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ORIGINAL ARTICLE

Critical success factors for physical activity promotion through community partnerships

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Abstract
Objectives To define key factors of effective evidence-based policy implementation for physical activity promotion by use of a partnership approach.
Methods Using Parent and Harvey's model for sport and physical activity community-based partnerships, we defined determinants of implementation based on 13 face-to-face interviews with network organisations and 39 telephone interviews with partner organisations. Furthermore, two quantitative data-sets ($n = 991$ and $n = 965$) were used to measure implementation.
Results In total, nine variables were found to influence implementation. Personal contact was the most powerful variable since its presence contributed to success while its absence led to a negative outcome. Four contributed directly to success: political motive, absence of a metropolis, high commitment and more qualified staff. Four others resulted in a less successful implementation: absence of positive merger effects, exposure motive and governance, and dispersed leadership.
Conclusions Community networks are a promising instrument for the implementation of evidence-based policies. However, determinants of both formation and management of partnerships influence the implementation success. During partnership formation, special attention should be given to partnership motives while social skills are of utmost importance for the management.

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Introduction

Public health guidelines for recommended levels of physical activity (PA) are not reached by a third of the adults and four-fifths of the adolescents worldwide (Hallal et al. 2012) while physical inactivity has been recognised as an independent risk for chronic disease (Warburton et al. 2006). To address physical inactivity, community interventions were developed to promote healthy and active lifestyles (Brennan et al. 2012; Thomas et al. 2009). However, interventions that have proven to be most effective in research settings will be unable to reach and affect the population if different policy processes fail to implement them properly (Rutten 2012).

Today, little is known about effective approaches for the dissemination of research-tested interventions in real-world situations (Ballew et al. 2010). It is generally acknowledged that a successful implementation of community interventions cannot be done by a single agency, but requires collaborations among a wide range of organizations (Buchthal et al. 2013). Although, the importance of partnerships in engaging the community is recognised (Roussos and Fawcett 2000), few studies have been conducted on the implementation of effective PA interventions through collaborative partnerships or networks. We know that network analyses can identify the essential factors for successful collaboration and indicate those elements that hamper a good cooperation (Buchthal et al. 2013). Nevertheless, there is sparse knowledge of partnership characteristics for physical activity promotion programmes (Brownson et al. 2010). Existing research mainly focuses

on structural features of networks, such as centrality, frequency of contacts or types of partnerships (Brownson et al. 2010). Further, current studies include a limited number of networks (Parra and 2011), lack empirical evidence of the outcome at population level (Baker et al. 2012) and use several approaches to assess network effectiveness (Brennan et al. 2012). Consequently, very few general conclusions could been drawn to date.

In 2007, the Flemish government (Dutch-speaking part of Belgium: 7,520,471 inhabitants) provided funding for the implementation of the '10,000 steps' programme in the entire region (Van Acker et al. 2011). This programme was developed to stimulate people to be more physically active in all areas of life—transport, work, leisure—by encouraging them to take 10,000 steps a day. This programme has proven its efficiency in a community-control study, showing an increase of 8 % of people reaching the '10,000 steps' guideline after one year (De Cocker et al. 2007). Also its implementation in Flanders was considered effective with an overall score on programme awareness of 59.2 % after three years (Cardon and De Bourdeaudhuij 2011; Van Acker et al. 2011). Although the overall effectiveness of the programme was good, differences were found between provinces. In the literature, Rutten (2012) suggests that explanations for regional differences in implementation success might be found in differing policy processes.

The dissemination of the '10,000 steps' programme in Flanders was assigned to the LHPs (Local Health Platforms), which are local health networks founded to support the realisation of the Flemish health objectives. Each LHP operates within a geographically connected region covering all together the entire territory of Flanders. In 2009, the networks have been reformed resulting in mergers of some LHPs, reducing the total number to 13. The LHPs consist of network members (e.g. Social Service Departments, Welfare Centres, National Health Service Departments) and project partners, which are organisations who specifically engage in certain programmes. To get '10,000 steps' broadly implemented, most LHPs enlarged their regular list of project partners with experienced organisations in the PA domain, such as local sport services and sports clubs. However, the programme also attracted less obvious partners, such as tourist offices and community centres. The participation of these partners is voluntary and requires financial and human resources efforts of each of them. Daily management of the LHPs is under control of a coordinator leading a professional staff, which makes up a physically separate administrative organisation that steers the partnerships. The networks operate under identical legislations and have the same goals, but are free to develop their own strategy to select partners, attribute their finances and manage the network.

Considering these features and structures of the platforms, we can state that the '10,000 steps' implementation provides a unique opportunity to examine and define key factors of effective evidence-based policy implementation for PA promotion by use of a partnership approach to contribute to the existing literature and offer practitioners in the field some practical guidelines.

Methods

Data collection

Face-to-face interviews with all 13 network administrations and additional telephone interviews with three partners of each LHP were performed, thus, a total of four interviews for each network. Out of the population of 387 partners, 48 randomly selected partners were contacted to obtain a sample of 3 partners for each LHP ($n = 39$, response rate = 81.25 %). All interviews were semi-structured with open-ended questions and conducted by the same interviewer. This approach allowed the interviewer to follow the lead, change order, and add/omit questions. All interviews were recorded, transcribed and coded in NVivo9 by one researcher. However, the coding protocol was established by three researchers. The study protocol was approved by the Ethical Committee of Ghent University. Further, all LHPs completed a template to gather detailed information considering their network partners. Descriptive variables (see Table 1), such as the number of inhabitants and cities, were collected through document analysis and consultation of official websites (Belgian Federal Government 2010; Flemish Institute for Health Promotion and Illness Prevention 2012).

Measurements

Theoretical model and variables

There is an impressive body of research on network processes in public management literature. However, to our knowledge, the model of Parent and Harvey (2009) is the only theoretical model specifically built to analyse sport and physical activity community-based partnerships. This conceptual model is based on various management literature streams and encompasses variables that have proven their relevance in previous research arranged in a three-part feedback loop: antecedents—including variables that relate to the formation of the partnership, management—including variables that relate to the functioning of the partnership and, finally, evaluation of the partnership. The main advantage of this model is its all-embracing nature, which is perfectly suited for this explorative study.

Table 1 Descriptive data on the 13 local health platforms (Belgium, Ghent, 2012)

Network	Number of cities	Number of partners	Number of inhabitants	Region (km^2)	Population density (inhabitants/km^2)	Staff (number of employees)
LHP A	24	31	944,283	943.61	1,000.7	8.5
LHP B	23	60[b]	490,608	1,267.27	387.1	8.4
LHP C	19	7[a]	1,152,133[b]	161.00[a]	7,156.1[b]	5.5
LHP D	12	12	339,675	516.91	657.1	4.1
LHP E	45[b]	39	883,546	1,987.19	444.6	11.4[b]
LHP F	27	35	444,554	1,356.87	327.6	6.0
LHP G	14	18	314,688	481.03	654.2	5.5
LHP H	44	37	852,997	2,422.17[b]	352.2	10.0
LHP I	19	51	405,391	566.94	715.1	1.0[a]
LHP J	27	25	357,468	1,396.02	256.1[a]	4.0
LHP K	30	35	481,636	1,163.83	413.8	6.0
LHP L	8[a]	21	237,017[a]	479.24	494.6	3.0
LHP M	35	16	616,475	942.36	654.2	6.8
Total	327	387	7,520,471	13,684.44	–	69.8
Mean	25.15	29.8	578,497.77	1,052.65	1,039.5	5.81

For each Local Health Platform the number of enclosed cities, partners, inhabitants in the region, the size of the region, the population density, and the number of employees are presented. Minimum and maximum for each variable are indicated with, respectively, a and b

However, to make this theoretical model suitable for empirical research, a thorough literature review was necessary to accurately translate each variable into questions for the interview scheme (e.g. Babiak 2009; Hausman and Johnston 2010; Head 2008; Keast et al. 2004; Mandell and Keast 2008; McAllister 1995; Mohr and Spekman 1994; Oliver 1990). In total 30 questions were constructed to measure the 21 variables of the Parent and Harvey model (indicated with a D in Table 3).

Network outcome

In order to measure the implementation success for each LHP, an outcome scale was constructed based on secondary data analyses from previous empirical studies (Cardon and De Bourdeaudhuij 2011; Van Acker et al. 2011). The outcome scale consists of five output variables; two on the individual level, namely awareness and change in awareness, and three on the organizational level, namely, city participation, average amount of local actions and regional actions. The awareness of the programme—do you know the programme?—was measured in 2009 during the RE-AIM analysis of '10,000 steps' and in completion of the programme in 2011 (Cardon and De Bourdeaudhuij 2011; Van Acker et al. 2011). For both data collections, telephone interviews with adult inhabitants (>18 years) of Flanders were conducted. To establish sufficient reach, public telephone registers were consulted and random samples were drawn from each region. This resulted in a total of 991 respondents in 2009 and 965 in 2011. For awareness, we calculated the average of all individual scores on awareness for each LHP. For the item change in awareness, the difference in average awareness between 2009 and 2011 for each LHP region was computed. City participation was chosen as indicator for the geographical distribution of the partners in the network and is described as the percentage of cities that had at least one partner engaging in the partnership. The more cities involved, the larger the geographical spread and potential reach of the programme. We calculated municipal actions as the ration of the number of local actions to the number of municipalities in each LHP. Finally, regional actions reflected the number of actions that reached the entire region. The assumption behind the last two items is that the more actions people are exposed to, the higher the possibility that citizens are aware of the programme. The outcome scale was constructed on the dichotomisation of the five items at the median and dichotomised in itself into high and less successful implementation (see Table 2), as suggested in De Meur et al. (2006).

Analyses

Our research is a multiple case study with a naturally limited study population—there are only 13 LHPs—while the number of potentially explanatory variables is relatively large. Under these circumstances, De Meur et al. (2006) recommend the application of two qualitative comparative techniques: Most Different Similar Outcome/Most Similar Different Outcome (MDSO/MSDO) and Qualitative Comparative Analysis (QCA). Both methods have shown their value in previous research (e.g. Baltzer

Table 2 Variables constructing the network outcome of each local health platforms for the '10.000-Steps' programme (Belgium, Ghent, 2012)

Network	Programme awareness (%)	Δ programme awareness (%)	City participation (%)	Municipal actions	Regional actions	Outcome
LHP A	53.8	9.5	75.0	3.3	8	0
LHP B	58.6	20.1	73.9	4.7	10	1
LHP C	–	–	5.3	0.0	6	0
LHP D	53.1	31.6	66.7	4.3	5	1
LHP E	65.8	34.2	44.4	2.6	6	0
LHP F	64.9	30.7	63.0	7.7	7	1
LHP G	61.0	34.2	64.3	3.1	3	1
LHP H	62.8	22.2	70.5	2.2	11	1
LHP I	56.8	26.8	100	5.1	3	0
LHP J	53.6	26.1	59.3	3.9	3	0
LHP K	52.3	19.4	60.0	3.7	9	0
LHP L	68.3	35.7	100	6.3	7	1
LHP M	59.4	22.1	28.6	5.3	8	1
Mean	59.2	26.1	62.4	4.0	6.62	
Median	59.0	26.5	64.3	4.0	7.0	

The outcome scale was constructed by the dichotomisation of the five items at the median and dichotomised in itself into more and less successful implementation

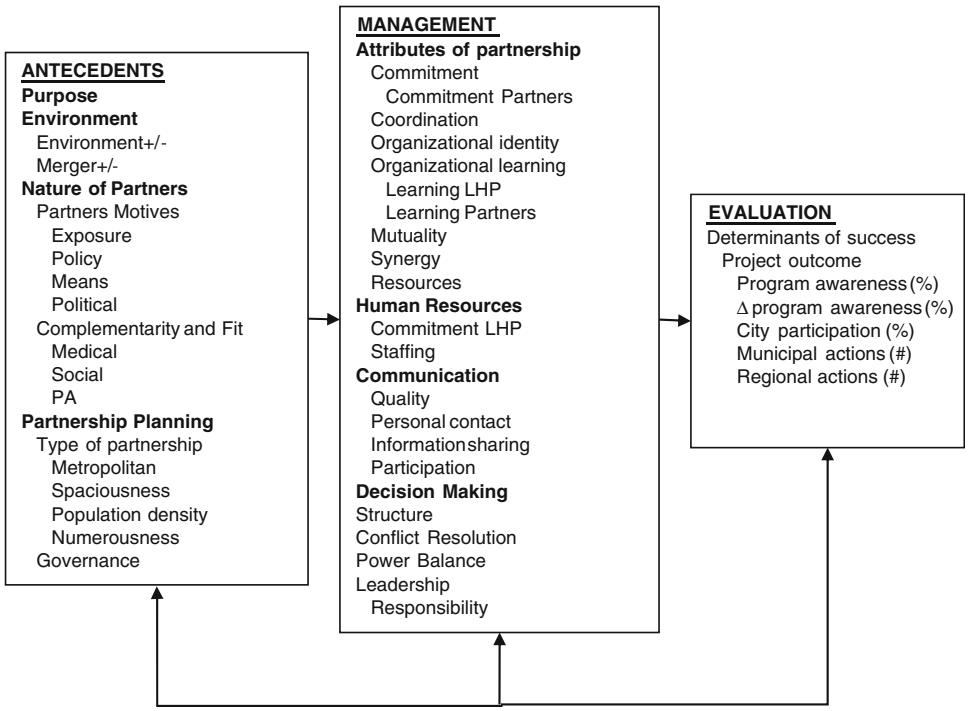

Fig. 1 Overview of all variables based on the conceptual partnership model for sport and physical activity community-based partnerships of Parent and Harvey (2009) (Belgium, Ghent, 2012)

et al. 2011; Basurto and Speer 2012; Crawford 2012; Soda and Furnari 2012) and systematically examine similarities and differences in a set of comparable cases while identifying structural conditions that lead to a certain outcome. After coding, an exhaustive list of 42 variables with potentially explanatory power was established (see Fig. 1). Most variables were deductively coded based on the model of Parent and Harvey (2009), but new variables were also inductively added when new elements recurred in several interviews or when refinement was needed. For example, the original variable Partners Motives was subdivided into Exposure, Policy, Means and Political Motives while Metropolitan is newly added.

The variables purpose, trust and complementarity and fit were omitted because they could not significantly explain the variance in implementation of the programme. Before

Table 3 Variables identified in the interviews and used in the most different similar outcome/most similar different outcome and qualitative comparative analyses (Belgium, Ghent, 2012)

Variable	D/I	MDSO/ MSDO	QCA	Description
Antecedents				
Purpose	D			Is there a clear purpose from the onset of the network for 10,000 steps?
Environment				
Environment+	D	×		Are there environmental features that support the network?
Merger+	I	×	×	Did the merger have a positive impact?
Environment-	D			Are there environmental features that hamper the network?
Merger-	I			Did the merger have a negative impact?
Nature of partners				
Partners motives	D			Are the partners aware of each other's motives and have they common interests?
Exposure	I	×	×	Is exposure mentioned as motive for participation?
Policy	I	×		Are there policy reasons mentioned for participation?
Means	I	×		Is the recruitment of extra means mentioned as a motive?
Political	I	×	×	Are there political reasons mentioned as a motive?
Complementarity and fit	D			Is there a strategic and cultural fit between the partners?
Medical	I			Does the partnership contain a large proportion of medical partners?
Social	I	×		Does the partnership contain a large proportion of social partners?
PA	I			Does the partnership contain a large proportion of PA partners?
Partnership planning				
Type of partnership	D			Shows the partnership differences in structure in relation to one proposed in the decree?
Metropolitan	I	×	×	Does the LHP include a large city (>200,000)?
Spaciousness	I	×		Is the LHP very spacious?
Population density	I	×		Has the LHP a high population density?
Numerousness	I			Does the LHP contain a large amount of cities?
Governance	D	×	×	Are there written guidelines in order to avoid future pitfalls and disagreements?
Management				
Attributes of partnership				
Commitment	D	×	×	Was there a willingness to exert efforts on behalf of the relationship?
Commitment partners	I			Was there a willingness to exert efforts from the partners?
Coordination	D	×		Was it perfectly clear what set of task each party expects the other to perform?
Trust	D			Has each partner the understanding that an others partner's word is dependable?
Organizational identity	D	×		Is it clear what the overall identity of the network is?
Organizational learning	D	×		Did the partnership evolve in order to reach the aims and the objectives?
Learning LHP	I			Did the approach of the LHP evolve?
Learning partners	I			Did the partnership evolve according to the partners?
Mutuality	D			Is there a mutual dependence between the partners involved?
Synergy	D	×		Have they learned from their partners?
Resources	I			Are there sufficient resources to sustain the partnership?
HR				
Commitment LHP	I			Was there a willingness to exert efforts from the LHP?
Staffing	D	×	×	Is the quality of the personnel sufficient to be an alliance manager?
Communication				
Quality	D	×		Was the communication in the partnership of a high standard?
Personal contact	I	×	×	Where the contacts in the partnership personally?

Table 3 continued

Variable	D/I	MDSO/ MSDO	QCA	Description
Information sharing	D			Keep the partners each other informed during the process?
Participation	D	×		Is there a joint goal setting and planning?
Decision making				
Structure	D	×		Is the decision making structure horizontally that strengthen the relations
Conflict resolution	D	×		Is there joint problem solving within the network?
Power balance	D	×		Everyone in the partnership has equal power positions
Leadership	D	×	×	Can we consider a shared leadership over all partners?
Responsibility	I			Is the LHP responsible for the programme?

Variables that are deductively retrieved from Parent and Harvey (2009) are labelled type D and those that were inductively coded are labelled type I. In the description, the manner whereupon the variables were dichotomized, is given

all analyses, all identified variables were dichotomized (see Table 3). Then, MDSO/MSDO was used to find out which variables account for a certain outcome by searching for differences in the most similar networks with a different outcome and by comparing the most dissimilar networks with the same outcome for similarities (De Meur et al. 2006). Only those variables with a substantial explanatory power are withdrawn for further analysis. The MDSO/MSDO analyses, performed by the online application MDSO/MSDO—beta version (De Meur 2006), resulted in a shortlist of 24 essential variables (see Table 3).

This shortlist was then used for the QCA analyses, performed with Tosmana version 1.3.2. This method identifies those variables that contribute most to a certain outcome by taking the configurations of variables of all networks with the same outcome into account. A total of nine variables were found representing the smallest amount of variables that explain why some partnerships were more successful than others (see Table 3).

Results

Although we found that the LHPs did not differ in terms of their goals, basic funding, and legislation, we observed that they were very different. This is to a small extent due to demographical and geographical differences, but for the greater part to the variance in structural and managerial choices. Our analyses revealed nine of those partnership variables that contribute to differences in implementation success. Five variables supported a successful implementation, namely political motive, metropolitan, commitment, staffing and personal contact. Likewise, five variables—positive merger effects, exposure motive, governance, personal contact, leadership—related with the less successful implementation. It should be noted that the presence of personal contact referred to a successful implementation while its absence was connected with less success.

Antecedent variables

Five crucial variables belong to the antecedents section of Parent and Harvey (2009). In the next section, these will be discussed in detail.

The first, political motive, refers to the political support some partners experienced to participate in the programme. This was especially the case for partners of local authorities.

> "[Participation] is also a political choice, the mayor or an alderman who believes in the programme, who invests his time in the programme." (LHP F).

The contextual variable exposure motive refers to the motivation of some partners to get free publicity when engaging in the programme. The lack of partners with exposure motives contributed to less success. For example, aldermen who wanted to obtain media coverage or private organizations that entered the programme to enhance their image.

> "If politicians can have their photograph taken for a local newspaper during a '10,000 steps' event, of course, they will be more interested in the programme." (LHP M).

The variable metropolitan indicates that an LHP region contains a city with more than 200,000 inhabitants. The presence of such cities had a negative influence on the programme implementation. The LHPs concerned were aware that their metropolitan area needed a different approach, but they were unaware that this affected their overall implementation effectiveness.

> "We have divided our working in two; one part for the metropolitan and one part for the rest of the

region, because the communication with them is totally different." (LHP A).

Furthermore, the absence of positive merger effects was linked with a less successful implementation. Positive merger effects comprise more means, more personnel or a better geographical constitution of the working area due to the LHP reformation.

The last contextual variable was governance, which was narrowed down in our research to the existence/absence of formal agreements. It was revealed that the LHPs with the lowest success rates were the ones that most often lacked written partnership agreements.

"…nobody has signed the agreement in our network. Everything is based on previous [oral] agreements and goodwill" (LHP J).

Management variables

Out of the nine final variables, four come under the management category: commitment, staffing, personal contact and leadership. Commitment refers to the willingness to exert efforts on behalf of the partnership. We have found numerous indications in the interviews, both positive and negative, supporting our finding that commitment is an important variable.

"We [physiotherapists] are volunteers, we are involved after our working day, for free, every effort we make is additional, while others get paid, then I think, go ahead, I have other things to do." (Partner LHP J).

The variable staffing holds the perceptions and experiences of the overall quality of all representatives. The interviews revealed that people had a key role in the partnership. We also discovered that staff quality is perceived in different ways: "staff is always friendly and enthusiastic", "they are hardworking and engaged", "they are quick to offer help", "they work very professionally and have a lot of expertise". Although staffing was interpreted very broadly, a clear distinction could be made with the variable personal contact. This comprises the development of personal relationships between representatives of the network, mostly between LHP employees and representatives of partner organisations. Most LHPs worked with single point of contact which means that the partners only had contact with the network through a single person. We found that partner representatives, that have good interpersonal relations with their contact in the LHP, are generally very positive about the quality of the staff. In the interviews, we heard expressions like "it all depends on the person" (LHP A), "it depends on who you need to work with" (LHP B) or "we have a good relationship with the LHP because we know the people" (Partner LHP L). Further, the absence of personal contact related to a less successful implementation. The most mentioned reason for not having personal contacts was a lack of human resources.

"No, absolutely not, we don't have the time for personal contact. We have X cities in our region, but unfortunately municipalities with not many citizens. Our subsidies are calculated upon the number of inhabitants, so, we have only four employees. But whether a municipality has 100 or 10,000 citizens, it takes the same time to convince the public administration to join." (LHP J).

Finally, our study distinguished leadership whereby a dispersed leadership negatively influenced the implementation effectiveness. The LHPs perceived the dispersed leadership often as a lack of power.

"We cannot rap someone over the knuckles, the only thing we can do, is providing them with extra support to get them back on track, but they say, we've tried everything, but it doesn't seem to work, well, there's nothing we can do about it." (LHP B).

Discussion

Numerous partnership variables that influenced the implementation of the evidence-based PA programme '10,000 steps' in Flanders, were studied. Of those variables, nine can be referred to as critical success factors for implementing the programme. Referring to the five antecedents variables, the partnerships that showed the most successful implementation were those with formal agreements, without a metropolitan, which experienced positive effects of the reorganisation and included partners with political and exposure motives. When taking the four managerial variables into account, we found the best implementation within partnerships that revealed strong leadership, high commitment among partners and high quality staff which had personal contact with other representatives.

This implies that strategies and considerations during the network formation are—at least—as important as the governance of the network itself since elements of the environment and the partnership planning showed to impact on partnership effectiveness.

Currently, there is sparse information on network structures and features that facilitate programme implementation for PA promotion. This research wants to contribute to the existing gap in the literature and provide guidelines for practitioners and policy makers. To get more

insight into underlying processes, this discussion builds foremost on the public policy literature and relates these concepts to the cases studied.

The presence of a metropolitan area in the region was found to negatively influence the implementation effectiveness. Interviews revealed that staff experienced difficulties in approaching the metropolitans whereby they were not able to react adequately. This indicates that a good understanding of the operating region is necessary to manage partnerships successfully. The absence of positive effects of the merger such as supplementary means, personnel, or a better geographical constitution of the working area, contributed to a less successful implementation of the programme. This suggests that, like any other organisation, the effectiveness is most likely to benefit from additional resources. The importance of the seven other success factors has already been acknowledged in the literature. Firstly, the relation between effectiveness criteria and motivations to enter a partnership has been recognised by Babiak (2009). We found political support positively influencing the implementation. Likewise, Eglene et al. (2007) found that success in public sector networks depended on political support. Consistent with previous literature, we found that commitment of the network partners to the partnership is essential for partnership satisfaction and network continuation (Morgan and Hunt 1994). Raine et al. (2010) concluded that the difficulty lays not in motivating partners to enter the partnership, but in getting them committed.

At this point, two of our critical success factors, staff and personal contact, play an important role. High quality staff is crucial in a partnership because next to their resource-based power (e.g. knowledge, expertise) they also bring willingness to make the partnership succeed (Agranoff 2007). Personal contact is important in how the staff quality is perceived. When having personal contact, individuals gradually gain better information about their partners' competencies, limitations and personal qualities, which positively influences the way they perceive each other (Hudson 2004). It is also known that formal relationships between representatives did not dissolve as interpersonal relationships evolved (Ring and Vandeven 1994). Regular meetings to discuss issues and face-to-face contacts strengthen those relationships (Caudle 2007). In our study, a shortage of staff was often mentioned as a reason for lacking personal contacts. This problem was also recognised in a study by Frisby et al. (2004) where staff was being forced to pay more attention to partnership relations, while their regular duties barely fitted in their working hours. We can conclude that staffing issues are closely related to inadequate time being available to stay in regular contact with partners.

We also found that partnerships with formal contracts were most likely to have a successful implementation. This finding is supported by Parmigiani and Rivera-Santos (2011) who concluded that relationships run more smoothly when institutional norms were developed, e.g. standardised contracts. It is recognised that written agreements are important in the development of policy processes, in outlining roles and responsibilities, and fostering relationships in which the participants are less likely to adopt a short-term view or to act opportunistically (Frisby et al. 2004; Hudson 2004; Klijn and Koppenjan 2000). However, the literature is not that univocal. Some authors leave both possibilities open: either codified in formal relational contracts or informally understood in psychological contracts (Ring and Vandeven 1994). Others mention downsides of contracting, especially in relation to the position of the different partners in the network and to the group dynamics (Head 2008; Provan et al. 2009).

The final variable, leadership, is often mentioned as the ability to mobilise the network and get things done (Huxham 2003). Leadership in public networks typically involves greater interaction with actors who are not direct line subordinates (Turrini et al. 2010). We found that dispersed leadership negatively impacted the implementation success while in the literature both positive (e.g. McGuire and Agranoff 2007; Bazzoli et al. 2003) and negative effects (e.g. Turrini et al. 2010) of dispersed leadership have been found.

Importance of other variables

Although we found nine variables to contribute to implementation success, variables that were ultimately not included may still be important, but they had not enough power to have a unique contribution in this study. The variables purpose, trust and complementarity and fit were omitted from the beginning because every network met the standards. As said previously, the overall implementation of the programme was successful. Perhaps, we can carefully put forward that those variables could be minimal requirements for networks to have the potential to generate positive outcomes. Further research is necessary to value the impact of these variables. Other variables did not influence the effectiveness, which could imply that they are of less importance. For network managers, it is important to notice that neither the region properties (e.g. population density, spaciousness)—except for the presence of a metropolis—nor the proportional representation of different types of partners was shown to influence the implementation.

Limitations and strengths

One of the weaknesses of this study is that not all partners were interviewed, however, in our opinion a total of four

interviews per LHP gave us thorough insight into the functioning of each network. At first sight, the dichotomizing of our variables, that was necessary to use MSDO/MDSO and QCA, seems to entail a loss of information, but these methods were only used to reduce the number of variables. Afterwards, qualitative information was used to give meaning to the remaining variables. Strengths of this study are that by applying the conceptual model of Parent and Harvey (2009) to empirical data, the value of the model was assessed and the most crucial elements were highlighted. Further, we have contributed to the existing literature by confirming that policy processes indeed influence the success of evidence-based PA programmes since they play an important role in successfully implementing the programme. Finally, nine critical success factors were extracted that influenced the implementation success of '10,000 steps' and which are interesting for practitioners and policy makers.

Conclusions

Our research can advise current network managers and policy makers to take into account what is really crucial during future network formations. With regard to the management of the partnership, there is a key role for all people involved in the network since they make the partnership work. Our findings suggest several actions to be taken to improve performance of partnerships including the following: creating awareness that the presence of a metropolis needs special attention, stimulating the use of formal agreements, ensuring a strong leadership, certifying that partners have the right motivation and commitment to enter the partnership, organising training and assistance for new staff members, and providing sufficient time for the staff to be in contact with other representatives. Thus, people responsible for the implementation of PA promotion projects need to gain a better understanding of the network features and invest in their people to create a favourable climate for success.

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