Structural integration and performance of inter-sectoral public health-related policy networks: An analysis across policy phases

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ABSTRACT

Background: Inter-sectoral policy networks may be effective in addressing environmental determinants of health with interventions. However, contradictory results are reported on relations between structural network characteristics (i.e., composition and integration) and network performance, such as addressing environmental determinants of health. This study examines these relations in different phases of the policy process.
Methods: A multiple-case study was performed on four public health-related policy networks. Using a snowball method among network actors, overall and sub-networks per policy phase were identified and the policy sector of each actor was assigned. To operationalise the outcome variable, interventions were classified by the proportion of environmental determinants they addressed.
Results: In the overall networks, no relation was found between structural network characteristics and network performance. In most effective cases, the policy development sub-networks were characterised by integration with less interrelations between actors (low cohesion), more equally distributed distances between the actors (low closeness centralisation), and horizontal integration in inter-sectoral cliques. The most effective case had non-public health central actors with less connections in all sub-networks.
Conclusion: The results suggest that, to address environmental determinants of health, sub-networks should be inter-sectorally composed in the policy development rather than in the intervention development and implementation phases, and that policy development actors should have the opportunity to connect with other actors, without strong direction from a central actor.

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1. Introduction

In high-income countries, half of the burden of disease is attributable to unhealthy behaviours, such as alcohol abuse, physical inactivity, and unhealthy diets [1]. Health-related behaviours are strongly influenced by environmental factors. These environmental determinants are situated in the physical (e.g., housing), social (e.g., social networks), economic (e.g., income distribution), and political (e.g., laws on alcohol distribution) environments [2]. Therefore, to be effective, interventions that promote healthy behaviours should – next to personal determinants, such as motivation – also address the environmental determinants. In practice, however, health promoting interventions are mainly aimed at changing personal determinants [3]. This is attributed to the fact that most of the environmental determinants are situated outside the sphere of influence of the public health sector [4,5] This illustrates the necessity of involving non-public health actors in public health policy [4,6–8]. As a result, connections between actors from different policy sectors emerge [9] and inter-sectoral policy networks arise. An important indicator for the performance of such public health-related networks is the extent to which they succeed in addressing environmental determinants of health behaviours.

Characteristic for inter-sectoral policy networks is that resources from different policy sectors are utilised. Such resource pooling is about the willingness of actors to share resources such as authority, knowledge, and financial means [10]. However, network actors are (in principle) autonomous in deciding whether to employ their resources in favour of the network or not [11]. Such complexity may hamper network performance. Network composition is thus an important characteristic of the network structure. However, the relation between such structural network characteristics and network performance in terms of the environmental determinants addressed has never been an explicit object of study.

Apart from the composition of the network, other aspects of the network structure that are assumed to impact network performance are related to network integration mechanisms. Network integration refers to the process of creating and maintaining a common structure between independent policy actors for the purpose of coordinating their interdependent contributions to achieve a common policy objective [12]. Hence, integration mechanisms focus on the extent to which network actors are coordinated by a central actor (i.e., centralisation) [13] and the level of cohesion between the network actors (i.e., density). Centralisation facilitates coordination, and thus integration of the network as it represents the power and control levels in a network and thus the hierarchy structure [14]. Centralisation may be crucial to encourage otherwise autonomous actors to act in favour of system-level goals [13,15]. This is in contrast to decentralised, horizontally integrated networks. That is, if such networks include a large number of organisations, coordination by a central actor alone can be too complex for network performance to occur [16]. Density, as a measure of cohesion, informs about the speed at which information can circulate in the network. High density levels may enhance communication and collaboration among actors and thus result in better network performance [17]. However, too high density levels may also negatively impact network performance [13] because of the limits to the number of connection an actor can handle. In large and complex networks, network performance may still occur if small groups or cliques of actors exist that are connected to each other by one or more shared actors (i.e., clique overlap) [18]. Information can then flow from clique to clique, warranting coordination and collaboration.

These contradictory (theoretical) insights in the relation between structural integration mechanisms and network performance, e.g., centrally [13] versus horizontally integrated [18] and dense [13] versus not dense [17], might be due to the different types of networks studied (e.g. inter- and intra-organisational networks), the purpose of these networks (e.g., service delivery networks versus information diffusion networks), or different sizes of the networks. Contradictory results could also occur depending on the policy phase in which the data collection took place. Although policy processes evolve in a dynamic rather than an incremental way, it is still legitimate – and may be helpfull – to distinguish different policy phases based on the specific tasks to be accomplished [19]. So far, most network studies either focus, at least implicitly, on the policy implementation phase, or do not explicitly distinguish between policy phases. This means that the actors surveyed might in fact refer to different phases of the policy process, which may also be an explanation for contradictory study results. Therefore, we argue that the relation between structural integration mechanisms and network performance might not be stable throughout the policy process, but may vary for the different phases. This implies that different types and levels of integration may exist for different sub-networks in the different phases leading to high network performance.

The aim of this study was *to examine the relations between structural network characteristics (i.e., network composition and network integration mechanisms) in different phases of the policy process and network performance in terms of the proportion of environmental determinants of health addressed.*

2. Methods

2.1. Research design and case selection

A multiple-case study was performed on four policy networks of the *Gezonde Slagkracht* program in the Netherlands (Decisive Action for Health; 2009–2014) [20]. This program was initiated by the

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Box 1: Cases.
The overweight projects A and B were expected to be relatively similar in size and in geographical area. Both project leaders were civil servants working in a non-public health sector. The projects differed in their approach. Case A had characteristics of a top-down approach involving different municipal policy departments and other organisations, whereas B had a bottom-up approach, involving facilitation of problems questioned by citizens. The overall goal of case A was to increase the attention for healthy foods and a healthy diet among parents, their children and among citizens with low social status. Case B aimed to support citizens (especially children and youth, unemployed citizens, and citizens with low social status) in specific neighbourhoods to live a healthy life with, e.g., case finding and facilitation strategies.
The alcohol cases in the Gezonde Slagkracht programme were mainly regional networks, in which municipalities still developed and implemented their own policies. Therefore, we chose one municipality from a large regional network (case C), that was comparable to the only single municipality alcohol case (case D). Both projects (C and D) had enthusiastic non-public health project leaders. However, the leader of D was responsible only for this alcohol project, whereas the leader of C had more tasks; this latter project leader received support from the regional project. The overall goal of projects C and D was to reduce alcohol usage amongst youngsters resulting in a decline of the negative effects of alcohol use with, e.g., regulation and enforcement strategies.

Ministry of Health, Welfare and Sport to give municipalities the opportunity (in terms of subsidiary budgets and professional support) to experiment with building inter-sectoral policy networks. Municipalities were obliged to appoint a network leader. In accordance with the program's objectives, the aim of the inter-sectoral networks was to develop and implement integrated public health policies on the prevention of overweight, alcohol and drugs abuse. Since differences may occur due to the central health theme, we selected two cases dealing with overweight (cases A and B) and two with alcohol abuse (cases C and D). Other selection criteria were the variance in network performance in terms of environmental determinants addressed by the interventions that had actually been implemented by each case, the expected size of the networks and the geographical area of the cases. Box 1 provides information on the cases based on a previous study [21].

2.2. Data collection on central concepts

The network data were collected in 2013. First, a network survey was conducted among the network leaders of the four cases, asking with whom they had contact in the context of the *Gezonde Slagkracht* program. Respondents could choose from a list with actors they had indicated as contacts in a previous survey to identify their ego networks [22], while they were additionally allowed to enumerate other actors. Using a snowball method, we approached the contacts of the leaders to identify in turn their contacts in the context of the *Gezonde Slagkracht* program. Generally, three rounds were enough to reach data saturation. Response rates varied from 73% to 83%.

Network actors first had to name their work place. Next, they were asked to select all phases of the policy process they were currently or had previously been involved in. These phases can be operationalized as follows. Policy development phase: setting-up and planning the case, e.g., involved in the problem analysis and the formulation of program objectives. Development of interventions phase: building or selecting intervention components, e.g., involved in choosing intervention strategies and in the planning