1
Description of C4H projects.

Project	Setting	Target Group	Policymakers/ Practitioners
Health.Edu	Universities / secondary schools	Pupils	Ministry of education, lecturers, and teachers
QueB	Kindergartens	Nursery school children	Nursery school teachers
PaRC-AVE	Vocational education schools	Apprentices	Trainers
ACTION for Men	Municipalities	Men over the age of 50	Policy makers
EVA	All other projects	–	–
CAPCOM	All other projects	–	–

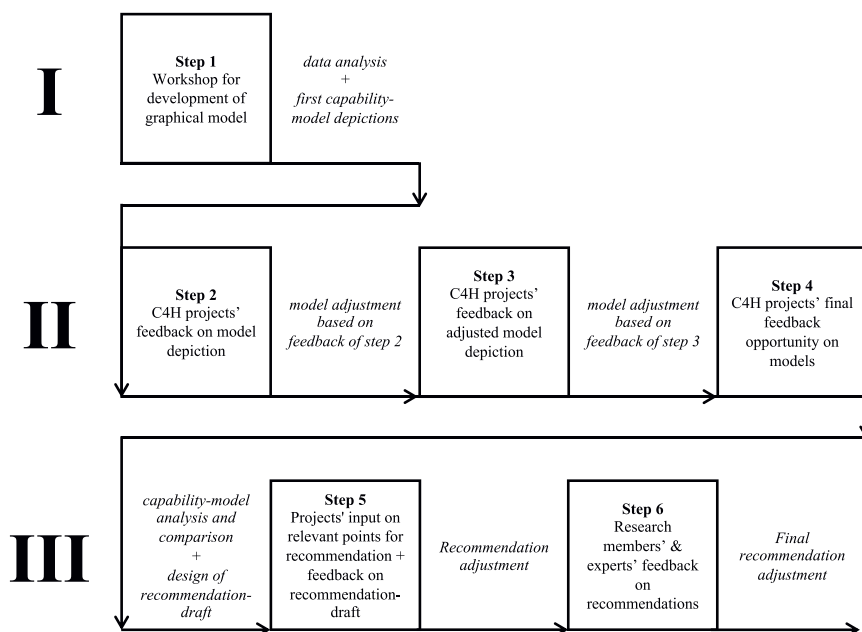


Fig. 1. Methodological stages and steps of the research process (italics represent desk research by first author).

We engaged project researchers in a three-step modified Delphi process (Keeney, 2011) to verify the retrieved information and visualizations. In an initial Delphi round (Step 2), researcher groups from each project were consulted either in face-to-face meetings (projects health.edu and PARC-AVE) or digitally/by telephone (projects QueB and ACTION for men). We kept written records of the consultations and adjusted the model based on our colleagues' feedback to reach consensus on the visualization. A second digitally conducted, modified Delphi (Step 3) was used to eliminate any errors in the visualizations. After additional adjustments by the authors, the projects were asked to check the corrected visualization (Step 4). The first author then conducted a comparative analysis of the finalized CA models regarding their (a) number of intervention levels (i.e. target groups and policymaker/practitioner levels), (b) project goals, (c) interventions, (d) actions planned, and (e) measurements taken.

2.3. Stage 3: participatory development of recommendations

We used the results from Stage 2 to develop recommendations for the use of the CA approach in future health promotion projects. A first draft was compiled by the authors and discussed at a workshop with all C4H project teams (Step 5). Colleagues were also given the opportunity to

provide further comments on the draft via e-mail. The updated draft was sent to two external researchers to obtain an expert's opinion (Step 6). One had a background in social and preventive medicine and was a member of the consortium's advisory board, the other was a former member of the C4H project, familiar with the CA, and with a background in social- and public health science. This feedback was used by the authors to finalize the recommendations.

3. Results

3.1. Stage 1: Theoretical model development

Fig. 2 shows the final version of the theoretical CA model used for the analysis of the implementation and evaluation of different CA-oriented projects.

Individual factors include all personal aspects such as age, sex, physical condition, health literacy (i.e. "people's knowledge, motivation and competence to access, understand, appraise and apply health information" (World Health Organization, 2013); since a person not possessing pronounced health literacy is less likely to perform health-enhancing behavior), and support of friends and family. Structural factors comprise the cultural aspects, such as norms and values,

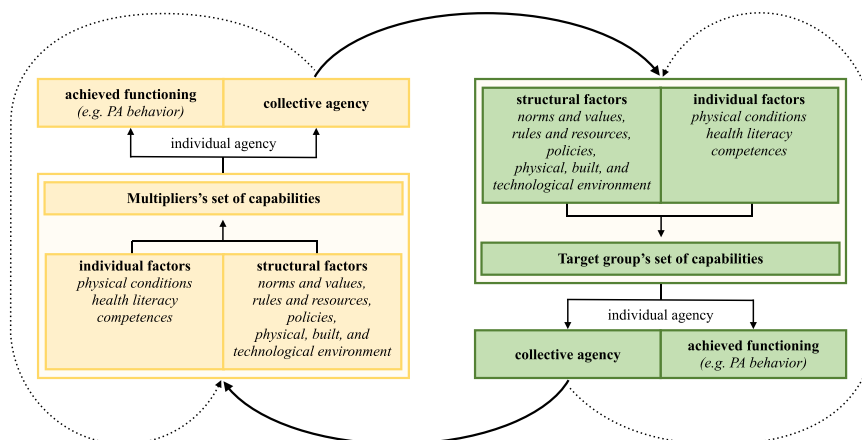


Fig. 2. Capability circle of the target group and policymaker/practitioner.

rules and resources, policies, gender roles and societal hierarchies, as well as environmental factors, such as the physical-, built-, and technological environment (Frahsa et al., 2020; Robeyns, 2005). Arrows indicate potential effects chains. We refer to the choice of converting capabilities to actual health outcomes as a person’s *individual agency* (Pelenc et al., 2015); therefore, the act of choosing to pursue one’s own goals may subsequently lead to an *achieved functioning* (Crocker et al., 2009) (in our case, PA) or to collective agency (CoA).

CoA refers to a realized capability that influences the capabilities of others, and might not have positive effects on one’s own health and well-being. This may lead to a lack of achieved functioning, or may even involve rather harmful health behavior (Robeyns, 2005). Therefore, we define CoA, on the one hand, as the doings of policymakers/practitioners, as their CoA influences the capability set of the target group. On the other hand, it refers to doings of the target group, once an individual chooses a behavior that focuses more on changing structural factors for the collective rather than choosing a behavior for his or her own individual well-being (Pelenc et al., 2015). As policymakers/practitioners can influence the structural factors of target groups and vice versa, we refer to our model as the “capability circle.”

The model constitutes a simplification of the one initially developed for the consortium by the CAPCOM project (Frahsa et al., 2020), in particular by reducing the number of categories of the factors that influence individual capability sets.

3.2. Stage 2: empirical analysis

A total of 16 researchers from all four empirical projects participated in the Delphi process to gather information on the operationalization and implementation of the CA in C4H. Table 2 presents an overview of the results on the (a) number of levels, (b) project goals, (c) interventions, (d) actions planned, and (e) measurements for the evaluation of the effectiveness of interventions to increase capabilities for PA in the different settings. The detailed visualizations for each project are available as supplementary files to this article.

Table 2
Analysis of the C4H projects’ capability models.

Levels	Project’s goals				Participatory intervention (Cooperative Planning)				Actions emerging from interventions				Outcome measurements			
	Health.edu	QueB	PArc-AVE	Action for men	Health.edu	QueB	PArc-AVE	Action for men	Health.edu	QueB	PArc-AVE	Action for men	Health.edu	QueB	PArc-AVE	Action for men
Physical activity behavior (achieved functioning)	Target Group	x												o		o
	Policymaker/Practitioners 1	x												o		
	Policymaker/Practitioners 12															
	Policymaker/Practitioners 3															
Physical activity promotion (collective agency)	Target Group													o	s	
	Policymaker/Practitioners 1	x	x	x												
	Policymaker/Practitioners 2															
	Policymaker/Practitioners 3													o		
Individual factors (physical condition, health literacy, competence, support)	Target Group	x		x									o	s	s	s/o
	Policymaker/Practitioners 1		x	x	x		x			x	x		s/o	s	s	s
	Policymaker/Practitioners 2															
	Policymaker/Practitioners 3												s/o			
Structural factors (norms/values, rules and resources, policies, built environment)	Target Group	x	x	x	x	x	x	x	x	x	x	x	o	s/o	o	s/o
	Policymaker/Practitioners 1	x			x	x	x	x	x		x	x	s	s/o	s/o	s/o
	Policymaker/Practitioners 2	x				x				x			o			
	Policymaker/Practitioners 3	x				x				x			s			

 does not apply;
  targeted by project;
  not targeted by project;
  subjective measurement;
  objective measurement;
  subjective AND objective measurement

3.2.1. Levels involved

All projects addressed at least two intervention levels: the target group, and a group of policymaker/practitioners who influenced the capability set of the target group via their CoA. Three of the four projects implemented a “capability circle,” as visualized in Fig. 2. The health.edu project, by contrast, worked with a total of three “hierarchical” policymaker/practitioner levels. Its concept anticipates the CoA of school teachers (policymaker/practitioner level 1) influencing the target group, university lecturers involved in physical-education teacher education (level 2) influencing future teachers, and officers in the regional ministry of education (level 3) influencing the rules of university education.

3.2.2. Project goals

The shared main goal of the C4H consortium—increasing capabilities for active lifestyles—was first set out in the consortium proposal in 2014. Additionally, the individual project proposals stipulated specific project goals regarding their settings, target groups, and policymakers/practitioners. These included the CoA of policymaker/practitioners (i.e. better teaching, health.edu), the capability set of the target group (mostly aimed at improving knowledge, e.g. QueB; or physical-activity-related health-competence, e.g. in PArc-AVE), and the achieved functionings (i.e. the number of steps) of the target group and policymakers/practitioners (QueB). ACTION for men framed its goal of increasing the PA of men over 50 in the community setting mostly in terms of capacity building (Loss et al., 2020) by improving structures in the community and the health-promoting competencies of community policymakers (World Health Organization, 1997).

3.2.3. Participatory intervention method

All projects received input on the cooperative planning method from the cross-cutting CAPCOM project (Rütten, 1997). Analysis of the project documents indicated that all of the projects implemented this method in its original form or through a modified version (Gelius et al., 2020). Three projects (health.edu, PArc-AVE, and ACTION for Men)

directly included the target group and their policymakers/practitioners in cooperative planning sessions. QueB modified the cooperative planning method using workshops and smaller training sessions, and it did not include nursery school children in the planning session on the grounds of considering them too young to participate.

3.2.4. Actions emerging from the intervention

As expected, the participatory character of the cooperative planning method led to a large variety of specific actions for PA promotion developed in the four settings. In many cases, structural measures were implemented to improve individual capabilities among both the target group and the setting policymakers/practitioners. These measures included changing the physical education curricula of schools (health.edu) (Töpfer et al., 2020) or introducing a rebate scheme offering opportunities to participate in different sports classes on a low budget (e.g. “sports card” offered by Action for Men) (Loss et al., 2020). None of the projects developed dedicated measures to directly improve the achieved functionings (e.g. amount of PA).

PARC-AVE implemented changes to vocational education curricula (importantly by introducing a new regular class on PA and health and by ensuring the availability of physical education classes), thus changing both the teaching environment for instructors and directly affecting the capabilities of the apprentices (Popp et al., 2019). Further, teachers were directly trained to increase their awareness for and knowledge about PA as well as their PA-related health competence, and a tutoring system was implemented to further enhance the individual competence of the target group through peer-to-peer knowledge transfer (Popp et al., 2020).

3.2.5. Outcome measurements

The projects also varied considerably with respect to the measurements conducted to evaluate the intervention effects; they also employed different combinations of objective (e.g. validated knowledge tests, accelerometers, and observations) and subjective measures (e.g. self-assessment during qualitative interviews).

As shown in Table 2, two projects objectively measured changes in achieved functionings in terms of steps taken (e.g. pedometers in QueB) and exercise class attendance (e.g. analysis of PA class participant lists in ACTION for Men). While a positive impact on the CoA of policymakers/practitioners was intended by almost all projects, only Health.edu objectively measured it using video-based observations of PE classes. Across projects, the focus of the measurements was clearly centered on the individual and structural factors comprising the capability set of the target group and policymakers/practitioners.

All projects performed subjective (self-rated) measurements of individual factors via interviews or questionnaires. Objective measurement of target groups’ individual factors was only taken by Health.edu (using a specifically developed test for measuring the students’ physical literacy). Structural change was objectively measured across all project settings and levels via observations of change. Some projects additionally measured structural change subjectively by interviewing policymakers/practitioners, asking about their perceptions of the structural changes (e.g. change of built environment) affected by the intervention.

The measurements of PA and capabilities revealed positive effects of the C4H interventions. For example, QueB was able to confirm improvements in achieved functionings (i.e. number of steps) among both children and teachers using pedometers (Müller et al., 2019). The subjective assessment of teachers’ CoA confirmed increases in their agency to support the children’s PA. Using a web-based app for pre- and post-measurement, the project was in a position to objectively identify positive changes to structural factors (e.g. number of swings, slides, etc.) in kindergartens. Additionally, QueB used interviews to ascertain nursery school teachers’ and parents’ subjective perceptions of changes in individual factors. These indicated improved knowledge about PA and an increased desire among the children to be physically active.

3.3. Stage 3: participatory development of recommendations

The results of Stage 2 were used to develop a set of recommendations on how to use the CA in future health promotion projects, especially those with a cross-sectoral and transdisciplinary focus. A first draft was created by the authors, which was then revised by consortium members and external experts. In total, 14 consortium members and two external experts took part in the two-step process, resulting in the following final recommendations:

3.3.1. Planning: using CA when conceptualizing projects

When conceptualizing a capability-oriented project, we recommend that the following central aspects be considered:

3.3.1.1. Target groups, policymakers/practitioners, and the role of CoA

While health promotion programs often focus solely on the target group or a specific setting, we suggest that projects adopting the CA additionally consider relevant policymakers/practitioners in their respective settings. An individual’s capability set can be influenced via their own CoA, but also by a policymakers/practitioners’ CoA.

3.3.1.2. Individual and structural factors

Health promotion projects often focus on either the individual or structural aspects of health and therefore employ rather unilaterally focused theories (e.g. transtheoretical model (Prochaska & DiClemente, 1983) or health belief model (Rosenstock, 1974)); in doing so, they forget about the multidimensional aspect influencing health (as evident in theories such as the ecological model of health behavior (Sallis et al., 2006) or the social ecology model for health promotion (Stokols, 1992)). Projects using the CA may still aim at influencing specific health outcomes, but they should try to affect both individual and structural factors, as they can be translated into health-beneficial functioning.

3.3.1.3. Defining capability-oriented goals

Defining specific, measurable, attainable, realistic, and time-bound (S.M.A.R.T. (Doran, 1981)) goals is recommended for any health promotion project. Goal setting ensures research quality and provides guidance throughout implementation while also helping to put all project partners on the same page. We recommend that capability-oriented projects define context-specific goals pertaining not only to achieved functioning but also to the target group’s and policymakers/practitioners’ capability sets, CoA, and achieved functioning.

In a capability-oriented research consortium, it is also important to formulate shared objectives that connect all projects and render them comparable. At the same time, these objectives should be sufficiently broad to allow individual projects to formulate additional sub-goals specific to their target group, setting, and academic parent discipline.

3.3.1.4. Compatibility of disciplinary concepts with the CA

Health promotion projects are usually developed against the backdrop of specific academic disciplines (e.g. epidemiology, public health, social sciences, behavioral sciences, pedagogy, or sport science). As a rule, it is important for academics to employ the language, theories, and methods accepted by their peers to stay connected to their respective disciplinary discourse. Those administering the projects should therefore try to explicitly map disciplinary concepts onto the central aspects of the CA, discuss the similarities and differences, and attempt to identify solutions to maximize compatibility. When used as a “bridging framework” in inter-/transdisciplinary teams, this aspect becomes crucial. Consequently, we suggest investing time and resources to work toward a common understanding before starting project

conceptualization.

3.3.1.5. Choice of intervention implementation method

As the CA emphasizes the ability of individuals to actively choose health-enhancing behavior, we suggest using a participatory method that aims at expanding capabilities not only as a result of the intervention but also while planning, implementing, and evaluating the project by including the population and/or relevant policymakers/practitioners. Nonetheless, the choice of method should be made depending on the setting and participants, as participatory approaches are prone to work well in some settings, but top-down interventions may yield better results in other settings, especially those including strict hierarchies.

3.3.2. Evaluation: comprehensive measurement of effectiveness and change

The choice of appropriate outcome measures is of central relevance in assessing the effects of any health promotion project. When using the CA, health behavior changes take more of a backseat, as the capabilities to choose a healthy lifestyle come to the fore. We suggest considering the following points when planning project evaluation:

3.3.2.1. Measuring both achieved functionings and capabilities

Health promotion projects usually focus on evaluating the noticeable changes in health behavior or status initiated by the intervention to determine its effectiveness (i.e. change of blood pressure, increase of mobility, etc.) (Issel, 2014). Using the CA shifts attention toward the capability set (individual and structural factors) that allows the individual to choose particular behaviors (Abel & Schori, 2009; Ruger, 2010; Sen, 1993). Consequently, capability-oriented projects need to assess options to choose health enhancing behavior as well as the agency of relevant policymakers/practitioners. Such measurements may help show the effects of interventions at the capability level even if they are too far “upstream” to yield any short-term changes in health behavior or status. However, to ensure comparability with other intervention types, capability-oriented projects might consider measuring achieved functionings in a sub-sample of projects’ participants, as this is often also required by the funding agencies.

3.3.2.2. Evaluation on all levels

Assessment of intervention effectiveness usually focuses on changes in the target group. The CA, by contrast, highlights the importance of policymakers/practitioners’ capabilities and CoA for the development of a population’s capabilities. Consequently, we suggest that projects should aim to conduct measurements at all levels. Depending on the assumed effect mechanism, this may also imply the partial use of proxy measures.

3.3.2.3. Subjective vs. objective measurement

Objective measures are often considered the gold standard for assessing intervention effectiveness. When employing the CA, project administrators might want to consider using a mixed method that also includes subjective measurements. Certain elements of the CA may be difficult to measure objectively, as they may require inside knowledge of the situation (e.g. changes in the organizational environment). Also, the CA highlights the significance of individuals perceiving their own opportunities for healthy lifestyles. This signifies the importance of not only objectively measuring context-specific changes but also using the target group’s and policymakers/practitioners’ self-assessment.

3.3.2.4. Instrument choice

As the focus of evaluation shifts from health behaviors and status toward opportunities for healthy lifestyles and a target group’s perception of these opportunities, evaluation inevitably needs to become more context-specific. Capability-oriented projects should therefore strive to strike a balance between contextualization and external comparability. This may involve the use, adaptation, or development of setting-specific instruments. Researchers should further ensure measurement of all capability-framework dimensions regardless of their project focus.

3.3.2.5. Shared evaluation framework

The development and application of standardized capability measures in both qualitative and quantitative ways that cover more than one setting or target group are of special relevance to consortia, as a standardized tool provides the opportunity to compare outcomes. Consequently, we recommend that within a consortium, different projects should reach agreement on a shared evaluation framework or the development of a shared measurement tool.

4. Discussion

This paper has identified key points in the practical application of the CA in health promotion based on the experiences of four different projects that focused on increasing capabilities for active lifestyles. Based on these results, some recommendations are proposed for future capability-oriented health promotion projects.

The analysis of CA implementation in the four different C4H projects has demonstrated that the operationalization of the approach is rather complex and unstandardized. Although all project administrators agreed on using the same approach and were in constant exchange, they interpreted the CA rather heterogeneously and extensively adapted it to the setting and their already familiar, discipline-specific theories.

The analysis of the four C4H projects also underlines that measuring capabilities is not an easy task, as there has so far been no overarching tool proposed that is ready for use across diverse contexts. Although there is an available tool for measuring capabilities for “Diet and Activity” (Ferrer et al., 2014), we were not able to use it in the context of our consortium due to its focus on diet, which did not fit the projects aims. Many existing tools to measure capabilities for health are tailored to specific target groups (e.g. ICECAP-O (Coast et al., 2008)) or to specific diseases (e.g. CQ-CMH (Sacchetto et al., 2016)). This finding has also been confirmed by a recent systematic review (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2020). The latter review – on measurement in health and PA promotion projects (Till, Abu-Omar, Ferschl, Reimers, & Gelius, 2020) – and a second on measurement tools used for capabilities in the economic evaluation of health promotion projects (Helter et al., 2020) have shown that, while various tools are available for measuring capabilities, they cannot be easily compared.

In this context, recommendations that support harmonizing interventions in CA-oriented research consortia, like the ones proposed in this paper, may help increase comparability across settings in the future. Nevertheless, efforts toward the development of an overarching measurement tool for health-related capabilities remain important. Members of C4H are currently working toward such a tool, which is now being tested with senior citizens. Such efforts are also supported by the recent literature on the measurement of capabilities, including the work of Mitchell et al. (2017), who have also indicated that the CA has gained increasing attention in the health field while further commenting on the ongoing debate about the operationalization of the CA and its “unspecified” nature (Comim et al., 2008). Specifically, they have pointed to problems such as researchers’ diverse understandings and interpretations of the approach, as well as varying implementation strategies in different health promotion projects. These findings support our

own results from C4H, where research teams did not always share a common understanding and implemented the CA differently depending on the settings and their own academic backgrounds.

The recommendations made in this paper may be followed to remedy some of the above-mentioned issues, as they offer guidance for future projects to successfully utilize the CA and show its effectiveness. The suggestions may also help transfer projects from one setting to another while retaining comparability of the outcomes.

There are some limitations to this study: First, the recommendations are based solely on the analysis and the experience of project teams that tried to increase capabilities for PA. Therefore, while we are confident that other fields of health promotion (e.g. in the field of nutrition or tobacco and alcohol cessation) can learn from our results, some caution is advised when they choose to apply these recommendations in their field. Further, it should be acknowledged that the recommendations only reflect the experience of C4H researchers and do not address the views and opinions of the target groups or policymakers/practitioners. The inclusion of practice partners and population group representatives involved in the projects might have contributed to further improvement of the recommendations, but we considered the development of scientific recommendations to be too “academic” and less relevant to the project’s participants. However, we still consider it a strength of this study that recommendations were developed on the basis of empirical data. We are also aware that the developed CA model is rather complex, although it does not display the holistic nature of the capability approach and was specifically developed for the evaluation of the C4H projects.

Due to the differences in understanding of the CA within the projects and the complexity of the developed model, we are aware that there might have been problems of model comprehension in the execution of the four empirical projects. However, due to the recurring feedback from the research teams, we expect to have fully integrated all aspects.

5. Conclusion

This paper provides a detailed description of the four projects during implementation of the CA for PA promotion along with step-by-step recommendations for future health promotion projects that are determined to use the CA. The CA can be used as a multidimensional approach that respects the prerequisites mentioned in the Ottawa Charter regarding health promotion. Results from across the four settings indicate that using the CA approach in health promotion projects still varies extensively in terms of the design and evaluation methods. Our recommendations may facilitate the use of the CA by both supporting the conceptualization and implementation of future projects with a CA focus and by making the evaluation results more comparable across settings. The further application of this framework will hopefully allow different health promotion projects with a capability focus to be compared in the future.

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CRediT authorship contribution statement

Maïke Till: Conceptualization, Formal analysis, Methodology, Writing – original draft. **Karim Abu-Omar:** Funding acquisition. **Susanne Ferschl:** Conceptualization, Methodology. **Thomas Abel:** Methodology, Supervision. **Klaus Pfeifer:** Funding acquisition, Methodology. **Peter Gelii:** Conceptualization, Funding acquisition, Methodology, Supervision.khh

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.evalprogplan.2022.102149](https://doi.org/10.1016/j.evalprogplan.2022.102149).

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