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BRIEF REPORT

Goal attainment scaling as a tool to enhance quality in community-based health promotion

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Abstract
Objectives Goal attainment scaling (GAS) is an individual approach for measuring changes in clinical interventions. We adopted GAS as a tool for community-based health promotion to support practitioners in formulating and monitoring their intervention goals.
Methods Eleven regional health promotion networks were invited to set project-specific goals, following Kiresuk and Sherman's rules for goal setting. Follow-up interviews on goal attainment were conducted twenty-one months later. In addition, each network was interviewed on usage and applicability.
Results In total, 35 goals were set. The expected outcomes were reached for the majority of projects.
Conclusions GAS has been proven to be a useful instrument for quality assurance as it helps with setting and monitoring goals and sub-goals.

Keywords Goal attainment scaling · Quality assurance · Evaluation · Community-based health promotion

Introduction

Quality assurance and evaluation have become important issues in health promotion and prevention, and several tools and instruments have been developed to support experts and institutions working in this field (see for example Raine et al. 2010). The use of the best available evidence (Larsen et al. 2012) and the definition of specific and verifiable goals are essential for quality development and are a prerequisite for any verification of effectiveness. The application of "S.M.A.R.T." criteria [specific, measurable, attainable, relevant and time-bound (Doran 1981)] in goal setting is widely accepted. Goal setting is mainly used in therapeutic and individual contexts and has been shown to contribute to behavioural change in different areas, such as nutrition and physical activity (Shilts et al. 2004; Cullen et al. 2001; Locke and Latham 2006). However, goal setting is rarely used in community-based interventions; in only a few cases it has been used to measure changes in individualised goals. Pearson (2012) conducted a systematic review of goal setting for diet and physical activity behaviour change in community-based interventions, concluding that goal setting can be useful for affecting behaviour changes in overweight and obese adults. The definition of specific goals that are in close proximity, the use of a participatory approach and the incorporation of feedback seem to be prerequisites for success.

Community-based health promotion is complex, as it addresses social, economic and environmental determinants of health. Given this complexity, clear goals are often difficult to define from the practitioner's point of view. Even if S.M.A.R.T. criteria are used, it is difficult to define finely graduated goals. Because community interventions are complex, degrees of goal attainment may vary. Considering quality assurance as a reflexive and participatory process, the definition, monitoring and adjustment of goals is crucial.

We adopted Goal attainment scaling (GAS) as a tool for community-based health promotion to enhance quality and precision in concepts, processes and outcomes. GAS was published in the 1960s as a form of evaluation of community mental health programmes (Kiresuk and Sherman 1968) and was developed as an individualised approach to

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measure the outcomes of interventions in therapeutic contexts (Smith 1994). Its individualised approach to measurement made GAS highly attractive in many different fields, including rehabilitation, education, social work and nursing (Kiresuk and Choate 1994) and program administration (Spano et al. 1977). GAS leads to a selection and specification of outcome measures instead of a "one fits all" approach. It implies a participatory approach, as clients and therapists are involved in the definition and selection of goals. GAS has been used not only in the assessment of individual goal achievement in therapeutic processes but also in comparative studies (of relative success in achieving goals), which makes it suitable for evaluation projects.

The application of GAS entails a nine-step process (Smith 1994), starting with the identification of problems, then the translation of these problems into at least three goals and ending with the specification of the outcome level (ranging from -2 = "much less than expected" to $+2$ = "much more than expected", with "0" as the expected level of outcome) (see Fig. 1).

The clear definition of goals including the expected level of outcome, as well as the specification of two levels above and below the expected outcome ("somewhat" and "much more/less" than expected), is central to GAS (Cardillo and Choate 1994). Although it might appear that "(much) more" represents the better outcome, it does not because it indicates that the goal was set too low.

In addition to the prerequisite of defining a 5-point scale, it is necessary to avoid overlaps and gaps in the definition of the levels of outcome, as well as multidimensional scaling.

GAS is mainly used for changes in individualised goals (e.g., in therapeutic fields), but it can be used for enhancing quality in the "process" dimension of health promotion as well. Defining sub-goals and following them in defined intervals provide the opportunity to keep track or to readjust goals. We assume that the use of GAS as a participatory tool to evaluate goals and sub-goals enhances the quality of community health promotion.

A follow-up date should be specified at the time that goals are set and a follow-up interview by an independent person is recommended for research projects to avoid biased scoring of outcomes (Cardillo 1994). Given the premise that basic GAS rules were followed, GAS has been proven to be a reliable measure to assess changes in goals (Cardillo and Smith 1994).

Until now, GAS has rarely been used for health promotion interventions (for an exception see Kloseck 2007). We adopted GAS for community health promotion interventions and used it as a resource to support practitioners and project leaders in formulating and monitoring their intervention goals. In this paper, we report first results of the application of GAS in eleven community-based health promotion intervention projects.

Methods

We used the evaluation of regional health promotion networks ("Aktionsbündnisse Gesunde Lebensstile und Lebenswelten"), funded by the German Federal Ministry of Health, as a training guide for the application of GAS. From March 2009 till February 2011, eleven community-based health promotion programmes, organised as local networks, were financed. Each programme focussed on physical activities and some also focussed on healthy eating and stress management. The configurations of the networks were as diverse as the interventions, which ranged from training preschool teachers to integrating physical activities into kindergarten to organise sporting activities targeted for Muslim.

(1)	Identify the issues that will be the focus of treatment.
(2)	Translate the selected problems into at least three goals.
(3)	Choose a brief title for each goal.
(4)	Select an indicator for each goal.
(5)	Specify the expected level of outcome for the goal.
(6)	Review the expected level of outcome.
(7)	Specify the somewhat more and somewhat less than expected levels of outcomes for the goal.
(8)	Specify the much more and much less than expected levels of outcomes.
(9)	Repeat these scaling steps for each of the three or more goals.

Fig. 1 Nine steps in Goal attainment scaling (Smith 1994)

The funding was limited to 24 months, thus, the schedule was rigid, and the definition and monitoring of goals was essential. To support the networks in goal setting and monitoring, each network was offered a one-day workshop to set project-specific goals, following the GAS procedure. Given the participatory approach, various network partners, such as representatives of civil services, representatives of associations and other stakeholders, were involved in the workshops. Networks were invited to break down main goals into intermediate goals (sub-goals) to use GAS as a means for process evaluation. We applied a 5-point version of GAS as recommended by Kiresuk and Sherman (1968), putting "+2" on the top of each Goal Attainment Follow-up Guide and "−2" at the bottom (see Fig. 2 for an example). The process of setting goals was supported by a written manual (IPP 2011).

Follow-up interviews with one person responsible for the project were conducted by telephone on the defined date by a member of the research team not involved in the intervention to ensure bias-free scoring. This interview focussed on whether sub-goals were achieved (using the 5-point scale from −2 to +2).

Three months before the project ended, final interviews were conducted by telephone with two people (the person responsible for the project and another individual from the group of main actors on the local level). The main aims were to assess goal attainment and the interviewee's experiences with the use and applicability of the tool.

Results

Goal setting and goal attainment

In total, 35 goals were set by 10 out of 11 alliances; one network refused to work with GAS. Thirty goals were set as sub-goals, using GAS as a tool for quality assurance. Ten of the goals focussed on the modification of settings (e.g. building gardens to attract neighbourhood members to gardening) and nine goals focussed on sustainability (in terms of establishing a measure after the project has finished). Other goals focussed on behaviour change (e.g. enhancing physical activities of elderly people) ($n = 6$) and scientific impact ($n = 4$). Empowerment, transfer and networking were chosen as goals by two networks each.

The expected outcome level was reached by the majority of the networks ($n = 15$ goals); eight goals had an outcome of "more than expected," seven goals had an outcome of "much more than expected" and three goals had an outcome of less than expected.

The reasons for not reaching the expected outcome level illustrate the complexity of using GAS. In some cases, not reaching goals by the defined date indicated a simple lagging behind the time schedule, as was the case in one alliance. As the timeline was rigid (24 months of funding), this goal had to be evaluated as "less than expected". However, one goal also failed because the expected outcome level was set to include not only the development of a business plan but also the commitment of funding. As funding was not achieved by the defined date, the outcome had to be classified as "less than expected". A last example refers to the allocation of public space. As decisions at the community level took too long, the goal could not be realised in the expected time frame.

Usage and applicability of GAS by the networks

The telephone interviews with two different people involved in each alliance (project coordinator plus another person) revealed that GAS was mainly evaluated as being useful (Schaefer and Kolip 2010). According to the interviewees, GAS helped to define goals more precisely and to specify measures more accurately. GAS also assisted with matching measures more precisely to the target group(s) in question. As GAS involves as many partners as possible, it enabled partners in the networks to communicate more easily about aims and goals and to make different visions visible. GAS also helped to elaborate the work plan and to define timelines.

The main challenge mentioned by the interviewees was the high level of abstraction needed for goal setting—especially for those not familiar with evaluation. The time and effort that were needed to become familiar with the

+2 much more than expected	By the end of the year, two volunteers will have been recruited to become trainers and will have started qualifying for this position.
+1 more than expected	By the end of the year, two volunteers will have been recruited to become trainers but only one will have started qualifying for this position.
0 expected level of outcome	By the end of the year, two volunteers will have been recruited but will not have started qualifying for this position.
-1 less than expected	By the end of the year, one volunteer will have been recruited.
-2 much less than expected	By the end of the year no volunteers have been recruited to become trainers.

Fig. 2 Goal attainment scaling in health promotion—example taken from the alliance networks on health promotion; main goal: ensuring sustainability by training volunteers for physical activities for the elderly (IPP 2011)

tool and to be able to apply it were named as disadvantages. The persons who were interviewed appreciated the workshop that was offered by the research team to help them through the process. According to those individuals, a one-day workshop was sufficient to develop three measurable goals.

Discussion

As GAS was developed as an individualised method to assess changes, it was mainly used for clinical evaluation and planning. Until now, GAS has rarely been used in the context of evaluation of community-based health promotion. The results show that GAS can easily be adopted for interventions on a community level. For complex interventions in which more than one method is needed, GAS can be used to complement other methods, such as interviews or reviews of existing documents and GAS is usable for a wide range of different goals.

If the main principles are respected (using a 5-point scale with the expected outcome in the middle, avoiding overlaps and gaps in the definition of the outcome levels and avoiding multidimensional scaling), then GAS is a useful tool for quality assurance as it helps with setting and monitoring sub-goals. GAS supports refining "S.M.A.R.T." goals, as it helps to define different levels of goal attainment. Thus, GAS can be extremely helpful because it avoids "all or nothing" thinking and provides practitioners with a tool to monitor goal attainment. The participatory approach seems to be very appropriate for community-based health promotion networks.

The time and effort that was required to become familiar with the tool was considered a disadvantage. Nevertheless, GAS was seen as very helpful, especially because of its participatory approach. In addition, GAS can be applied by partners who are not familiar with program evaluation, and GAS provides an opportunity for all participants to agree on achievable outcomes. The greatest challenge was the definition of measurable goals and the need to distinguish different levels of possible outcomes. If the networks succeeded in using it—which most of them did—GAS brought many advantages: transparency among partners, shared goals and a clear-cut vision of how to achieve the main goals.

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

Ethical standard The study was approved by the Ethics Committee of the University of Bremen, Germany.

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