



An overview of concept mapping in Dutch mental health care



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ABSTRACT

About 25 years ago, concept mapping was introduced in the Netherlands and applied in different fields. A collection of concept mapping projects conducted in the Netherlands was identified, in part in the archive of the Netherlands Institute of Mental Health and Addiction (Trimbos Institute). Some of the 90 identified projects are internationally published. The 90 concept mapping projects reflect the changes in mental health care and can be grouped into 5-year periods and into five typologies. The studies range from conceptualizing the problems of the homeless to the specification of quality indicators for treatment programs for patients with cystic fibrosis. The number of concept mapping projects has varied over time. Growth has been considerable in the last 5 years compared to the previous 5 years. Three case studies are described in detail with 12 characteristics and graphical representations. Concept mapping aligns well with the typical Dutch approach of the “Poldermodel.” A broad introduction of concept mapping in European countries in cooperation with other countries, such as the United States and Canada, would strengthen the empirical basis for applying this approach in health care policy, quality, and clinical work.

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1. Introduction

The effort to create clarity around complex problems and concepts and find consensus in the structure and meaning of our world is a fundamental pursuit of modern societies. However, the diversity of suggestions, ideas, and beliefs often makes it difficult to reach a compromise and acceptable solution. Concept mapping can be used to address this issue because it generates ideas in an open brainstorming session that participants then rate independently and that become part of a conceptual framework by application of a fixed statistical algorithm. Trochim laid out the basis of concept mapping (Trochim, 1989). In 2007, Kane and Trochim published the authorized guide to the methodology and strategies behind concept mapping (Kane & Trochim, 2007), which became the standard.

During the last twenty-five years, concept mapping has become quite popular in the United States and Canada. Two reviews have

covered 69 individual concept mapping studies conducted over 10 years until 2011 (Rosas & Kane, 2012), and 67 dissertations from universities in the United States and Canada have covered the topic from 1985 through 2006 (Kane & Trochim, 2007). However the publications are limited to the United States and Canada. The projects which were carried out in the Netherlands are not covered.

Concept mapping was developed and introduced to the scientific community in the Netherlands in the late 1980s. The staff of the Trimbos Institute (the Netherlands Institute of Mental Health and Addiction) took notice of the approach, visited Trochim at Cornell University, and brought the methodology to the Netherlands. The institute coordinated and promoted the method, and several researchers, policy makers, and quality consultants were attracted by its elegance and applied it.

In the beginning, the data were processed using the standard statistical package SPSS, which was laborious and took too much time. To obtain results faster, the software program ‘Ariadne’ was developed, and a Dutch manual was written that helped facilitators structure and standardize the procedure (Talcott, 1995).

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This article gives an overview of the concept mapping projects conducted in the Netherlands, clarifying the number of projects carried out, their focus, the types of projects, and how they evolved. Also included are three case descriptions of recent concept map projects and a discussion of what constitutes the “state of the art” of concept mapping in the Netherlands after twenty-five years.

2. Method

This overview of twenty-five years of concept mapping in the Netherlands relied as much as possible on documents and reports. The Trimbos Institute has an archive of concept maps from the 1980s through 2003. Indeed, a first overview of these materials was prepared but not published (Kok, 2002). Because of a shift in institute policy, the archive was discontinued after 2004. An online search of publications was not successful because projects often are not published on websites or in journals but rather as internal reports. Thus, key figures who had conducted concept mapping projects after 2004 were approached for reports and publications, and the authors pooled their experiences with concept mapping projects. The collected materials were translated into English, listed, and analyzed.

The Trimbos Institute is the Dutch research, knowledge, and consulting center for mental health and addiction services and took the lead in the 1980s on concept mapping. Given the institute's focus, their projects were mainly limited to mental health and addiction. Topics on commercial marketing, industrial product development, policy issues, and education were not included. Documentation of commercial projects is not available because of copyright restrictions, so this overview is limited to mental health and addiction subject areas, leading to the identification of 90 mental concept mapping projects, although the real number is likely higher. The collection is limited but sufficiently representative for an initial overview. The 90 projects are presented and interpreted in the first part of the results.

The review of the collected concept mapping projects led to development of a heuristic classification. The authors proposed and confirmed five categories based on the material. The main criteria defining the categories were project focus and the conceptual framework that was generated. Methodological or technical criteria were not considered. This heuristic classification was used as a first attempt at creating a typology of concept mapping projects. Replications are needed to confirm the validity of the proposed typology. The five proposed types are as follows:

Type A: Theory and Model Building—A concept map is constructed that contributes to clarifying and improving a theory or model.

Type B: Policy and Management—The concept mapping approach is used to structure questions and topics for policy making and organizational development.

Type C: Planning and Evaluation—The concept mapping approach is carried out to clarify the goals of a project and specify evaluation criteria.

Type D: Quality—A concept map is constructed to clarify, cluster, and prioritize quality criteria or quality-improvement projects.

Type E: Research—The concept mapping approach is applied to design a classification system or operationalize the dimensions of a complex concept, mainly for clinical work.

In this typology, Type C: Planning and Evaluation is given a narrow definition, and concept mapping projects conducted to define quality issues are distinguished. The same division was made for topics concerning policy and management.

From the available concept mapping projects, three cases were selected to illustrate the recent use of concept mapping in the Netherlands (Yin, 1994), using the following criteria. One map

each was selected from Type E: Research, Type B: Policy and Management, and Type D: Quality. Each project had to be recent and include complete documentation and innovative features. Applying these selection criteria to concept mapping projects from the last 10 years resulted in the following selections: Case 1, the ideal culture for three merging mental health organizations; Case 2, a quality framework for an addiction treatment program; and Case 3, medical adherence in schizophrenia. These cases are described in the second part of the results.

3. Results

3.1. The first years of concept mapping, 1990–1994

After the Trimbos commission returned from their United States visit, the group initiated a concept mapping working group in 1990 with a program to promote using the method to address complex problems with various interest groups. In the same period, the issue of health care quality became prominent in the Netherlands. The National Ministry of Health scheduled national conferences, ‘Leidschendam Quality Conferenties’, to start the discussion about efficient, effective, and patient-centered care and treatment. A law to ensure health care quality was proposed, and treatment services were required to specify what constituted quality, which was new for mental health services. One of the first concept maps was developed for the identification of the quality criteria for acute psychiatry. The structure of the mental health service system had to be transformed. The provincial mental health services, which were located in rural areas, had been dissolved and patients moved to sheltered homes in the towns and cities. Along with the practical problem of caring for acute cases, conceptual and policy difficulties rose. Different stakeholders, such as patient advocacy groups, financing parties, and the public, had diverging ideas about the quality of services. In that context, concept mapping proved helpful because it started off with all of the different ideas of the different stakeholders and unified the various statements into a single conceptual framework. The views of all stakeholders were respected, and a result based on the algorithm was produced.

3.2. The Trimbos Institute takes the lead, 1995–1999

From 1995 to 1999, concept mapping became popular, with more than 30 projects being conducted. After facilitators were trained in the method and the first reports were produced, policy makers, quality managers, and researchers began to appreciate this consensus-focused procedure. More requests to clarify problems and concepts were made. New software was developed that allowed completion of the six steps of concept mapping in a single day. The advanced statistics and the visualization of the maps were attractive to groups other than policy makers and showed results with colorful graphs and elaborate statistics. Eleven concept maps focused on policy and management, and eight concept maps clarified the quality criteria for a service. All mental health and addiction services initiated a quality program to acquire certification according to the International Organization for Standardization norms, as requested by the Dutch Foundation of Mental Health Services and Health Insurers. The classical focus on planning and evaluation was less prominent in Dutch mental health care studies, but concept mapping was frequently used to generate conceptual frameworks to support research.

3.3. The “Poldermodel” period, 2000–2004

From 2000 to 2004, a national consensus model called the ‘Poldermodel’ was common in the Netherlands. Companies,

unions, and governmental bodies had successfully found solutions in round-table discussions, reaching compromises that were favorable for all parties. The same idea was launched for the different stakeholders in health care who tried to find compromises to meet the demands of the citizens, services, and health care insurance companies. Concept mapping was an effective approach to finding a fair compromise. In that period, mental health services started merging into a larger organization to secure the benefits of size. New brands, logos, and identities were introduced. In those 5 years, five concept maps concerning policy and management and five concerning planning and evaluation were generated to find consensus and create a win-win situation for all parties.

3.4. The health care reform period, 2005 to 2009

During the next 5 years, health care in the Netherlands was dominated by health insurance reform in the shape of a new law endorsed in January 2008. Mental health care was also financed along with private health insurance, which each citizen is required to have. Rising costs became the dominant issue. At the same time, the Trimbos Institute had to reorganize and became more dependent on external financing, and concept mapping as a consensus procedure was no longer a core activity. The facilitators and coordinator, who were experienced project leaders, changed jobs. In those 5 years, five concept maps were initiated by academic institutions to address research questions and dissertations.

3.5. The revitalization of concept mapping, 2010 to 2014

From 2010 to 2014, a total of 33 concept maps were generated. Most projects were research oriented, such as development of a questionnaire for recovery and burden of disease and detecting the dimensions of coercion in treatment. University departments developed the projects, often as part of doctoral theses. Furthermore, guidelines development became an important quality issue in mental health care, and concept mapping was used to support those projects. Concept mapping was also applied in the implementation of new interventions. Multisite projects in different European countries were conducted, but the Trimbos Institute carried out only a few projects. Consultants and researchers related to academic institutes were specialized in the method and served as facilitators.

Table 1 lists the 90 projects. Most of them (26) were related to research questions, 21 focused on policy and management of services, 17 aimed to clarify quality criteria, 15 were conducted for planning and evaluation purposes, and 11 focused on theory and model development.

The context analyses of 25 years of concept mapping in the Netherlands shows a shift from quality-related topics during the first years to topics related to policy and management and finally to research-associated topics, which dominated during the last 5 years. This shift was demand driven; however, the list of projects also reveals technology as a second driver. Data processing, results visualization, project management, and academic support and coordination of the six steps are also determining factors. From

Table 1
Concept maps in the period 1990 until 2024.

Nr.	Date	Name	Type A T&M	TypeB P&M	Type C P&E	Type D Qual	Type E Res
1990–1995							
1.	1992	Quality criteria for acute psychiatry				X	
2.	1993	Standards and values in health and health care from a patient's perspective				X	
3.	1994	Counseling plans of four regional assisted living facilities (RIBW)				X	
4.	1994	The ideal Youth Advice Center (JAC) Amsterdam			X		
5.	1994	Preventive health promotion for people with a mental disability		X			
6.	1994	Quality of the intake procedure of psychiatric center 'Oosterdam' 1995–1999				X	
7.	1995	Quality policy general psychiatric hospital (APZ) 'Het Hooghuis'		X			
8.	1995	Quality of home house care program 'Cystic Fibrosis's				X	
9.	1995	Aspects of hindrance by addicts					X
10.	1995	Social skills primary and secondary schools					X
11.	1995	Characteristics of mental health care (GGZ) in Amsterdam	X				
12.	1995	Innovation in mental health care		X			
13.	1996	Social support system West-Friesland		X			
14.	1996	Homelessness as a universal problem	X				
15.	1996	Characteristics of social psychiatry	X				
16.	1996	The 'raison d'etre' of the 'Jellinek'. What is the mission and vision of the addiction treatment center in Amsterdam?		X			
17.	1996	Characteristics of an optimal position of juveniles in the society	X				
18.	1996	Determination of needs in health care services from a patients' perspective				X	
19.	1996	(Quality of) healthcare				X	
20.	1996	The degree of integration of women's health care movement. The development of an inter-institutional screening framework	X				
21.	1997	Effects of quality care in general hospitals				X	
22.	1998	Requirements for future policy of the assisted living facilities (RIBW) in Amersfoort region			X		
23.	1998	Determination of position occupational health services of the Shell company		X			
24.	1998	Autonomy and participation of the client 'De Halte Breda'.					X
25.	1998	Quality criteria for the education of the systemic family services				X	
26.	1998	Organizational characteristics of the sector partial hospitalization 'Derksencentrum Amsterdam'		X			
27.	1998	Quality of Life of persons with a long-term psychiatric disability in Belgium					X
28.	1998	Requirements for the department of Care and Rehabilitation of the 'Trimbos-institute'			X		
29.	1998	Quality criteria for forensic treatment organizations of Ministry of Justice				X	
30.	1998	Dimensions of employee satisfaction of the addiction treatment service 'Maliebaan Utrecht'					X
31.	1998	Aspects of integration of practice and research in addiction treatment services in Germany		X			
32.	1999	Strategic goals of a large national mental health service 'Parnassia'		X			
33.	1999	Characteristics of customer focus of the addiction treatment service 'Maliebaan Utrecht'				X	
34.	1999	One-to-one support. A buddy system for persons after psychiatric admission		X			
35.	1999	Quality criteria for a regional service chain of mental health care				X	

Table 1 (Continued)

Nr.	Date	Name	Type A T&M	TypeB P&M	Type C P&E	Type D Qual	Type E Res
1990–1995							
36.	1999	Persons with a dual diagnoses					X
37.	1999	Development of a vision for the Dutch Society of Quality in Health Care	X				
38.	1999	Criteria for psychotherapy for the elderly			X		
39.	1999	The role of interpreters in the psychotherapeutic treatment 'Phoenix Gelderse Roos'.					X
40.	1999	The contribution of the assisted living facilities (RIBW) of regional health care and rehabilitation		X			
41.	1999	Wishes and needs of persons in mental health care regarding daytime activities and occupational rehabilitation 'Mental Health Services Rijnmond Zuid' 2000–2004		X			
42.	2000	Good care for persons with serious and chronic psychic and social problems: a concept map conducted in five countries					X
43.	2000	Integration of mental health care (GGZ) as part of community services in Belgium			X		
44.	2000	The development of criteria for demand-oriented and client-centered mental health: 'Rümke Groep'		X			
45.	2000	Core functions of the new master program of Faculty of Health Care School of Applied Sciences Utrecht					X
46.	2000	What is important for clients of the Social Psychiatric Services in Den Bosch?	X				
47.	2000	Quality criteria for the traumatology healthcare of the 'Sinai Centrum Amsterdam'				X	
48.	2000	Integrated view on treatment policy of the 'Division West Utrecht Altrecht'		X			
49.	2000	Requirements for an effective execution of the policy 'Gelderse Roos'.			X		
50.	2000	Policy and targets of the 'Youth services Rotterdam'			X		
51.	2000	The expectations of stakeholders regarding the care for persons with severe psychosocial problems 'Buitenamstel Amsterdam'			X		
52.	2001	The quality criteria of juvenile justice reports				X	
53.	2001	Policy priorities for the next four year. Department of Nursing, School of Applied Sciences Utrecht		X			
54.	2001	Clarifying occupational related problems by chronic illness: depression, heart attack and rheumatism 'Coronel Institute Amsterdam'					X
55.	2001	Improving the EFQM Model: An empirical study on model development an theory building using Concept Mapping	X				
56.	2002	The role of nurses in the care of mentally disabled persons					X
57.	2002	The picture of an ideal picture juvenile detention center in the Netherlands		X			
58.	2002	The future of the department for child- and youth psychiatry 'Sophia Kinderziekenhuis Rotterdam'		X			
59.	2002	Quality profile of local support centers and volunteer organizations				X	
60.	2002	Characteristics for adequate mental health care for refugees			X		
61.	2003	Reflections about the usefulness: A conceptual study among users of the forensic reports of adolescents 2005–2009					X
62.	2005	A quality framework for addiction treatment program: Results of a Concept Mapping strategy.				X	
63.	2006	Medication Adherence in Schizophrenia: Exploring Patients, Carers' and Professionals views.					X
64.	2008	Customer oriented merging: A concept mapping study on the ideal future culture of three merging mental health organizations in Amsterdam		X			
65.	2009	The development of a theoretical framework for the quality of regional public health reporting					X
66.	2009	A quality management model for integrated care: results of a Delphi and Concept Mapping study 2010–2014					X
67.	2010	Implementing Guidelines in Homes for the Elderly Using the Concept Mapping Strategy to Identify the X Factor			X		
68.	2011	Defining a strategy for implementation of the Dutch national Guideline for municipal health policy		X			
69.	2011	Concept mapping as a tool to guide evaluation of complex interventions: overweight prevention in Dutch youth			X		
70.	2011	Quality aspects of Dutch general practice				X	
71.	2011	Assess key components for monitoring socially vulnerable groups					X
72.	2012	Return to work after sick leave due to depression: A conceptual analysis based on perspectives of patients, supervisors and occupational physicians.					X
73.	2012	Mapping the concept of the quality of psychosocial care after incidents to guide the construction of a questionnaire to measure the quality of post-disaster psychosocial care in the Netherlands					X
74.	2012	Defining the added value of a new approach of Youth Health Care		X			
75.	2012	An implementation framework for public service charters			X		
76.	2012	Conceptual framework to develop a questionnaire for recovery from mental disorders					X
77.	2013	Define building blocks of an European health information system	X				
78.	2013	Define quality of local care and support services in rural areas to guide planning and evaluation			X		
79.	2013	Define the added value of the participation of Youth Health Care professionals in primary school health care advisory teams for evaluation and quality improvement			X		
80.	2013	Conceptualizing recovery of a closed psychiatric ward					X
81.	2013	The development of a conceptual measurement model for the burden of neck pain					X
82.	2013	Patients' perspective on self-management in the recovery from depression					X
83.	2013	Build a theoretical framework for local integrated public health policy	X				
84.	2014	The development of the vision for the program 'Epidemiology and National Monitor Mental Health'	X				
85.	2014	Why is gerontology not attractive among medical students?					X
86.	2014	Coercion and compulsion in the care of patients with dementia					X
87.	2014	Coercion and compulsion in the care of patients with an intellectual disability					X
88.	2014	Culture sensitive aspects. Addendum of the multidisciplinary treatment guideline schizophrenia					X
89.	2014	How to implement an obesity prevention program for adolescents in deprived living areas?			X		
90.	2014	Aspects of professional collaboration in a neighborhood		X			
1992–2014 Totals			11	21	15	17	26

Type A: Theory and Model building. A concept map is constructed which contributes to clarify and improve a theory or a model.

Type B: Policy and Management. The Concept Mapping approach is used to structure questions and topics for policy making and organizational development.

Type C: Planning and Evaluation: The Concept Mapping approach is carried out to clarify the goals of a project and to specify criteria for evaluation.

Type D: Quality. A concept map is constructed to clarify, cluster, and prioritise quality criteria or quality improvement projects.

Type E: Research: The Concept Mapping approach is applied to design a classification system or to operationalize the dimensions of complex concept mainly for clinical work.

1995 to 1999, the Trimbos Institute took the lead, which resulted in 35 concept mapping projects in 5 years. In the period 2005 to 2009, a leadership organization was lacking, and the number of concept mapping projects dropped to five.

3.6. Three case studies

Of the 90 concept mapping projects, three were selected as case examples. These three were identified as being representative of the most frequently generated concept maps and are described below.

Case 1, Type B, Policy and Management: The ideal culture for three merging mental health organizations (Project 64 in Table 1). This concept map has practical implications for the personnel management of the organization, and the representation of the clusters in the form of geographical entities is an innovation. The emphasis lies on the communication and sharing of the map, which should be easy to understand, memorize, quote, and apply in daily practice.

Case 2, Type D, Quality: A quality framework for addiction treatment programs (Project 62 in Table 1). The clusters and statements of the concept map on quality lead to evaluation criteria. The cluster map can be rotated so that the stakeholders are on the poles of the map. Innovative statistics were applied to determine the location of the stakeholders on the map.

Case 3, Type E, Research: Medical adherence of schizophrenic patients (Project 63 in Table 1). This concept map is a framework for developing clinical standards. Clinical standards should be developed in an international multisite study, which means in Europe that the statements have to be translated into different languages. The work was conducted by emails and in a limited number of meetings. Also discussed was the development of an internet site to support the translation of the statements and to structure the statements, which required investments in innovative technology.

3.6.1. Case 1: Ideal culture of three merging mental health organizations

Many health care organizations in the Netherlands have merged into larger consortia. They have a staff of several thousand workers and many locations (e.g., 3000 workers and 25,000 patients in 50 locations). However, mergers can fail because of “cultural differences of the merging organizations.” To prevent such a problem, three large mental health care organizations with 1200, 700, and 1000 employees, respectively, used concept mapping to study the ideal culture of the new organization before the merger (Buntjer et al., 2008). The focus was to clarify the ideal culture for the future when they were to form one large mental health care service (Table 2).

The task force developed a website to collect items about the ideal culture (a web forum with 500 respondents). During the information meetings of the three organizations (255 respondents), suggestions were collected on paper. Finally, 75 representatives of the three organizations carried out the sorting and rating of the 70 statements (Fig. 1).

Statistical analyses identified eight clusters (patient orientation, image and reputation of the new service, work conditions, quality orientation, expertise and professionalism, learning organization, modern infrastructure, and dress code). Surprisingly, there was only one difference concerning expertise and professionalism: One organization rated that cluster as less important than the other two services (Fig. 2).

The task force chose a solution with four clusters. The borders of the clusters were dissolved and redrawn by hand, creating parts of a geographical map. The four geographical entities were designated as the Kingdom of the Clients, Country of Learning and Rewarding, the United Nation for Quality, and the Continent of Infrastructure. This geographical representation is an innovation of the classical visualization of concept maps. Geographical mapping is used successfully by companies in the Netherlands to clarify concepts; however, their maps are created only through

Table 2
Framework culture.

Name of the project	<i>Customer oriented merging: A concept mapping study on the ideal future culture of three merging mental health organizations</i>
1. Contractor	<i>Arkin Mental Health Services Amsterdam</i>
2. Projectmembers	<i>R. Buntjes, F. Prins, U. Nabitz, E. Buiting, P. Seignette, S. van der Voet, T. Smit</i>
3. Year of publication	<i>2008</i>
<i>Approach</i>	
4. Aim	<i>Clarify and structure the concept of culture in the context of merging mental health services in order to deliver efficient, effective and customer focused cure and care. Culture is seen as the mental set of norms, values, experiences, rules, successes and failures of workers in an organization.</i>
5. Focus	<i>What is the ideal future culture for the three merging organizations?</i>
6. Participants	<i>75 representatives of the organizations</i>
7. Method to generate statements	<i>More than 500 suggestions were made through a web forum. During the information meetings about the mergers more than 400 ideas were collected. The item pool was analyzed and redefined to 70 heterogeneous statements.</i>
<i>Results and use</i>	
8. Name of the top statements	<i>Top statements:</i> <i>1. The relation between workers and clients is characterized by respect, equality and putting people first.</i> <i>2. Clients are satisfied with our work.</i> <i>3. In the ideal culture all workers feel to be part of the whole organization and cooperate constructively and flexible.</i>
9. Name of the top clusters	<i>Top clusters:</i> <i>1. Patient orientation part of Kingdom of Clients</i> <i>2. Image of the services part of Kingdom of Clients,</i> <i>3. Work conditions part of Continent of Infrastructure</i> <i>4. Quality orientation part of United Nation for Quality</i> <i>5. Expertise and professionalism part of Country of Learning and Rewarding</i>
10. Special issue	<i>There are no statistical differences between the three merging organizations besides the cluster expertise and professionalism. The service which was mostly related to the university gave that cluster a higher priority. Concerning the 70 statement there were 5 statements in which the three services differ such as: Our meeting are structured and short. We are pleased to talk about work.</i>
11. Report or publication	<i>Internal report. Arkin, Amsterdam</i>
12. Use of findings	<i>The results were used for policy and strategy of the merging organization and for the development of branding.</i>

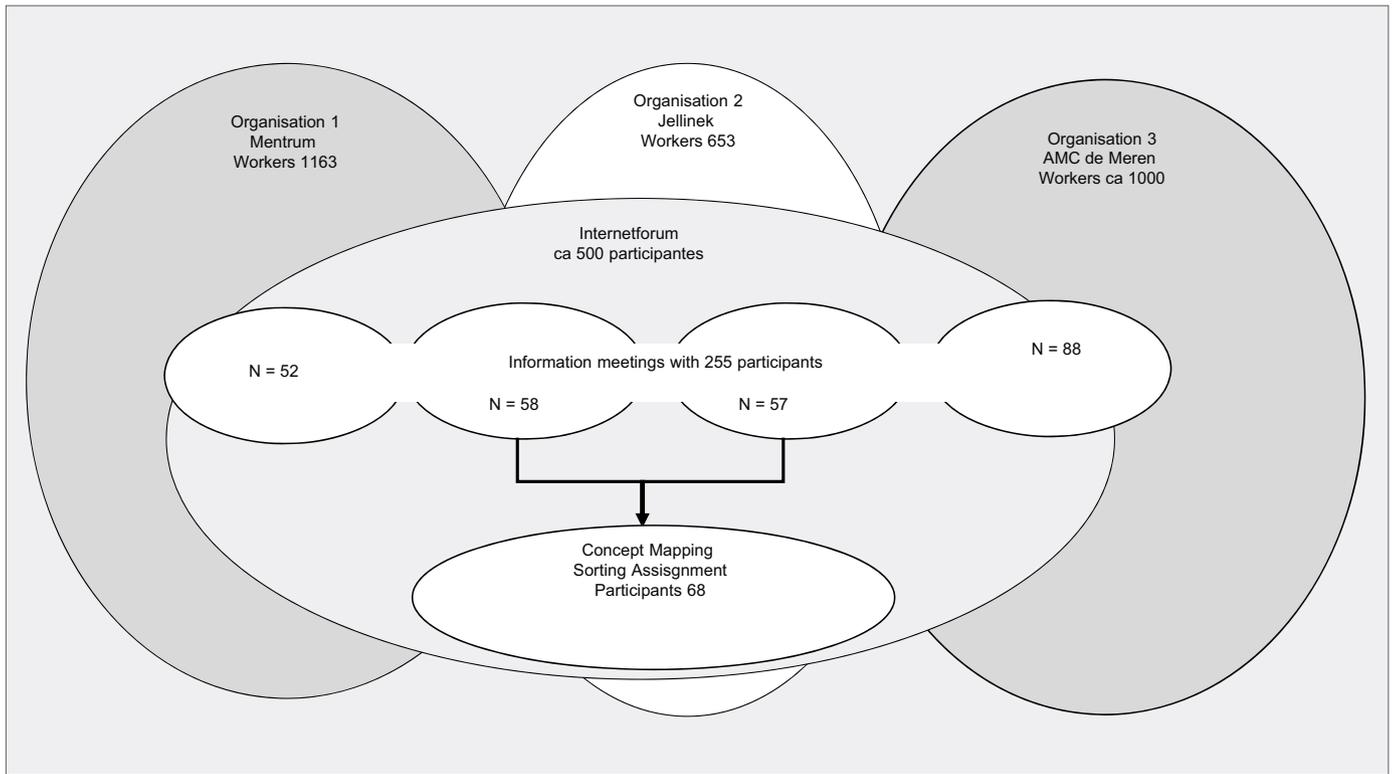


Fig. 1. Stakeholders.

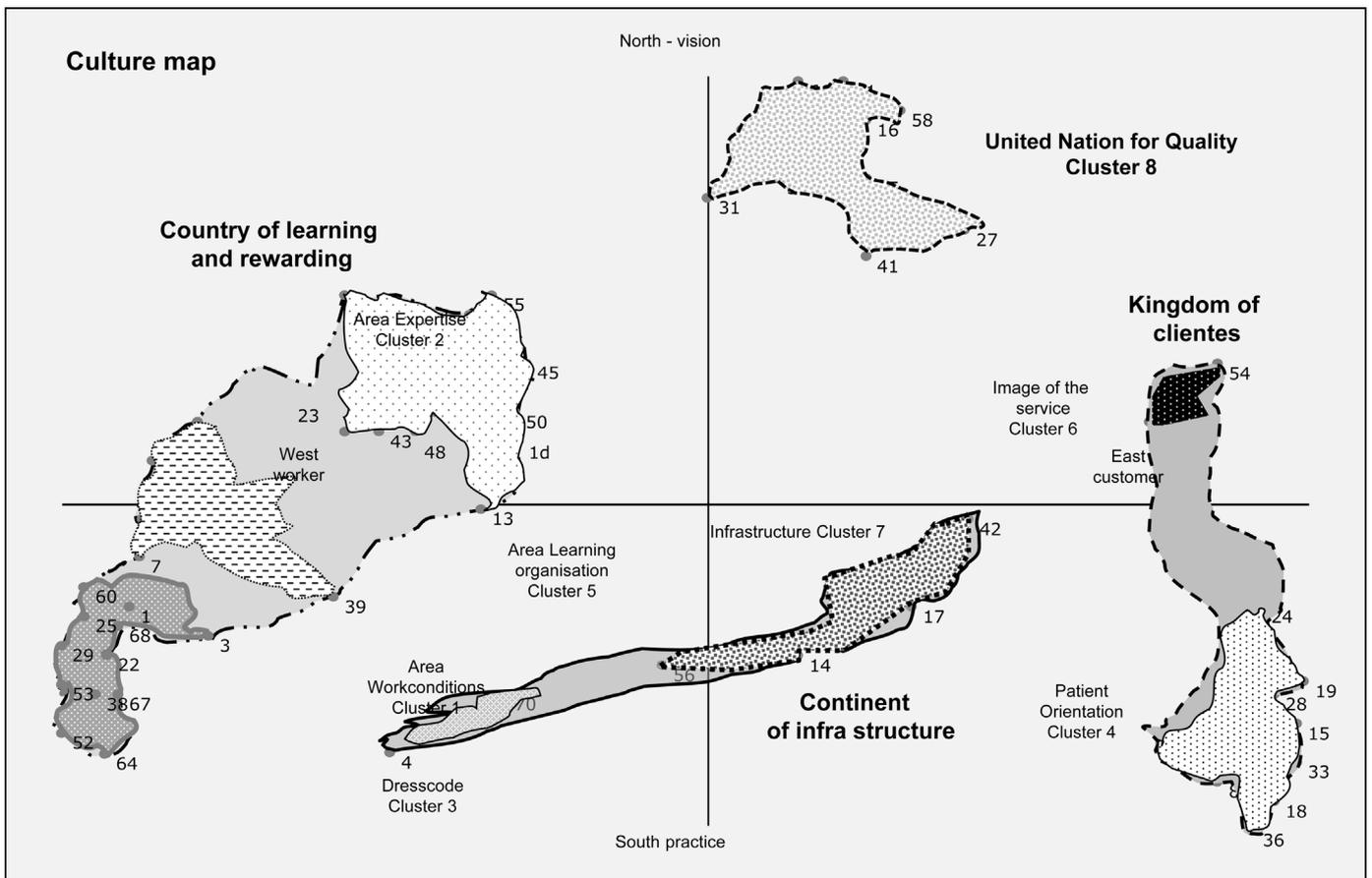


Fig. 2. Concept map culture.

brainstorming and a creative process, and there is no empirical or statistical basis for the structures (Swaaij & Klare, 2006). Combining the cluster map with the method of geographical mapping is new, and this representation helps to facilitate communication of the results (Trochim, 1999). The geographical map helped the three merging organizations to develop a policy focusing on branding, patient orientation, quality, professionalism, and investments in computer and internet infrastructure.

3.6.2. Case 2: Quality framework for addiction treatment programs

Addiction treatment programs are complex organizations. They engage in prevention, acute admissions, counseling, outpatient and rehab treatment, maintenance programs, aftercare, and family support. They strive for quality, but what is a quality framework and what are quality indicators (Table 3)?

More than 90 different stakeholders participated in the concept mapping project and generated 667 ideas about quality, which were reduced in a stepwise approach to 70 unique statements. Fig. 3 shows the process from four brainstorming sessions to the final statements.

Two domains were identified: Professionalism and Organization (Fig. 4). Nine clusters were grouped in a circle around the cluster “Best Practice”. The three most important clusters were “Client orientation,” “Treatment approach,” and “Attitude of staff.” Additional analyses of the priorities and the position of the 90 stakeholders on the cluster map showed that the clients and providers emphasized the west side of the map. The stakeholder “public” emphasized the east side of the map.

The conclusion of this project was identification of a common but specific quality framework. The presented findings are an important step toward generating synergy and efficiently channeling energy and endeavors for quality improvement in addiction treatment programs (Nabitz et al., 2005).

3.6.3. Case 3: Medical adherence of patients with schizophrenia

One of the clinical problems in treating people with schizophrenia is suboptimal medication adherence. Studies report that about 50% of patients do not take their medication as prescribed, but little is known about the reasons. To explore the factors related to adherence and non-adherence, a multi-center collaborative study was conducted in London, UK; Verona, Italy; Leipzig and Ulm, Germany; and Amsterdam, the Netherlands. Concept mapping was used to generate items and design a conceptual framework (Kikkert et al., 2006) (Table 4).

Three groups of participants were recruited: 27 patients, 29 caregivers, and 28 professionals. They independently generated 769 items during brainstorming sessions, focusing on the question: “What are the factors that influence a patient to take or not take antipsychotic medication?”

The items were condensed into 82 unique statements of negative and positive factors related to medical adherence. The 84 participants prioritized and sorted the statements, and the statistical analysis extracted 10 clusters that are represented in the map (Fig. 5).

Five factors were defined as clinically relevant themes for adherence. The most important factor from patient and caregiver perspectives was the beneficial effect of medication (Efficacy of medication, Cluster 4), but professionals rated this factor as less important. The other factors were external support (Professional and non-professional support, Cluster 1), Insight (Cluster 5), Side effects (Cluster 10), and Positive medication attitude and expectations (Cluster 6). Patients are most motivated to use medication if they experience direct beneficial effects, such as symptom reduction, and if they realize indirect beneficial effects, such as relapse prevention. Clinicians should focus more on the positive aspects of medication, enhancing insight, and creating a good therapeutic relationship. The results of the concept mapping correspond in general with the Health Belief Model (Beker & Maiman, 1975).

Table 3
Framework addiction treatment.

Name of the project	<i>A quality framework for addiction treatment programs: Results of a Concept Mapping strategy</i>
1. Contractor	<i>Jellinek Canter</i>
2. Projectmembers	<i>U. Nabitz, W. van den Brink, J. Walburg</i>
3. Year of publication	<i>2005</i>
<i>Approach</i>	
4. Aim	<i>Specify a comprehensive quality framework and the priorities for treatment based on the demands of the stakeholders.</i>
5. Focus	<i>“In your opinion, what are the quality demands of an addiction treatment program?”</i>
6. Participants	<i>Brainstorm and the structuring sessions: 90 members. 27 clients, 30 providers, 33 public</i>
7. Method to generate statements	<i>More than 667 ideas were generated in 4 brainstorm sessions. In a rating procedure the suggestions were reduced to 70 statements.</i>
<i>Results and use</i>	
8. Name of the top statements	<i>Top 5 statements of 70</i>
	<ol style="list-style-type: none"> <i>1. The program is effective, has a low dropout rate and a positive long-term effect.</i> <i>2. The staff have time and respect for the clients.</i> <i>3. The program is easy to access, does not have long waiting lists, and has a low threshold.</i> <i>4. The effects of the program are evaluated regularly.</i> <i>5. The aftercare focuses on integration, and work experience plays an important part.</i>
9. Name of the top clusters	<i>Top 5 clusters:</i>
	<ol style="list-style-type: none"> <i>1. Client orientation</i> <i>2. Treatment approach</i> <i>3. Attitude of staff</i> <i>4. Task orientation</i> <i>5. Result orientation</i>
10. Special issue	<i>Clients rate the first cluster “Client orientation” higher than the providers and the public. Providers rate the 4th statement “The effect of the program are evaluated regularly” higher than the clients and public.</i>
11. Report or publication	<i>Sucht, 2005, vol. 32, pp. 140-152</i>
12. Use of findings	<i>The concept mapping was the input for the reorganization of the addiction treatment program.</i>

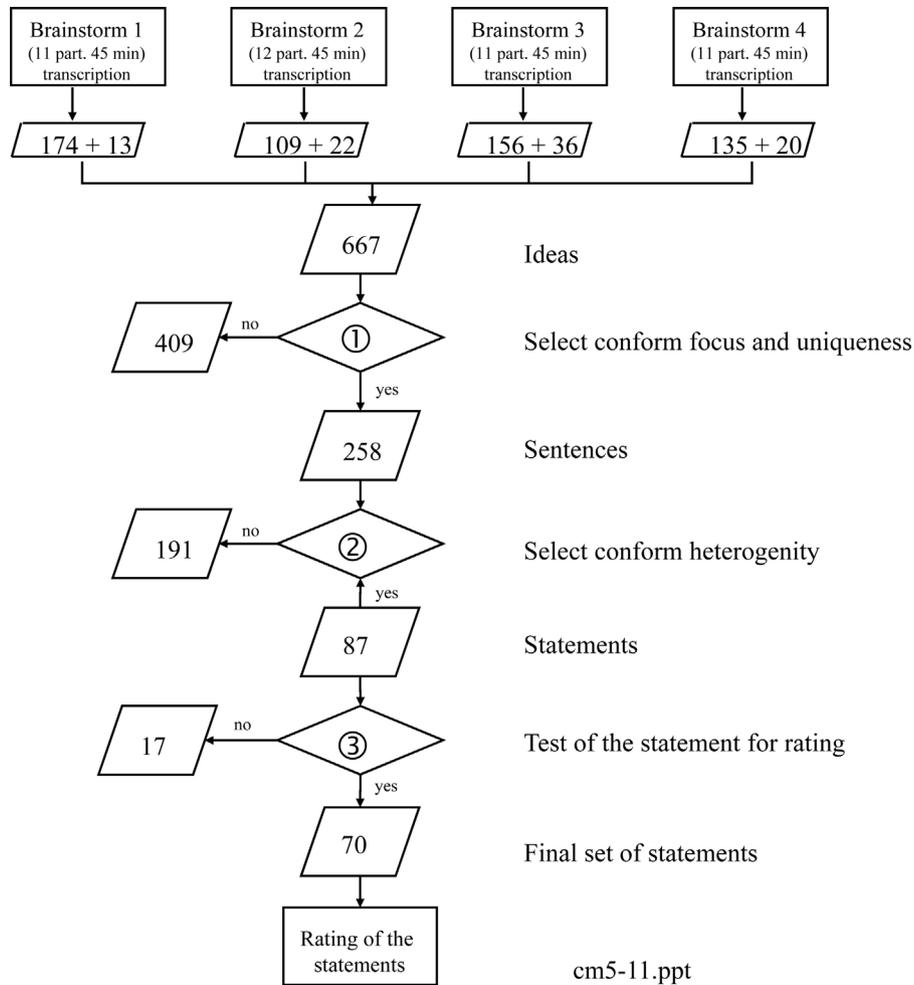


Fig. 3. Statements.

This multi-center study showed that concept mapping is a useful tool for exploring, identifying, and weighing factors involved in medical adherence of patients with schizophrenia in different countries. However, the coordination and project organization were quite complex and time consuming. It is obvious that online support through the internet would have been very helpful.

4. Conclusion

This article demonstrates that concept mapping has been a popular, effective, and efficient strategy to clarify complex topics of mental health care in the Netherlands. The 90 concept mapping projects contribute to the evidence base for this approach with respect to building theories and models, developing policy, clarifying management decisions, improving planning and evaluation, structuring quality topics, and designing classifications for clinical work.

Twenty-five years of experience have uncovered variations in how the methodology is used. The popularity of concept mapping appears to depend on the coordination of projects and facilitators, the dissemination of findings, and statistical and technical support. In the beginning, the Dutch Trimbos Institute provided the necessary support, and academic institutions now offer some help, but a strong support service is needed in the future so that concept mapping can contribute to faster and more fair and democratic decision making.

Three concept maps were selected to demonstrate the variations and innovations. In the first case study, the representation of the maps was changed to a geographical format to deepen understanding and generate an attractive visual for easy communication. A colorful map of the ideal future culture, showing entities such as the Kingdom of Clients, was created and was helpful in transferring the findings.

The stakeholders who participate and generate a concept map agree on the conceptual framework but often have different priorities. In the second case study, a statistical analysis of the position of the stakeholders on the map was carried out. The preferences of the stakeholders determined their position on the conceptual framework. Clients and providers were positioned close to “Attitude of staff,” “Treatment approach,” and “Client orientation” whereas the public emphasis was close to “Result orientation.”

Practical clinical problems, such as the adherence of patients with schizophrenia to medication, are difficult and seldom of scientific interest. International studies with participants in several countries are needed to address these issues. The third case study demonstrates that a multi-center concept mapping project in different European countries with different language can be conducted. In the near future, the internet will be helpful for translating the resulting statements and collecting data on the European scale so that international clinical standards can be developed.

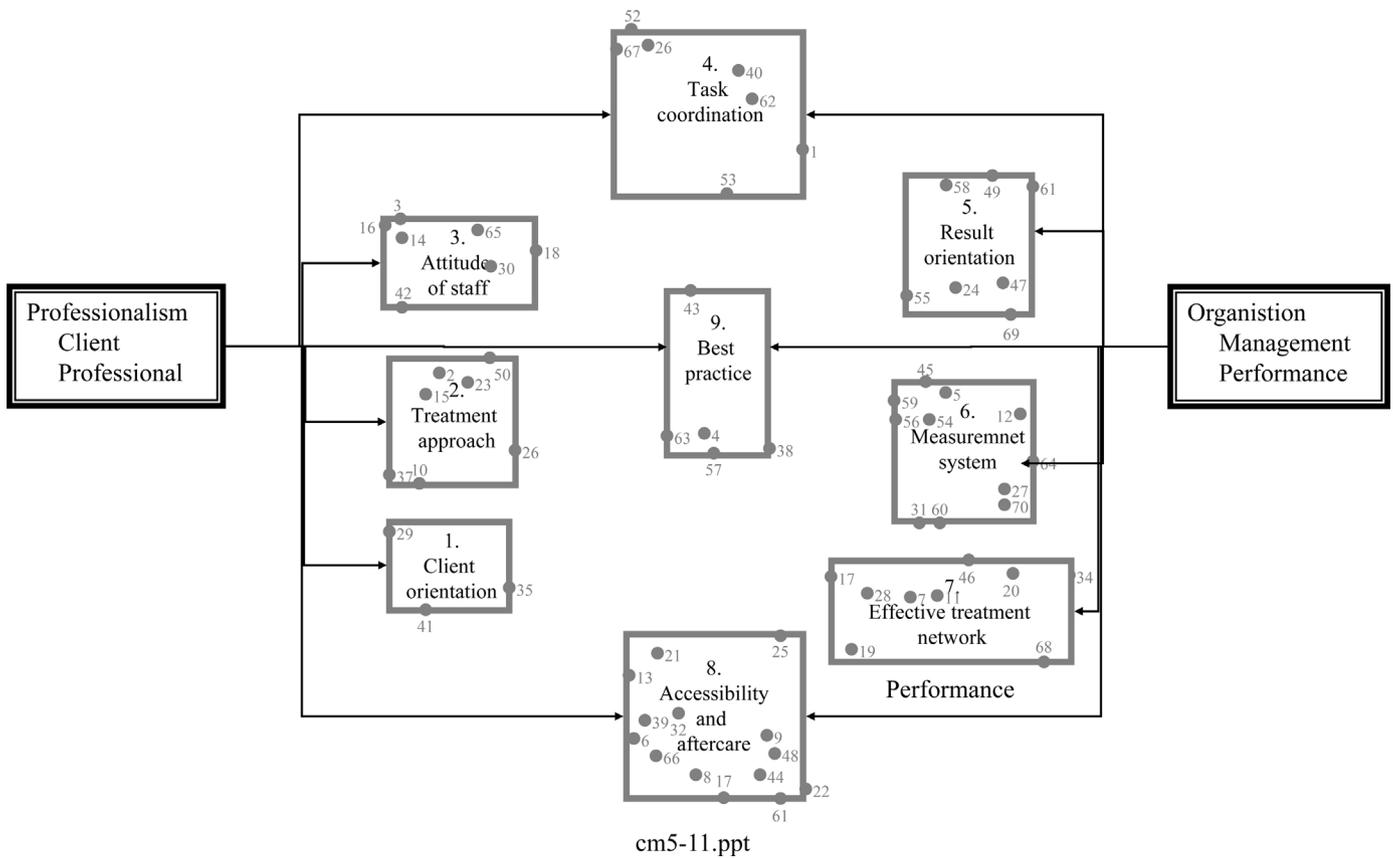


Fig. 4. Quality framework addition.

Table 4
Framework medical adherence.

Name of the project	Medication Adherence in Schizophrenia: Exploring Patients, Carers' and Professionals views.
1. Contractor	Academic Medical Center
2. Projectmembers	M. Kikert, A. Schene, M. Koeter, D. Robson, A. Born, H. Helm, M. Nose, C. Goss, G. Thornicroft, R. Gray
3. Year of publication	2006
4. Aim	Explore the factors which are related to the compliance of psycho-pharmaca as seen by patients', carers' and professionals and to generate consensus about the framework.
5. Focus	"What are the factors that influence whether you take or you take not antipsychotic medication?"
6. Participants	Brainstorm sessions: 91 members from 3 countries Sorting assignment: 84 members from 3 countries
7. Method to generate statements	More than 700 suggestions were generated in 12 brainstorm sessions. In a rating procedure the suggestions were reduced to 82 statements.
Results and use	
8. Name of the top statements	82 statements: The statement with top priorities are not reported.
9. Name of the top clusters	Top 5 clusters of 9: 1. Efficacy of medication 2. Insight in illness and medication 3. Side effect of self management 4. Professional and non-professional support 5. Positive medication attitudes and expectations
10. Special issue	Clients, carers and professionals do not have a shared understanding about the factors which are important for in patients' medication adherence behavior. Closing the knowledge gap between patients and professionals.
11. Report or publication	Schizophrenia Bulletin, 2006, vol 32, no 4, pp. 786-794
12. Use of findings	Advice for clinician to emphasis the positive aspects of medication, to help the client to understand the illness and medication and to strengthen a positive relationship with patients and carers.

In addition to the three examples, the authors agree with and support the conclusion of Van Martens et al: "Concept mapping is a valuable method for evidence-based public health policy, and a

powerful instrument for facilitating dialogue, coherence and collaboration between researchers, practitioners, policy makers and public" (Martens van et al., 2014)."

10 clusters with 82 statements.

Priority of clusters by patients:

1. Efficacy of medication (9)
2. Side effect self management (3)
3. Insight (5)
4. (Non) - professional support (1)
5. Positive medication attitude (6)

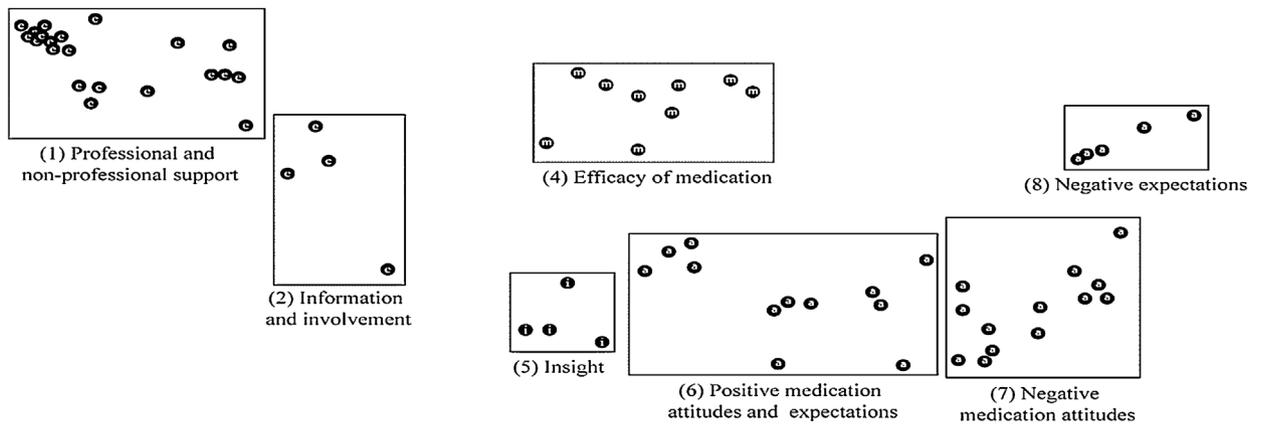


Fig. 5. Concept map medication adherence.

4.1. Limitations

The internal validity of the concept mapping procedure is high because of the structured approach and statistical algorithm. Rosas and Kane (2012) have demonstrated the strong internal representational validity and reliability. However, studies to standardize and broaden the brainstorming sessions using internet tools would be helpful. Also, clearer rules concerning the statistical procedures would be useful to answer questions such as, How many respondents are necessary to stabilize the point map? A contribution to the internal validity could be made with an alternative multivariate statistical method for the statistical algorithm. International expert groups with initial members from the United States, Canada, and the Netherlands should address these methodological issues.

Research studies concerning external validity have yet to be presented, to our knowledge. The immediate relevance of a concept map is clear: The participating stakeholders in a concept mapping project in most cases are pleased with the final result, clusters, priorities, and conceptual framework. They see their ideas reflected in the result and are happy with the generated consensus; however, more fundamental validity studies should be conducted to support the face validity and this apparently successful outcome.

4.2. Future perspectives

Concept mapping as a scientific consensus procedure has proved its value in the last 25 years mainly for clarifying topics of mental health in the Netherlands. Other health-related sectors in the Netherlands and Europe could follow, such as public health, hospital care, general practitioners, and care for the elderly. In addition to health care, education and government entities and nonprofits could benefit from concept mapping as a tool to conceptualize problems and support decision making. Little is known about the industries and commercial businesses that use concept mapping because the results are mostly protected by

copyright. These entities could be encouraged to publish in scientific journals.

One suggestion from the Dutch perspective is to initiate and establish a European branch for concept mapping in close cooperation with those who established it in the United States. Such an international network could facilitate, promote, and enhance this approach to evidence-based conceptualization and consensus building for theories and models to support decision making for policy and management; structure planning and evaluation; develop quality indicators; and define evidence-based classification systems for research. A network of experts could also contribute together with experts from the United States and Canada to enhance methodological quality and rigor and introduce concept mapping on a broader scale in Europe.

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