

# Perceptions of healthcare professionals about the implementation of Shared Decision Making in primary care: a qualitative study from a Virtual Community of Practice

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## BACKGROUND

The incorporation of **shared decision-making** (SDM) represents a central aspect of **empowerment** processes. It facilitates greater activation on the part of patients, increasing the likelihood of gaining control over their healthcare and developing skills to solve their health problems. Despite these benefits, there are difficulties in the implementation of the SDM among healthcare professionals due to internal and external factors related to the context and health systems.

Table 1. Characteristics of the participants

Characteristics	Frequency
<b>Age (years), mean (SD)</b>	47.03 (8.55)
<b>Sex, n (%)</b>	
Male	31 (21.2%)
Female	115 (78.8%)
<b>Profession, n (%)</b>	
Physicians	80 (54.8%)
Nurses	66 (45.2%)
<b>Residents tutor</b>	
No	112 (76.7%)
Yes	34 (23.3%)
<b>Years of experience, mean (SD)</b>	21.77 (8.08)
<b>Years in primary care, mean (SD)</b>	18.0 (8.28)
<b>Years in the health centre, mean (SD)</b>	8.16 (7.70)

SD= Standard deviation.

### Screenshots of the Virtual Community of Practice



Table 2. Themes of the framework used for data analysis. Extracted of *Framework on the implementation of SDM in primary care* developed for the analysis of the interventions of health professionals in the VCoP .

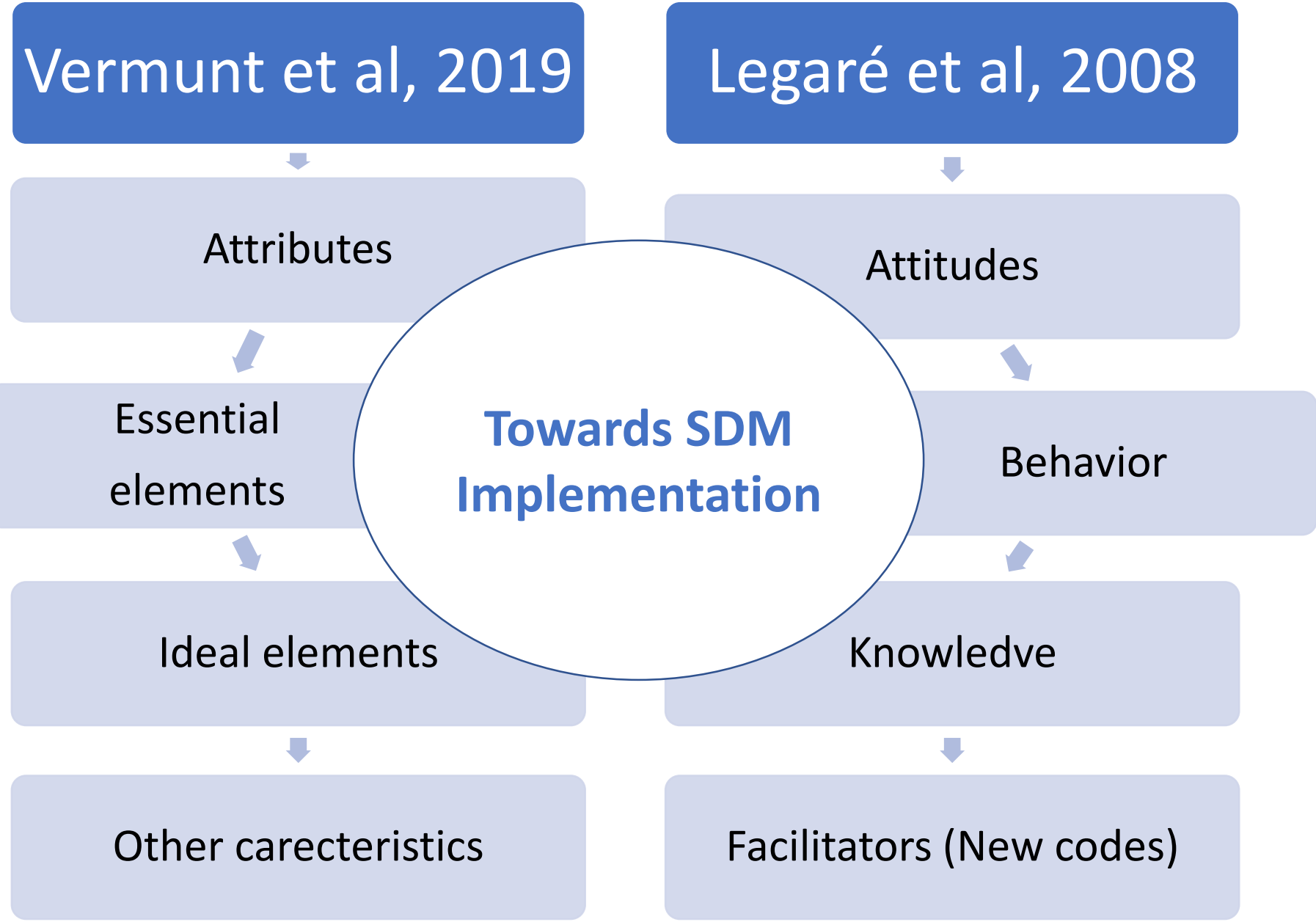


Figure 1. Selection of quotations made by healthcare professionals on the VCoP

## RESULTS

Regarding SDM implementation, in the opinion of the healthcare professionals, **external aspects can be a challenge in this process**, such as the pressure of care, the time available for each patient and the complex profiles of some patients. They also commented that in clinical practice, **their own attitudes, behaviors and knowledge can be a barrier or a facilitator** for the successful implementation of SDM.

## CONCLUSIONS

Exploring patients' values and preferences, providing them with up-to-date and evidence-based health information, and validating their understanding, are the most relevant qualities for this group of healthcare professionals. The implementation of the SDM could be helped by specific training to broaden their knowledge and enable them to develop competencies to manage some barriers such as time management and patients who are not interested in a more participative clinical relationship as proposed by the SDM.

**Key words:** Health professionals' perceptions, Empowerment, Shared-decision making, Virtual community of practice.



# Implementation of e-mpodera2: A virtual Community of Practice for people with ischemic heart disease

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## BACKGROUND

**Virtual Communities of Practice (VCoPs)** have become a strategic approach for transferring **knowledge among people with similar circumstances**. VCoPs allow **informal learning** through information exchange, **social support** and skills acquisition to cope with the disease.

## METHOD

A **gamified co-designed VCoP (e-mpodera2)** is the intervention of a pragmatic randomised controlled trial that is currently being conducted in Catalonia, Madrid and Canary Islands, Spain. Its effectiveness and cost-effectiveness for the empowerment of people with ischemic heart disease (IHD) will be evaluated.

The **implementation process** included:

- 1) A **Co-creation Phase**: A **Patient Journey Map** created by people with a long IHD background that helped to co-produce a VCoP content framework. Contents and resources were piloted.
- 2) A tailored VCoP based on the content **framework** was designed following three stages: a) on-boarding, b) deep empowerment, c) maintenance and consolidation of skills and behaviors.

A **workflow** for contents' building was created regarding **empowerment dimensions: health literacy, shared decision-making, self-management, social and family support**.

Figure 1. The implementation process

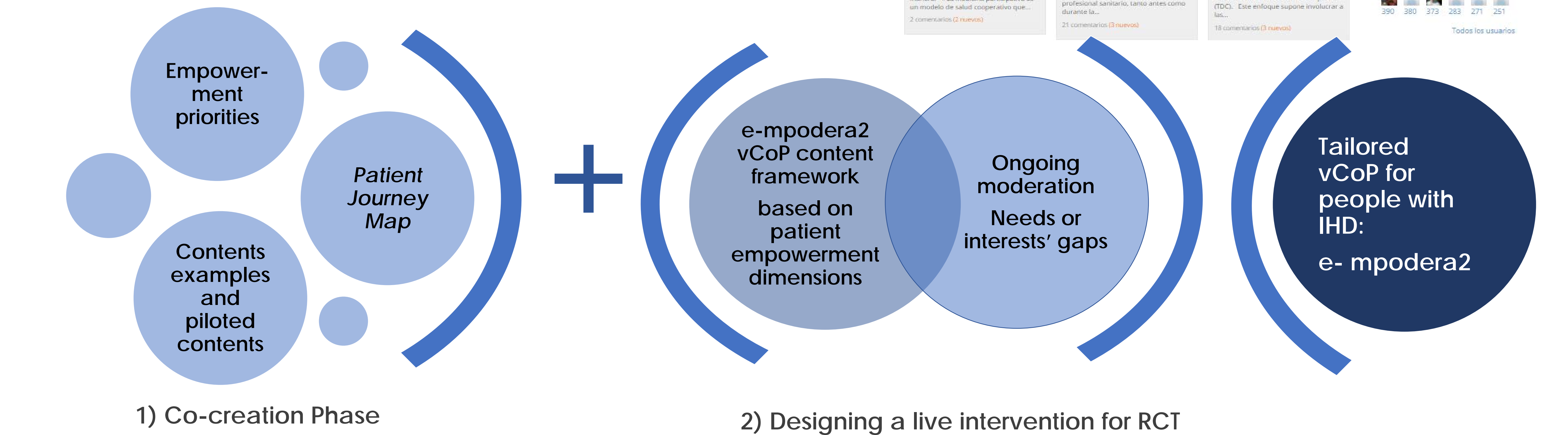


Figure 2. Co-creation Phase

	Exploratory Phase			Development Phase	
Objectives	<ul style="list-style-type: none"> <li>Identify the diverse types of IHD patients.</li> <li>Explore treatments and point of care for IHD patients.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the experiences and empowerment needs of people with IHD.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the experiences and empowerment needs of patients with IHD.</li> <li>Analyse the acceptability and usability of the e-mpodera2 online platform.</li> </ul>	<ul style="list-style-type: none"> <li>Prioritise empowerment needs.</li> <li>Propose content examples.</li> <li>Create the e-mpodera2 vCoPs' content framework for people with IHD</li> </ul>	<ul style="list-style-type: none"> <li>Pilot some of the proposed contents for the vCoP</li> </ul>
Data Collection	Online Focus Group	Listening Lab	Online activities	Face-to-face Workshop	Online activities
Participants	Health care professionals	People with IHD	People with IHD	People with IHD and health care professionals	People with IHD
Results	Patient Journey Map			Empowerment Priorities	Piloted content for the vCoP
			Usability and acceptability of e-mpodera2 platform	Examples of content for the vCoP	
				e-mpodera2 vCoP content framework for people with IHD	

IHD: Ischemic Heart Disease  
vCoP: virtual Community of Practice

## RESULTS

The **main topics of interest** were: Healthy eating, sports, ceasing smoking, managing stress and negative emotions, facing habits' change, getting back to normal life. **On-boarding**, people tend to interact more with content than with other individuals. In the **deep empowerment** phase, participants asked more specific questions and new topics emerged, feeding the content framework.

Table 1. Participation and contents

136 participants (64 weeks)	130 different contents
73% accessed at least once	51 challenges
55% returning users	56 posts (4 threads opened by users)
51.5% who accessed, commented a post	61.5% of published content was commented
10% on average participated on virtual meetings	8 virtual meetings & 2 webinars
29% users did 70% of contributions	

## CONCLUSIONS

- An **ongoing tailored educational intervention** may better approach people's needs and priorities regarding IHD.
- Different **strategies** were implemented to boost participation: Synchronous and asynchronous.
- The combination of previous **co-produced framework content, partnership with professionals**, and the ongoing co-creation of the intervention seems to be a key element in **engaging and maintaining an active learning context** and improving the community experience for different types of users.

Screenshot of e-mpodera2 vCoP

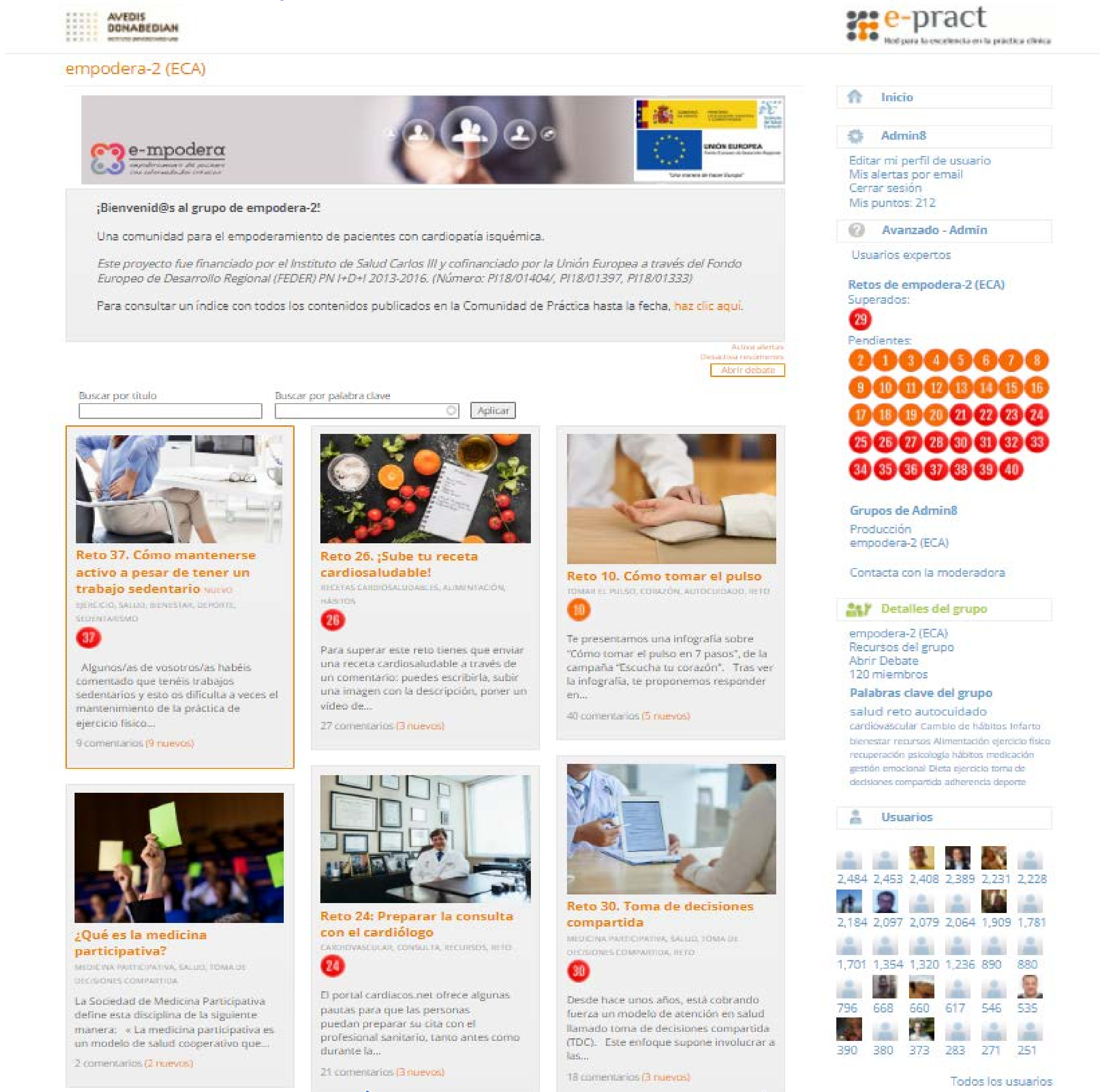
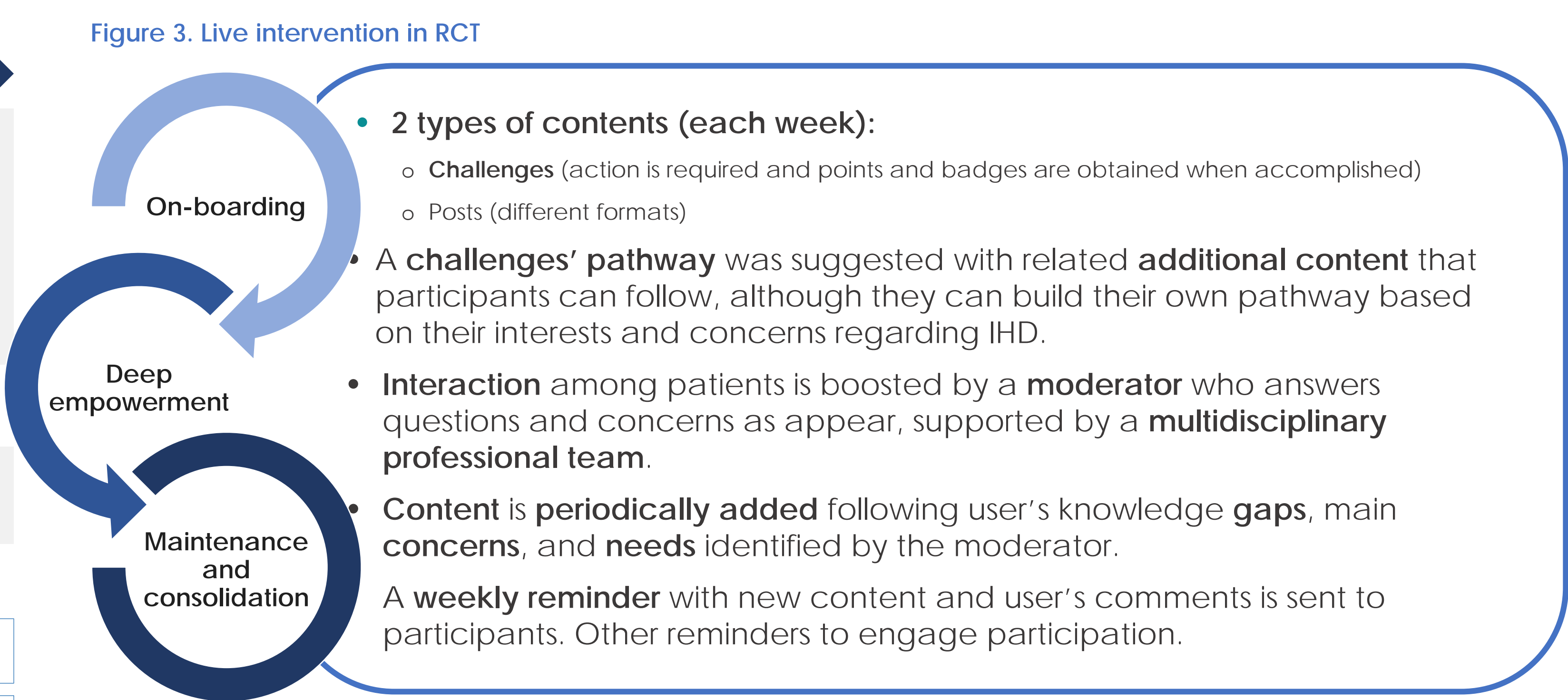


Figure 3. Live intervention in RCT





## BACKGROUND

Virtual Communities of Practice (VCoP) offer ubiquitous access to knowledge for people in similar situations, especially valuable for the self-management of patients with chronic diseases. Main benefits include information exchange, social support, and skills improvement to cope with the disease.

This project aims to evaluate the effectiveness and cost-effectiveness of a VCoP regarding activation improvement and other empowerment measures in patients with ischemic heart disease (IHD).

## METHOD

A pragmatic randomized controlled trial is taking place in Catalonia, Madrid and Canary Islands, Spain.

Three hundred patients with a recent diagnosis of IHD are being recruited to participate in the intervention/control (usual care) group.

The intervention group is being offered participation in a co-designed gamified VCoP for 12 month, which proposes content based on the dimensions of empowerment.

- Primary outcome:** Patient Activation Measure (PAM) questionnaire at baseline, 6, 12 and 18 months.
- Secondary outcomes** include: clinical variables; self-efficacy on managing the disease (Self-management of Chronic Disease Scale, SMCDS), quality of life (EuroQoL questionnaire, EQ-5D-5L), anxiety and depression (Hospital Anxiety and Depression Scale, HADS-A & HADS-D), adherence to Mediterranean diet (MEDAS), and health resources use.

Data is collected from self-reported questionnaires and electronic medical records.

## RESULTS

- Two hundred seventy participants have been recruited so far. Intervention and control groups did not show significant differences at baseline in any variable (Tables 1 and 2).
- At the time of the analysis, 185 and 117 participants have completed 6- and 12-months questionnaires since recruitment, respectively.
- Among completers, at 6 months the intervention did not show significant effects on any of the assessed measures (Table 3).
- At 12-months, a significant difference was found for patient activation (PAM) and adherence to Mediterranean diet (MEDAS): the change in the trajectory of the two groups over time was significant, favoring the intervention group. A tendency towards significance was also found for self-efficacy on managing the disease (SMDCS) (Table 3).

Table 2. Baseline scores of dependent variables

	N	Intervention	Control	P*
PAM (0-100)	259	62.49 (16.23)	62.58 (15.46)	0.961
SMDCS (0-10)	263	6.69 (2.00)	6.74 (1.97)	0.844
HADS-Depression (0-21)	262	3.76 (4.02)	4.21 (4.26)	0.380
HADS-Anxiety (0-21)	261	6.11 (4.03)	6.10 (4.31)	0.980
MEDAS (0-14)	263	9.14 (2.05)	9.64 (2.13)	0.057
EQoL-5D-5L (0-1)	269	0.85 (0.16)	0.85 (0.17)	0.926

p-value from Student’s t-test for independent samples

Table 3. Effect of the intervention at 6 / 12-month follow-up in study

	6 months				12 months				rm-ANOVA	
		Intervention	Control			Intervention	Control			
	N	Mean (SD)	Mean (SD)	B (p) <sup>1</sup>	N	Mean (SD)	Mean (SD)	B (p) <sup>1</sup>	N	F (p) <sup>2</sup>
PAM (0-100)	145	64.20 (15.48)	59.11 (19.57)	5.33 (0.068)	76	65.2 (18.9)	59.01 (20.56)	7.18 (0.112)	75	3.11 (0.048)
SMDCS (0-10)	147	6.98 (2.05)	7.00 (2.16)	0.22 (0.386)	77	7.28 (1.89)	6.58 (2.54)	0.93 (0.036)	76	2.90 (0.063)
HADS-Depression (0-21)	146	3.15 (3.47)	3-90 (4.35)	-0.32 (0.440)	72	3.24 (3.66)	3.63 (3.42)	0.35 (0.586)	71	0.48 (0.620)
HADS-Anxiety (0-21)	146	5.32 (3.92)	5.74 (3.92)	-0.13 (0.785)	71	4.70 (3.21)	5.34 (4.29)	-0.24 (0.744)	70	0.11 (0.878)
MEDAS (0-14)	147	9.35 (2.13)	9.64 (2.23)	-0.19 (0.459)	75	10.24 (1.89)	9.39 (3.45)	1.23 (0.002)	74	7.14 (0.001)
EQoL-5D-5L	145	0.89 (0.15)	0.86 (0.15)	0.02 (0.307)	71	0.91 (0.11)	0.86 (0.17)	0.02 (0.393)	70	0.49 (0.548)

<sup>1</sup> Unstandardized beta (p-value) from linear regression models with group as independent variable, adjusting for the baseline scores of the corresponding dependent variable. <sup>2</sup> Within-subject effects for the interaction between time (baseline, 6, 12 months) and group.

## CONCLUSIONS

- Recruiting was a major challenge due to Covid-19 situation that affected primary and specialized care.
- The preliminary analysis of this study is showing positive results in some outcomes in patients with a recent diagnosis of IHD by using a VCoP, which could be extended to other chronic patients/settings.



# Patient Participation: A form of emancipation or a way to strengthen providers' power?

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## Introduction

Patient and Public Involvement (PPI) in health research and projects adds different perspectives to researchers' knowledge because patients possess experiential knowledge (Castro et al., 2016).

In addition, PPI is also necessary for moral reasons-based on the principle that people whose lives are most affected by research should have the opportunity to provide their input.

## Research question:

Poorly designed PPI can negatively impact those involved, as power inequities can lead to frustration about the limited opportunities to contribute to the research direction (Russell et al., 2020).

To avoid PPI being tokenistic and insignificant, we need to explore what is required to establish valuable collaboration from both the patient and the researcher's perspectives.

Therefore, this research will explore the influence and power of patient participants in Regional Health Improvement Collaboratives (RHICs).

## Methods

The literature shows that valuable collaboration in a world of power inequities is complex. We found that self-efficacy, knowledge, and competence are vital elements of individual empowerment, and that information symmetry, mutual trust, and equity are essential elements of inter-relationships. In this study, we will explore these elements in more depth, their interaction, and their influence on collaboration and value co-creation



Figure 1 conceptual model

A qualitative research design is developed. Data are collected through stakeholder observation of three cases and semi-structured interviews with the patient participants. Each case is an RHIC designed to achieve healthcare innovation with improved healthcare outcomes.

## Main conclusions

In this study, we found that :

- A patient participant needs to be individually empowered to collaborate with other stakeholders and achieve co-creation.
- The patient participant must be capable, representable, and qualified to accomplish this individual empowerment.
- Adequate funding, interaction time, and trust with patient participants can help negotiate roles, balance power, and lead to meaningful patient collaboration.

Further:

- We highlighted the importance of trust to develop meaningful collaboration and value co-creation.
- We observed that when interpersonal dynamics, such as trust and equity, are suboptimal, the patient participants are not supported within the RHICs even if they are individually empowered.

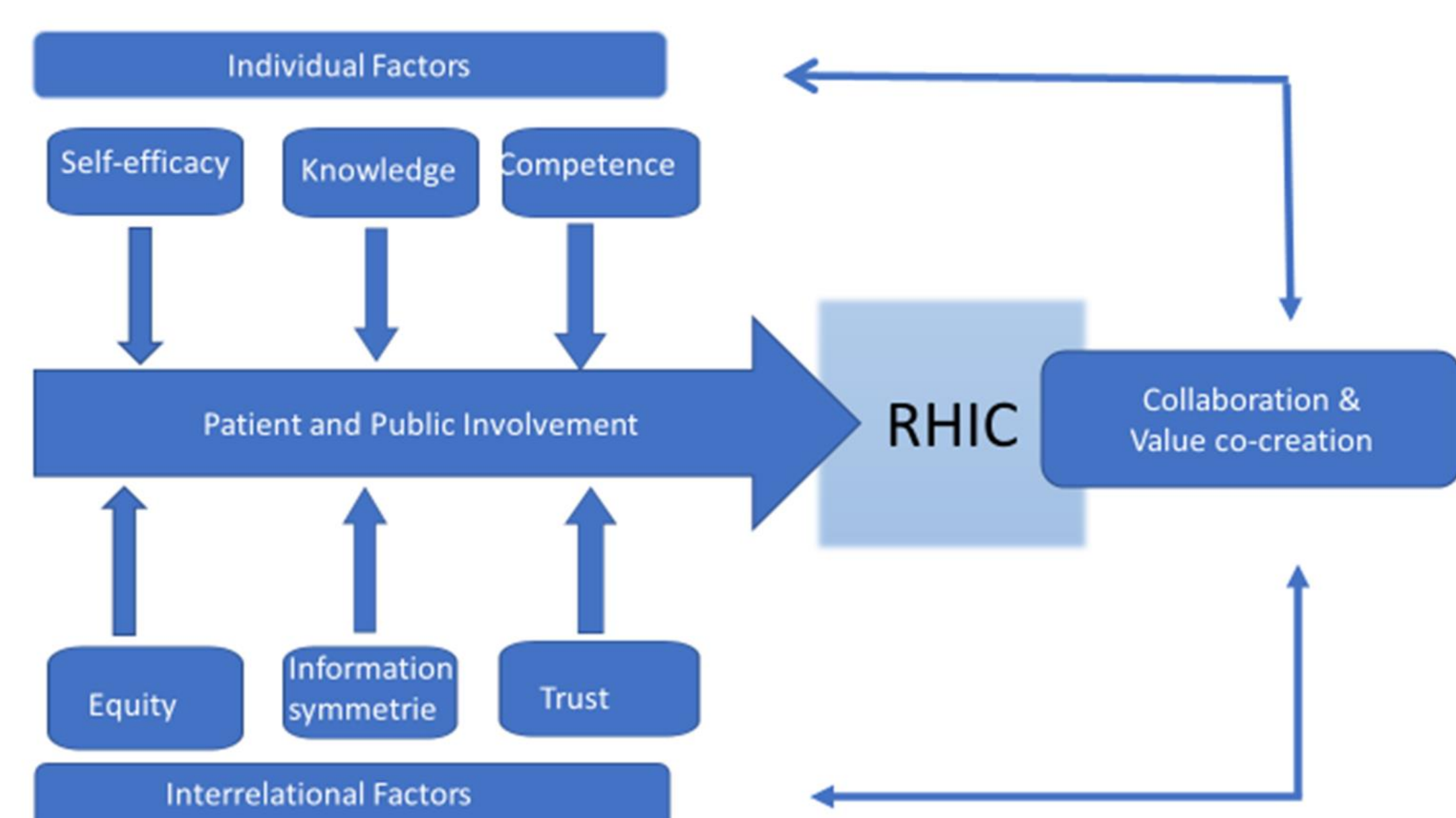


Figure 2 Factors influencing PPI

To summarize,

- Stakeholders must be willing to build sustainable relationships, have the intention to be genuinely engaged, and are open to mutual and reciprocal learning to avoid tokenistic patient participation.
- This study shows that successful value creation in RHICs, with meaningful patient participation, is challenging.
- To examine how patient engagement is enacted and positioned within healthcare supply chains in general and more specifically in RHICs, more dialogue and inquiry are needed .



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# Exploring efficacy of self-management interventions on Body Mass Index (BMI) on type II diabetes

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## Introduction

**Background:** Self-management support may improve BMI but there is uncertainty about which type of support is the most effective to manage type II diabetes.

**Aim:** Compare the relative effectiveness of self management interventions (SMIs) in the BMI of patients with type II diabetes and explore how SMIs' components influence the improvement of this disease.

**Method:** We conducted a systematic review of randomized controlled trials (RCTs) with network meta-analysis (NMA). We included components such as the type of support, the recipient, delivery method, and type of provider. We identified published RCTs from 2000 up to 2018. We performed pairwise and network meta-analysis (standard and component NMA) to estimate the relative effectiveness of any pair of interventions. This review is part of a wider study (COMPAR-EU project).

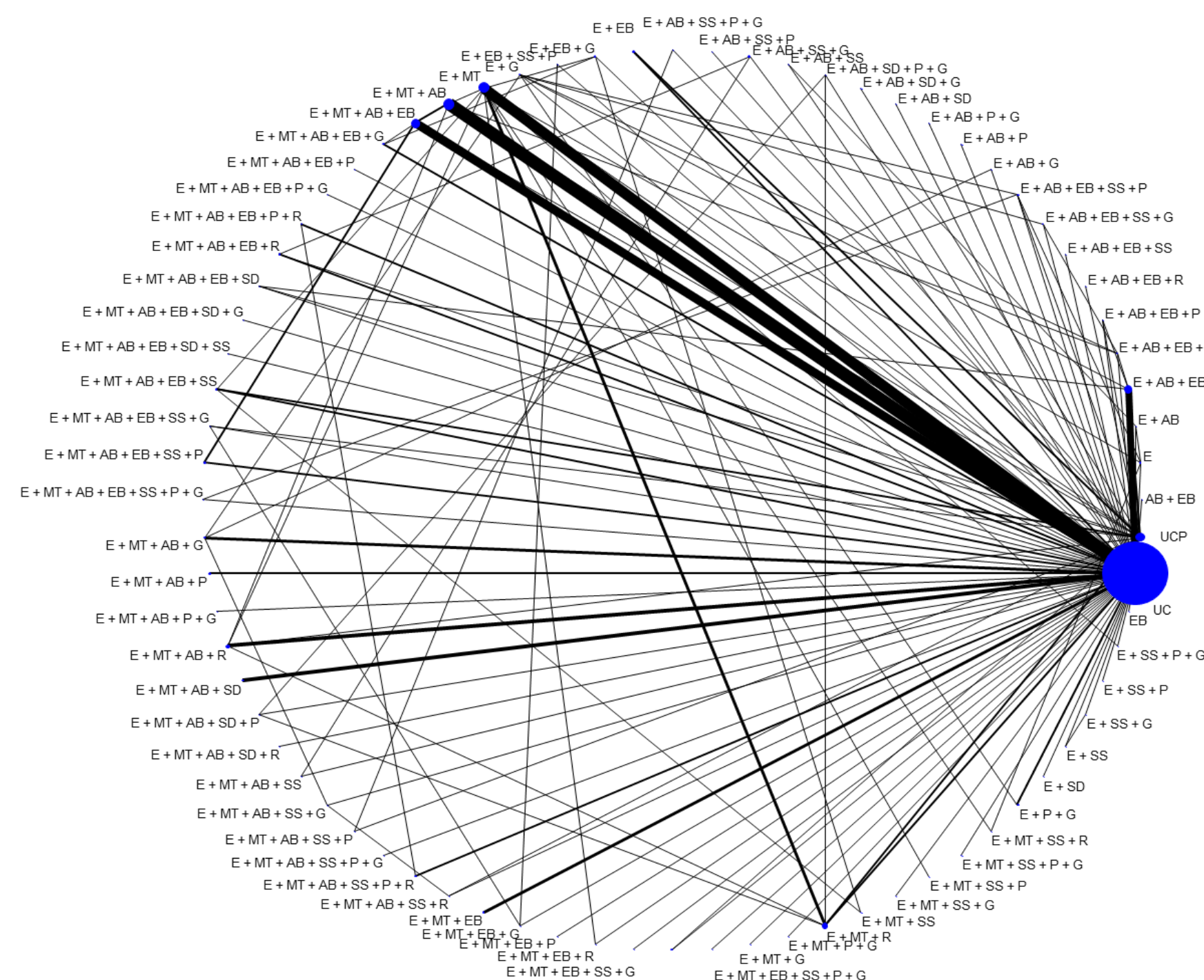
## Study characteristics

- A total of 204 studies involving 33574 participants met the criteria for inclusion in our component and standard network meta-analysis for type II diabetes.
- The effect size used was mean difference.
- The effect size for the comparison SMI vs. UCP was not statistically significant under the random-effects model. Egger's test (p-value=0.03) suggested that there is evidence for small-study effects.
- Between-study variance (heterogeneity) was moderate in the network,  $\tau^2 = 0.22$ , and quantified as  $I^2 = 61.1\%$  [Q-statistic, p-value < 0.0001].

## Abbreviations

	Abbreviation	Component
1	AB	Action - based behavioural change techniques
2	E	Education
3	EB	Emotional - based behavioural change techniques
4	G	Group
5	MT	Monitoring techniques
6	P	Peers and lay persons
7	R	Remote
8	SD	Shared decision making
9	SS	Social support
10	UC	Usual Care
11	UCP	Usual Care Plus

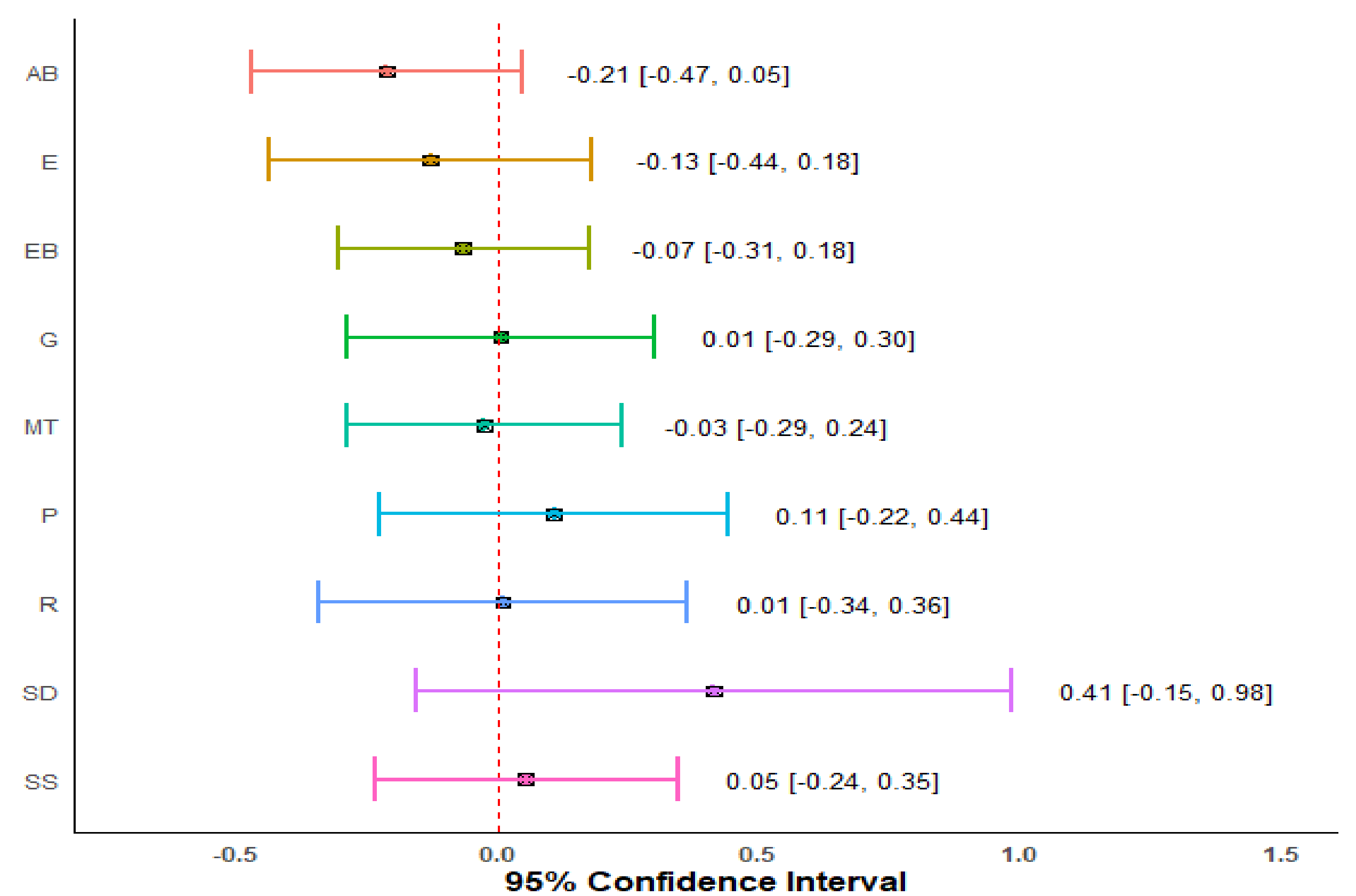
## Network plot



## NMA estimates

Node	NMA estimate	Prediction Interval	P-Score
E + AB + EB + SS	-1.88 [-2.89 , -0.88]	[-3.26 , -0.51]	0.93
E + MT + P + G	-1.70 [-3.03 , -0.37]	[-3.33 , -0.07]	0.90
E + MT + EB + SS + G	-2.40 [-5.34 , 0.54]	[-5.50 , 0.70]	0.89
E + MT + AB + EB + R	-1.28 [-1.88 , -0.68]	[-2.39 , -0.16]	0.87
E + SD	-2.10 [-4.90 , 0.70]	[-5.07 , 0.87]	0.86
E + MT + AB + SD + P	-1.83 [-4.40 , 0.74]	[-4.58 , 0.92]	0.84
E + SS + G	-1.08 [-1.94 , -0.22]	[-2.35 , 0.19]	0.82
AB + EB	-2.80 [-8.43 , 2.83]	[-8.54 , 2.94]	0.80

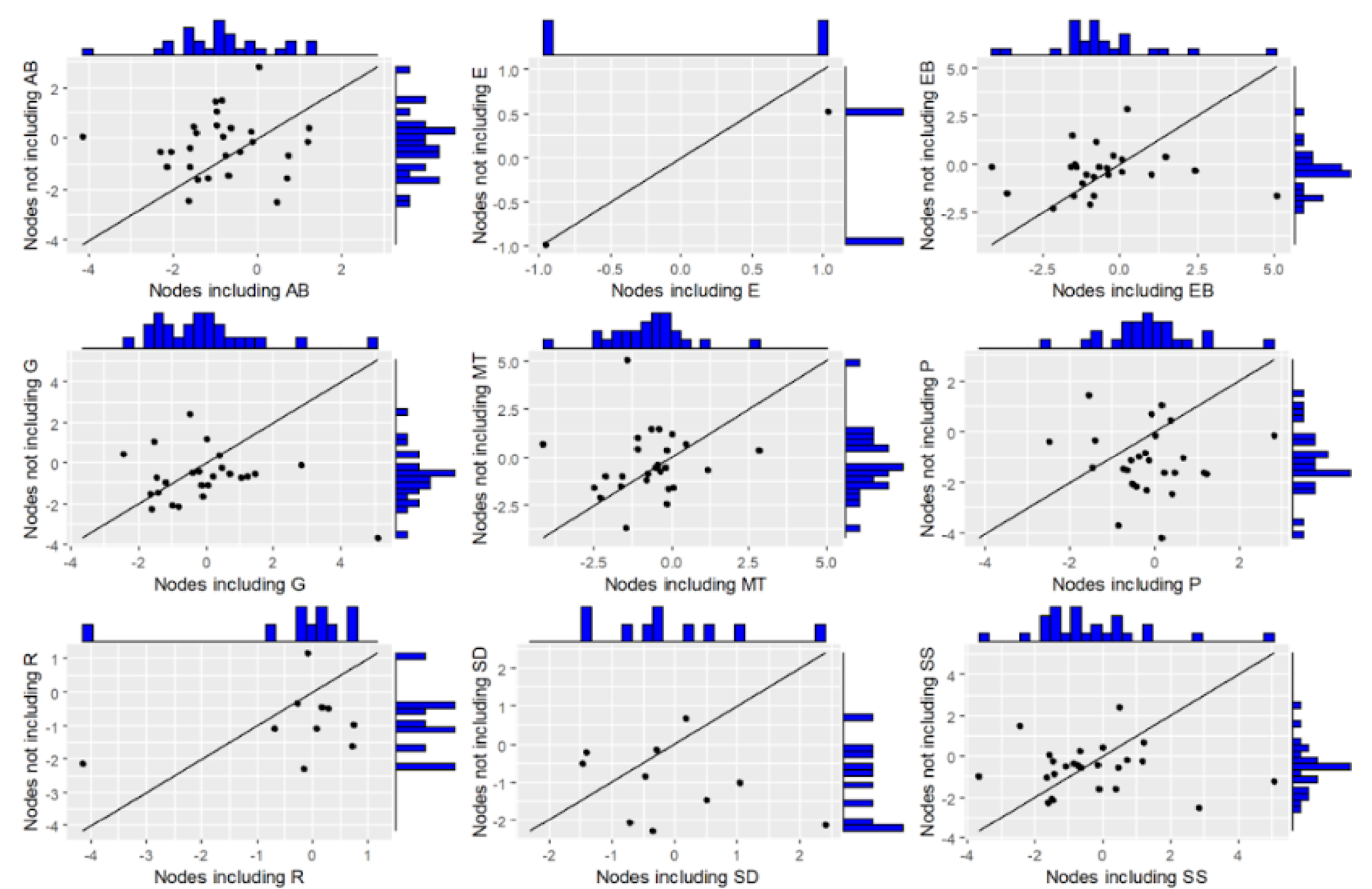
## CNMA estimates



## Heat plot of components



## Leave-one-component-out scatter plots



## Discussion

Most NMA intervention effects were associated with much uncertainty and CNMA showed that none of the components show statistically significant results. Most of the trials had medium or high risk of bias. The network plot is very well informed from direct and indirect evidence.



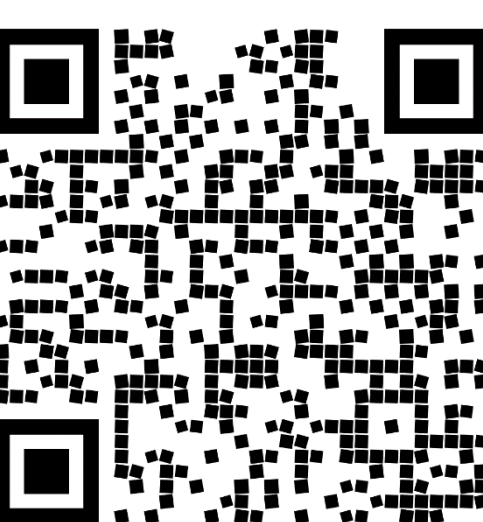
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# Development and user-testing of decision aids for patients for the self-management of four chronic conditions

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## Introduction

Decision aids (DA) are tools that enable patients to compare several treatment options and make informed choices. These tools include information on the available treatment options, evidence about their benefits and risks with related certainty, as well as practical considerations about the interventions being considered.

## Methods

We followed a systematic iterative mixed methods process including:

- 1) Scoping and design,
- 2) Development of a mock-up and prototype,
- 3) User-testing with patients and clinicians.

The first two steps were overseen by a multidisciplinary research team including patients, clinicians, methodologists, and other relevant stakeholders. For the user-testing, we recruited a purposive sample of patients and health professionals until data saturation and conducted semi-structured interviews. We performed content analysis of the interviews and used participants feedback to improve the DA tools.

## Objective

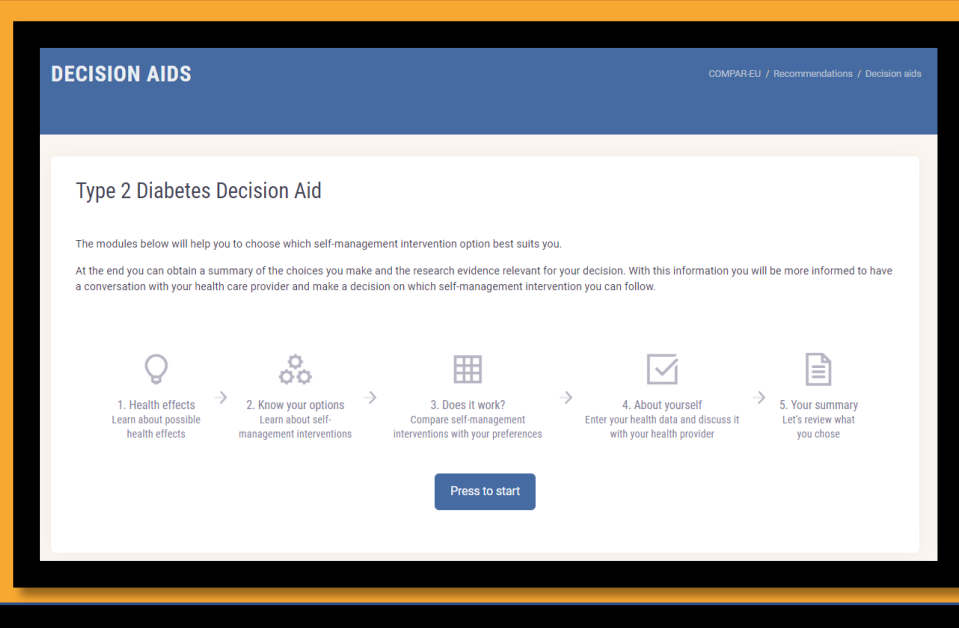
To develop an interactive web-based DA for patients with one of four chronic conditions (type 2 diabetes mellitus, obesity, heart failure and chronic obstructive pulmonary disease) making decisions about self-management interventions.

## Preliminary results

The DA includes a menu of five modules:

- 1) Health effects,
- 2) Know your options,
- 3) Does it work?,
- 4) About yourself,
- 5) Your Summary.

The first four modules provide important information on the health condition to guide patients and/or health professionals through the process of choosing the best self-management intervention option. The fifth section provides an overview of the choices made and the relevant research evidence about the effects that can be saved or printed by the users. **Twenty-six participants** (type 2 diabetes patients and health care professional) from Germany, Greece, Spain, Malta, Romania and Ireland provided important feedback categorized as: **Positive feedback, specific suggestions** (e.g., change the order of the modules), **cosmetic suggestions** (e.g., improve the visual of the tables), **big problems** (e.g., understanding the content) and **stoppers** (e.g., navigation difficulties).



## Discussion

Overall, participants were satisfied with the DA and found it useful. These web-based DA can help patients and clinicians to discuss the pros and cons of SMI and facilitate decision-making at the point of care.



# The Perspectives of Patients with Chronic Diseases and Their Caregivers on Self-Management Interventions: A Scoping Review of Reviews

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## Background

The increasing burden of chronic diseases on healthcare and society has become a significant concern. A response to this challenge include patient-centred strategies such as self-management interventions (SMIs).

In COMPAR-EU, patients' and caregivers' (informal caregivers and healthcare professionals) perspectives on SM are key component. SM was conceived as a dynamic, interactive, and daily process in which individuals managed chronic diseases. Perspectives are the result of preferences and experiences with SM. Preferences represent the relative desirability of alternatives among outcomes, and experiences explain the nature and impact of chronic diseases and how a specific intervention affects patients' health and quality of life.

### Objectives

- 1) to summarise the preferences and experiences of patients, informal caregivers, and healthcare professionals with SM in four chronic diseases, and
- 2) to identify and describe the relevant outcomes for SMIs from these perspectives.

## Methods

A mixed-methods scoping review of reviews (Arksey and O'Malley's ). Reporting using the PRISMA-ScR checklist.

We searched in MEDLINE (through PubMed), CINAHL, and PsycINFO from inception to December 2020. We included SRs of any design published in English including (1) adult patients (aged  $\geq 18$ y) with one of the four selected chronic diseases (T2DM,obesity, COPD, or HF), without restrictions on severity (2) informal caregivers, mostly family members; or (3) healthcare professionals.; focused on (1) patients' preferences, (2) caregivers' preferences, (3) health states related to the disease or (4) experiences with SM; including studies from any country or setting except those limited to inpatient care.

Selection of studies and data collection were conducted by 4 to 5 authors working in pairs. Quantitative data were narratively synthesized, while qualitative data, applying a descriptive thematic synthesis.

We also categorised the identified descriptive themes and subthemes into three categories: SMIs outcomes, modifiable factors of SMIs, or both.

## Conclusion

Our findings cover aspects of the process of self-management alongside the disease trajectory, the factors that influence this process, and the experiences related with SMIs from the patients' and caregivers' perspectives.

We identified what patients, and their caregivers describe as relevant regarding SM. This set of themes can inform the selection of patient-important outcomes, decision-making processes, including the formulation of recommendations, as well as the design and implementation of SMIs.

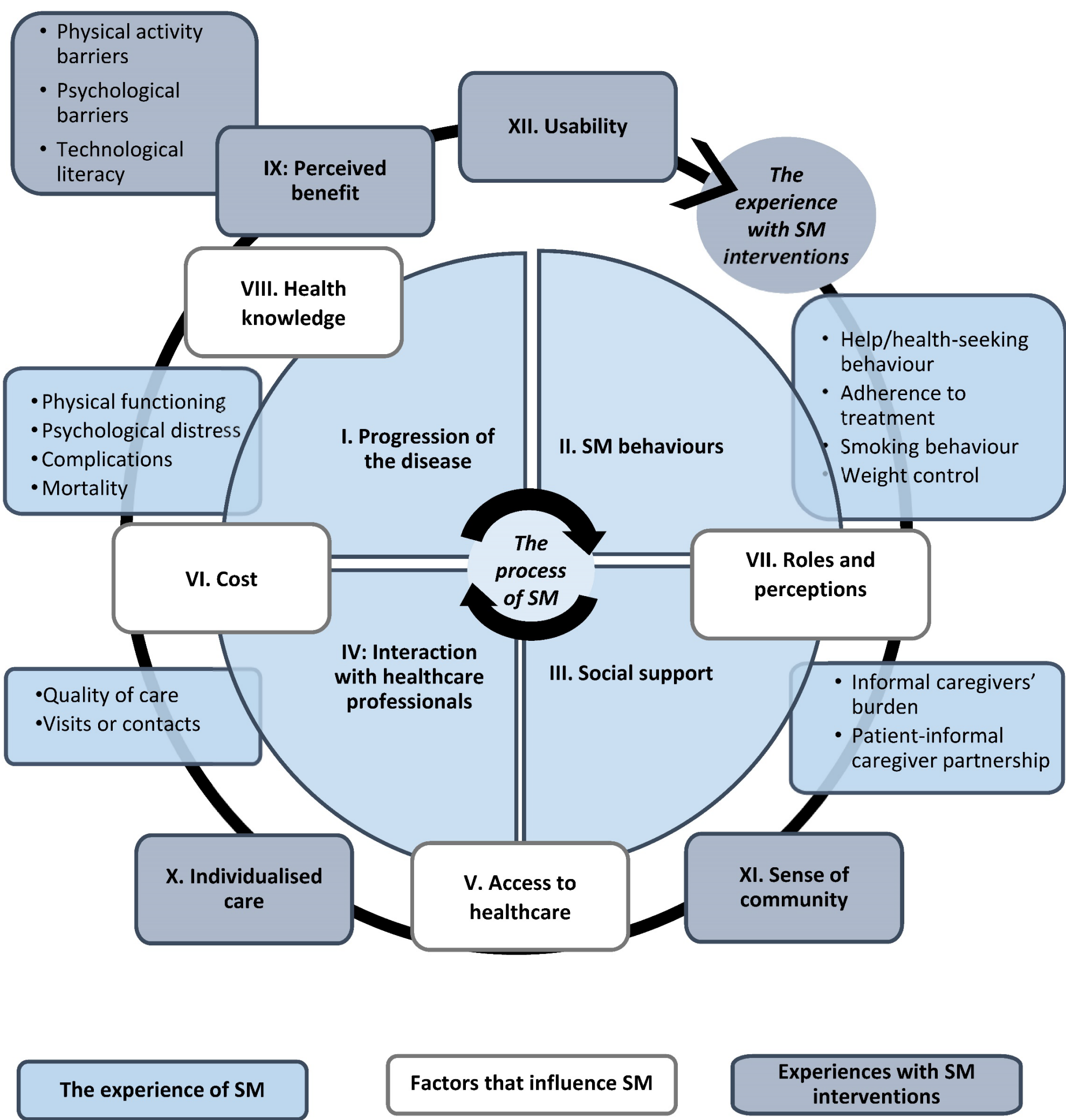
## Results

Searches resulted in 11,785 unique references; 448 records were selected for full-text screening, and 148 reviews were included

Table 1. Characteristics of included reviews

	T2DM n (%)	Obesity n (%)	COPD n (%)	HF n (%)	More than one n (%)	Overall n (%)
Reviews	53 (35.8)	20 (13.5)	32 (21.6)	38 (25.7)	5 (3.4)	148 (100.0)
Publication year						
2002 to 2015	26 (33.3)	11 (14.1)	15 (19.2)	25 (32.1)	1 (1.3)	78 (100.0)
2016 to 2020	27 (38.6)	9 (12.9)	17 (24.3)	13 (18.6)	4 (5.7)	70 (100.0)
Type of reviews						
Quantitative SRs	14 (45.2)	4 (12.9)	7 (22.6)	6 (19.4)		31 (100.0)
QES	25 (32.1)	12 (15.4)	20 (25.6)	18 (23.1)	3 (3.8)	78 (100.0)
MMRS	11 (35.5)	2 (6.5)	4 (12.9)	12 (38.7)	2 (6.5)	31 (100.0)
Other	3 (37.5)	2 (25.0)	1 (12.5)	2 (25.0)		8 (100.0)
Included studies						
2 to 20	27 (33.3)	13 (16.0)	21 (25.9)	17 (21.0)	3 (3.7)	81 (100.0)
21 to 40	19 (44.2)	7 (16.3)	5 (11.6)	11 (25.6)	1 (2.3)	43 (100.0)
41 to 213	6 (28.6)		6 (28.6)	8 (38.1)	1 (4.8)	21 (100.0)
Non-reported	1 (33.3)			2 (66.7)		3 (100.0)
Population						
Patients	42 (37.2)	15 (13.3)	25 (22.1)	27 (23.9)	4 (3.5)	113 (100)
Inf. caregivers			3 (30.0)	6 (60.0)	1 (10.0)	10 (100.0)
HCP	1 (50.0)	1 (50.0)				2 (100.0)
More than one	10 (43.5)	4 (17.4)	4 (17.4)	5 (21.7)		23 (100.0)
Phenomena of interest						
Preferences on health states	10 (52.6)	1 (5.3)	5 (26.3)	3 (15.8)		19 (100.0)
Experiences with SM process	36 (35.3)	15 (14.7)	19 (18.6)	29 (28.4)	3 (2.9)	102(100)
Experiences with SMIs	11 (27.5)	6 (15.0)	12 (30.0)	9 (22.5)	2 (5.0)	40 (100.0)

Fig. 1 The process of self-management and the experience with SMIs



Most themes were consistently identified across the four diseases, only a few disease-specific themes, The three perspectives were recognised for five themes only. On the other hand, the perspective of informal caregivers was not identified in obesity (Fig.2).

Fig. 2. Identified themes by disease and perspective

Main themes / subthemes	T2DM	Obesity	COPD	HF
<b>I. Progression of the disease</b>				
• Physical functioning	1	1	1	1
• Psychological distress and stigma	1	1	1	1
• Fear of complications	1	1	1	1
• Mortality	1	1	1	1
<b>II. SM behaviours</b>				
• Help or health-seeking behaviours	1	1	1	1
• Adherence to treatment	1	1	1	1
• Adverse events	1	1	1	1
• Treatment burden	1	1	1	1
• Smoking behaviours	1	1	1	1
• Weight control	1	1	1	1
<b>III. Social Support</b>				
• Informal caregivers' burden	1	1	1	1
• Patient-informal caregiver partnership	1	1	1	1
<b>IV. Interaction with healthcare professionals</b>				
• Perceived quality of care	1	1	1	1
• Visits or contacts with healthcare professionals	1	1	1	1
<b>V. Access to healthcare</b>				
<b>VI. Cost for patients</b>				
<b>VII. Culturally defined roles and perceptions</b>				
<b>VIII. Health knowledge</b>				
<b>IX. Perceived benefit of the intervention</b>				
• Physical activity barriers	1	1	1	1
• Psychological barriers to SM uptake	1	1	1	1
• Technological (digital) literacy	1	1	1	1
<b>X. Individualised care</b>				
<b>XI. Sense of community with peers</b>				
<b>XII. Usability of SM equipment</b>				

*The process of SM shaped patients and their caregivers' perspectives on SMIs. Their perspectives were influenced by the perceived benefit of the intervention, the sense of community, the intervention's usability, and the level of individualised care.*

### Funding

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### Reference

Niño de Guzmán Quispe, E., Martínez García, L., Orrego Villagrán, C. et al. The Perspectives of Patients with Chronic Diseases and Their Caregivers on Self-Management Interventions: A Scoping Review of Reviews. Patient 14, 719–740 (2021).  
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# How do patients with Type 2 Diabetes Mellitus value the importance of outcomes? An overview of reviews



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## Background

Developing trustworthy recommendations for Type 2 Diabetes Mellitus (T2DM) requires incorporating the patient perspective on the importance of outcomes.

Preferences for or against interventions implicitly inform about the relative importance (or value) people place on the expected or definite outcomes connected to a specific intervention.

Utility represents patients' preference for a particular outcome and is anchored on a scale from zero (dead) to one (perfect health) but can take negative values (worse than death).

Disutility represents the decrement in utility due to a specific symptom or complication and is often expressed as a negative value representing the impact of the symptom or disease.

A broad review of the available evidence for T2DM patients would be a relevant evidence synthesis for the development of clinical recommendations for this population.

### Objective

To review and summarise the available evidence on how patients with T2DM value the importance of outcomes.

Utility represents patients' preference for a particular outcome. Disutility represents the decrement in utility

## Methods

Overview of systematic reviews (SRs) (CRD42019117867). We included SRS reporting patients' utilities or disutilities for T2DM outcomes. We searched MEDLINE (PubMed), CINAHL and PsycINFO until June 2021. Study selection and data extraction were conducted in pairs. We evaluated the quality with the Joanna Briggs Institute (JBI) Critical Appraisal Checklist and the overlap with the corrected covered area. We conducted a content analysis to classify the outcomes. We described utility and disutility estimates per outcome. DCEs studies were narratively summarized. We performed a random-effects model meta-analysis. To examine sources of heterogeneity, we conducted subgroup and sensitivity analysis to evaluate the potential impact of selecting one method in dataset development.

## Conclusion

- We provide a set of utility and disutility values for 58 outcomes of Type 2 Diabetes Mellitus (T2DM), reflecting the patient perspective on the importance of T2DM complications, comorbidities, and treatment-related outcomes..
- Utility and disutility values may inform the development of clinical recommendations, as well as the design of decision-support tools, and economic analysis

## Results

Table 1. Mean utility and disutility values by T2DM outcomes

Categories and outcomes	Measure	Mean*	[95% CI]	Observations/ participants	I <sup>2</sup>
<b>1. T2DM</b>					
1.1 Baseline T2DM (without complications)	Utility	0.788	0.772 to 0.804	46 /56,824	97.8%
	Disutility	-0.038	NR	1/1,257	NA
1.2 Diabetes in general	Utility	0.748	0.736 to 0.759	109/81,273	99.0%
	Disutility	-0.044	(SD) 0.04	3/NR	NA
<b>2. Glycaemic Complications</b>					
2.1 Hypoglycaemia not specified	Utility	0.730	0.690 to 0.770	1/136	NA
2.2 Hypoglycaemic symptom severity: None	Utility	0.800	0.760 to 0.840	1/78	NA
	Utility	0.730	0.690 to 0.770	1/40	NA
2.3 Hypoglycaemic symptom severity: Mild	Utility	0.730	0.690 to 0.770	1/40	NA
2.4 Hypoglycaemic symptom severity: Severe	Utility	0.700	0.660 to 0.740	1/12	NA
2.5 Hypoglycaemic symptom severity: Very severe	Utility	0.540	0.500 to 0.580	1/4	NA
2.6 Daytime hypoglycaemia	Utility	0.680	0.640 to 0.720	1/53	NA
2.7 Night-time hypoglycaemia	Utility	0.600	0.560 to 0.640	1/23	NA
2.8 Hyperglycaemia	Utility	0.730	0.690 to 0.770	1/64	NA
2.9 Major hypoglycaemia event	Disutility	-0.159	(SD) 0.11	3/3,689	NA
2.10 Minor hypoglycaemia event	Disutility	-0.045	(SD) 0.028	3/3,689	NA
<b>3. Macrovascular Complications</b>					
3.1 Heart failure	Utility	0.587	0.325 to 0.848	2/8,584	97.3%
	Disutility	-0.084	-0.120 to -0.048	6/16,038	70.9%
3.2 Ischemic heart disease	Utility	0.689	0.580 to 0.798	6/8,043	99.1%
	Disutility	-0.070	-0.107 to -0.034	10/20,217	92.9%
3.3 Myocardial infarction	Utility	0.764	0.725 to 0.802	6/2,853	84.4%
	Disutility	-0.057	-0.078 to -0.036	19/18,943	80.6%
3.4 Peripheral vascular disease	Utility	0.800	NA	1/12,772	NA
	Disutility	-0.084	-0.124 to -0.045	4/6,637	41.7%
3.5 Cardiovascular disorder	Utility	0.713	0.640 to 0.787	3/7,509	88.4%
	Disutility	-0.019	-0.070 to 0.032	1/7,327	NA
3.6 Stroke	Utility	0.596	0.490 to 0.702	12/18,195	99.1%
	Disutility	-0.150	-0.182 to -0.118	24/35,947	95.4%
3.7 Transient ischaemic attack (TIA)	Utility	0.785	0.716 to 0.854	2/9,542	70.2%
	Disutility	-0.052	-0.076 to -0.029	3/10,614	47.8%
3.8 Cerebrovascular disorder	Utility	0.597	0.448 to 0.745	3/1,442	94.7%
	Disutility	-0.044	-0.068 to -0.020	1/1,257	NA
3.9 Macrovascular complications	Utility	0.717	0.686 to 0.747	3/61	0.0%
<b>4. Microvascular Complications</b>					
4.1 Diabetic retinopathy	Utility	0.698	0.588 to 0.808	6/1,709	98.7%
	Disutility	-0.023	-0.101 to 0.056	1/933	NA
4.2 Visual acuity mild affection	Utility	0.812	0.745 to 0.878	4/276	87.1%
4.3 Visual acuity moderate affection	Utility	0.725	0.673 to 0.777	8/403	74.9%
	Disutility	-0.110	-0.188 to -0.032	2/2,074	87.0%
4.4 Visual acuity severe affection	Utility	0.632	0.524 to 0.740	4/64	52.7%
	Disutility	-0.150	-0.228 to -0.072	1/5,266	NA
4.5 Blindness	Utility	0.529	0.393 to 0.665	10/1,703	99.0%
	Disutility	-0.057	-0.135 to 0.021	1/3,192	NA
4.6 Cataract	Disutility	-0.016	-0.031 to -0.001	1/858	NA
4.7 Ophthalmologic complications	Utility	0.722	0.565 to 0.879	2/180	94.3%
4.8 Moderate macular oedema	Disutility	-0.0400	NR	1/577	NA
4.9 Diabetic kidney disease	Utility	0.684	0.624 to 0.743	10/14,136	71.8%
	Disutility	-0.029	-0.048 to -0.010	5/9,330	0%
4.10 End-stage renal disease	Utility	0.552	0.487 to 0.617	21/10,957	99.8%
	Disutility	-0.177	-0.307 to -0.047	6/10,585	99.8%
4.11 Diabetic peripheral neuropathic pain	Utility	0.468	0.372 to 0.565	10/1,411	98.5%
4.12 Diabetic peripheral neuropathy	Utility	0.668	0.561 to 0.774	8/930	98.9%
	Disutility	-0.121	-0.191 to -0.051	4/6,015	63.5%
4.13 Lower extremity disease: Foot ulcers	Utility	0.568	0.470 to 0.667	10/1,980	97.9%
	Disutility	-0.127	-0.238 to -0.017	3/5,316	81.9%
4.14 Primary healed foot ulcer	Utility	0.600	NR	1/176	NA
4.15 Lower extremity disease: Neuropathy & PV	Disutility	-0.085	-0.171 to 0.001	1/NR	NA
4.16 Amputation	Utility	0.537	0.453 to 0.621	9/1462	94.5%
	Disutility	-0.205	-0.344 to -0.066	3/4,339	77%
4.17 Microvascular complications	Utility	0.723	(SD) 0.035	3/52	NA
<b>5. Comorbidities</b>					
5.1 Hypertension	Utility	0.790	0.774 to 0.806	1/631	NA
5.2 Excess BMI per unit above 25	Disutility	-0.006	-0.008 to -0.004	3/5,316	0.0%
5.3 Overweight	Utility	0.777	0.603 to 0.951	3/15,503	98.5%
5.4 Obesity	Utility	0.673	0.502 to 0.845	3/2,645	98.4%
5.5 Extreme obesity	Utility	0.400	0.363 to 0.437	1/74	NA
5.6 Depression	Disutility	-0.202	NR	1/NR	NA
5.7 Comorbidities	Utility	0.663	0.539 to 0.787	6/1,460	99.4%
<b>6. Diabetes Management</b>					
<b>Type of glucose control</b>					
6.1 Glucose control (excellent)	Utility	0.870	0.820 to 0.920	1/NR	NA
6.2 Glucose control (good)	Utility	0.880	0.840 to 0.920	1/NR	NA
6.3 Glucose control (fair)	Utility	0.860	0.820 to 0.900	1/NR	NA
6.4 Glucose control (poor)	Utility	0.850	0.800 to 0.900	1/NR	NA
<b>Modality of care</b>					
6.5 Diet and exercise	Utility	0.765	0.684 to 0.846	4/2,126	93.9%
6.6 Intensive blood glucose control	Utility	0.737	0.640 to 0.833	3/2,308	96.9%
6.7 Less intensive self-monitoring	Utility	0.760	0.757 to 0.763	1/150	NA
6.8 More intensive self-monitoring	Utility	0.730	0.727 to 0.733	1/151	NA
6.9 Usual care	Utility	0.737	0.677 to 0.798	6/1,763	99.2%
<b>Type of medication</b>					
6.10 Oral hypoglycaemic agents	Utility	0.756	0.663 to 0.849	4/259	96.3%
	Disutility	-0.025	NR	1/NR	NA
6.11 Insulin only or combined	Utility	0.630	0.595 to 0.665	1/NR	NA
6.12 Only insulin	Utility	0.773	0.607 to 0.939	3/269	98.5%
	Disutility	-0.049	NR	1/NR	NA
6.13 Non-insulin injectable treatment	Utility	0.850	0.825 to 0.875	1/228	NA

We included eleven SRs, including a total of 230 studies with a slight overlap. Most SRs (64%) included a mixed population. The most frequent method to estimate utility values was the EuroQoL (EQ-5D) (72%). Only two SRs conducted a meta-analysis. Most were high-quality SRs. Six SRs assessed the quality of included studies; each one applied different criteria or tools with variable quality result.

We merged 344 different outcomes' labels into 58 outcomes and grouped them into six categories.

Utility values were retrieved for 51 outcomes, while disutilities for 28 outcomes.

Most pooled utilities (n=25/29, 86.2%) and half of pooled disutilities (n=7/13, 53.8%) showed high heterogeneity (I<sup>2</sup> ≥ 75%). Prediction Intervals were estimated for eleven outcomes; of these, only four had the same sign (diabetes in general, baseline T2DM (without complications), diabetic kidney disease, and end-stage renal disease).

Most pooled values in the subgroup analysis by method presented high heterogeneity (n=20/24, 83.3%), without differences from the overall analysis.

Utility values were lower than diabetes without complications for extreme obesity, diabetic peripheral neuropathic pain, very severe hypoglycaemia, heart failure, and insulin-only or combined.

In contrast, good and excellent glucose control and non-insulin injectable treatment obtained values higher than T2DM without complications

The highest disutility values were for amputation, depression, major hypoglycaemia event, stroke, and using only insulin

### Funding

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# Patients' and caregivers' perspectives on outcomes of Self-Management Interventions for Type 2 Diabetes Mellitus: an overview of reviews

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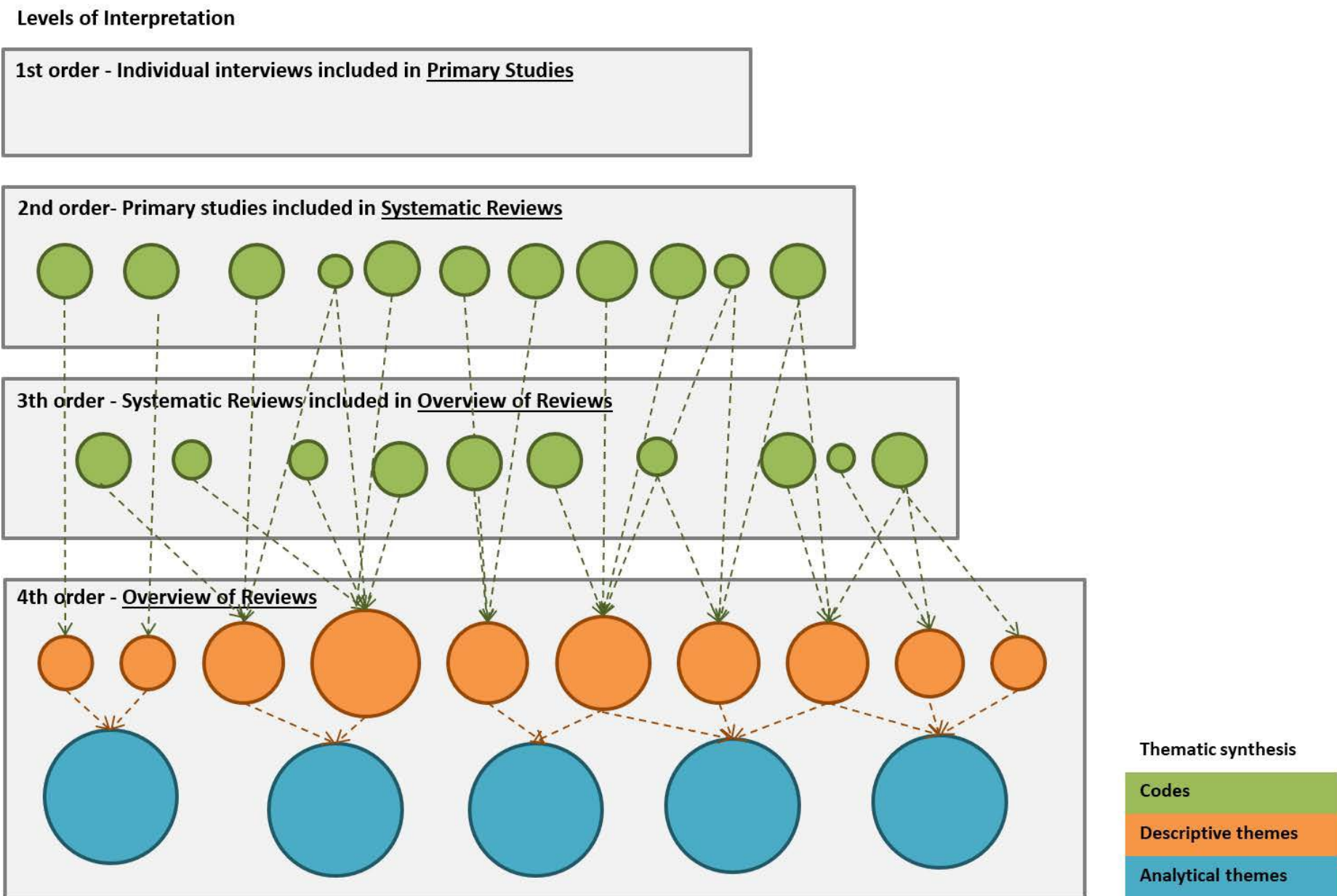
## Background

Self-management interventions (SMIs) for Type 2 Diabetes mellitus (T2DM) are promising strategies. Qualitative research is beneficial when exploring complex scenarios in-depth exploration of participants’ lived experiences and perspectives. There are many qualitative and mixed methods systematic reviews (SRs) focused on the experiences with T2DM, self-management and SMIs; a review integrating these findings would be valuable and informative. This study is the qualitative branch of a mixed methods overview of reviews. We aimed to review and summarise how patients with T2DM and their caregivers experience and perceive the outcomes of SMIs. More specifically, our research questions were related to the experiences and perceptions of patients and their caregivers of outcomes' importance when dealing with the disease, self-management, or participating in SMIs.

## Methods

Overview of SRs (CRD42019117867). We included SRS of studies exploring patients’ and informal caregivers' experiences with Self-management and SMIs. We searched MEDLINE (PubMed), CINAHL and PsycINFO until June 2021. Study selection and data extraction were conducted in pairs. We evaluated the quality with the Joanna Briggs Institute (JBI) Critical Appraisal Checklist and the overlap with the corrected covered area. We analysed and synthesized qualitative data using a thematic synthesis approach using NVivo 12 Pro. The levels of analysis comprised second-order (primary studies) and third-order SRs constructs. We did not specify any a priori theme. The synthesis followed three stages 1) text coding - line-by-line coding of the text of each SR; 2) developing descriptive themes; 3) re-interpretation and synthesis of this newly organised information, to produce analytical themes that go beyond the findings of the SRs authors (overview of SRs) (Figure 1). We conducted a collaborative analysis with three review authors to consider alternative interpretations and ensured that fourth-order constructs remain grounded in the primary studies.

Figure 1. Thematic synthesis stages and levels of interpretation



## Results

We included 54 SRs representing 1,031 studies with a slight overlap. Included reviews involved 26 qualitative evidence syntheses (48.1%), 22 mixed methods research synthesis (40.7%), and six quantitative SRs (11%). Reviews were conducted in 13 countries; being UK (n=14, 25.9%), USA (n=7, 13%) and Australia (n=6, 11%), the most frequent ones. The majority were published between 2016 to 2020 (n=33, 61.1%). The number of included studies ranged from five to 120, with a majority including 20 or fewer (n=30, 55.6%). Most evaluated methodological quality (n=44, 81.5%).

4 <sup>th</sup> order themes per outcome	Supporting sub-themes
<b>Knowledge:</b> Health education should consider patients' information needs, training preferences, and health beliefs.	<ul style="list-style-type: none"><li>Insufficient knowledge influences Self-Management (SM) behaviours</li><li>Knowledge can improve well-being but does not necessarily influence SM behaviours</li><li>Information needs and training preferences are variable</li><li>Traditional health beliefs may explain patients' understanding of diabetes</li></ul>

<b>Health literacy:</b> Insufficient numeracy and literacy skills are barriers to accessing healthcare, leading to misunderstandings on how patients manage the disease and on their expectations with the provision of care.
<b>Self-efficacy:</b> SM interventions with adequate support, acknowledging patients' characteristics, diabetes psychological and emotional burden, chronicity, and treatment complexity, can help patients to gain self-efficacy, which despite being a challenging process, increases more proactive and proper care.
<b>Patients activation:</b> Patients' actions in SM require accepting the diabetic identity managing the tension between disease- and life-centred approaches, and living in the present and for the future, guided by their perceived barriers and personal models using their resources.
<b>Adherence to a healthy diet:</b> Achieving a healthy diet requires practical knowledge, self-discipline and proactivity, support from family and friends, and a culturally sensitive approach.
<b>Physical activity:</b> Barriers to being physically active can be tackled by increasing patients' perceived support, the expected or experienced benefits of exercise, and self-efficacy.

<b>Adherence to treatment:</b> Fear shapes medication-taking behaviour and treatment progression to insulin
<b>Self-monitoring:</b> Self-monitoring blood glucose with adequate support helps patients who decide to take an active role in their care
<b>SM behaviours</b> are the result of a development process influenced by context and the type of self-care approach
<b>Glycemic control</b> is an attribute of great concern for patients
<b>Weight change</b> influences adherence to treatment and can be influenced by social interactions
<b>Competing comorbidities</b> represent barriers to SM
The importance of <b>lipid control</b> depends on patients' awareness of risk of cardiovascular disease
<b>Long-term complications:</b> Patients identify multiple factors for retinopathy screening and foot self-care with mixed perceptions of cardiovascular risk.
<b>Hyperglycaemia</b> may distress patients, however, some not acknowledge symptoms and complications
<b>Hypoglycaemia</b> is a fearsome threat that impacts patients' life and SM.
<b>Death</b> related feelings can influence engagement in SM
<b>Quality of life:</b> Diabetes impacts on patients' sense of identity, a myriad of emotions arises with complications or when dealing with treatment or SM, which can lead to stigma. Social support might help to overcome these barriers
The <b>experience of care</b> depends on the individualised care level, the nature and characteristics of the patient-HCP relationship, and cultural appropriateness.
The <b>decision-making process</b> is influenced by the divergent agenda between patients and HCPs, the quality of communication, the cultural context, and the lack of time
<b>Scheduled care</b> requires patients to face challenges getting the appointment, and accessing specialised care, while attendance is influenced by cultural background and previous experiences
<b>Value for money of SM</b> Financial constraints can limit SM

*The journey of diabetes self-management starts with personal adjustments accepting the diagnosis and treatment. Health literacy unlocks patients' healthcare access, and knowledge provision is better received in a positive patient-provider relationship within a culturally sensitive approach. Shared decision-making enables engagement in self-management interventions, and their achievement requires building up capabilities, behavioural skills, and social support. Self-monitoring facilitates awareness of glycaemic complications and glucose control importance. However, fear of hypoglycaemia and weight change may hinder treatment adherence. Patients with diabetes do not readily perceive the risk of long-term complications. Moreover, getting healthcare access can be difficult in some contexts, and attendance varies according to previous experiences. Quality of life constraints and physical and psychological barriers can make it challenging to follow self-management. Ultimately, self-management interventions with adequate support enhance patients' self-efficacy, which requires training and time to integrate into everyday life and adjust to their contextual factors.*

We comprehensively analysed the main themes for 23 outcomes and provided summaries with different levels of detail that informed the development of recommendations for SMIs for T2DM.

## Conclusion

Our results can inform health policymakers and main stakeholders of the development of future interventions to support patients with T2DM, addressing the main factors affecting their disease journey.

## Funding

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# The Body Map Tool: a digital communication aid for young people with a chronic condition and their care providers

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The Netherlands Institute for Health Services Research

## Background

Young people with a somatic chronic condition receive treatment to reduce symptoms ...

... but treatment can also pose a heavy burden on them and affect their quality of life ...

... still, care providers and young people rarely discuss this so-called treatment burden.

**Objective:** To develop a visual body mapping tool that facilitates communication about treatment burden between young people with a chronic condition and their care providers.

## Methods

### Development of paper prototype

- Literature search on body mapping
- Interview with health care provider
- Co-design session with young people

### Development of digital demo tool

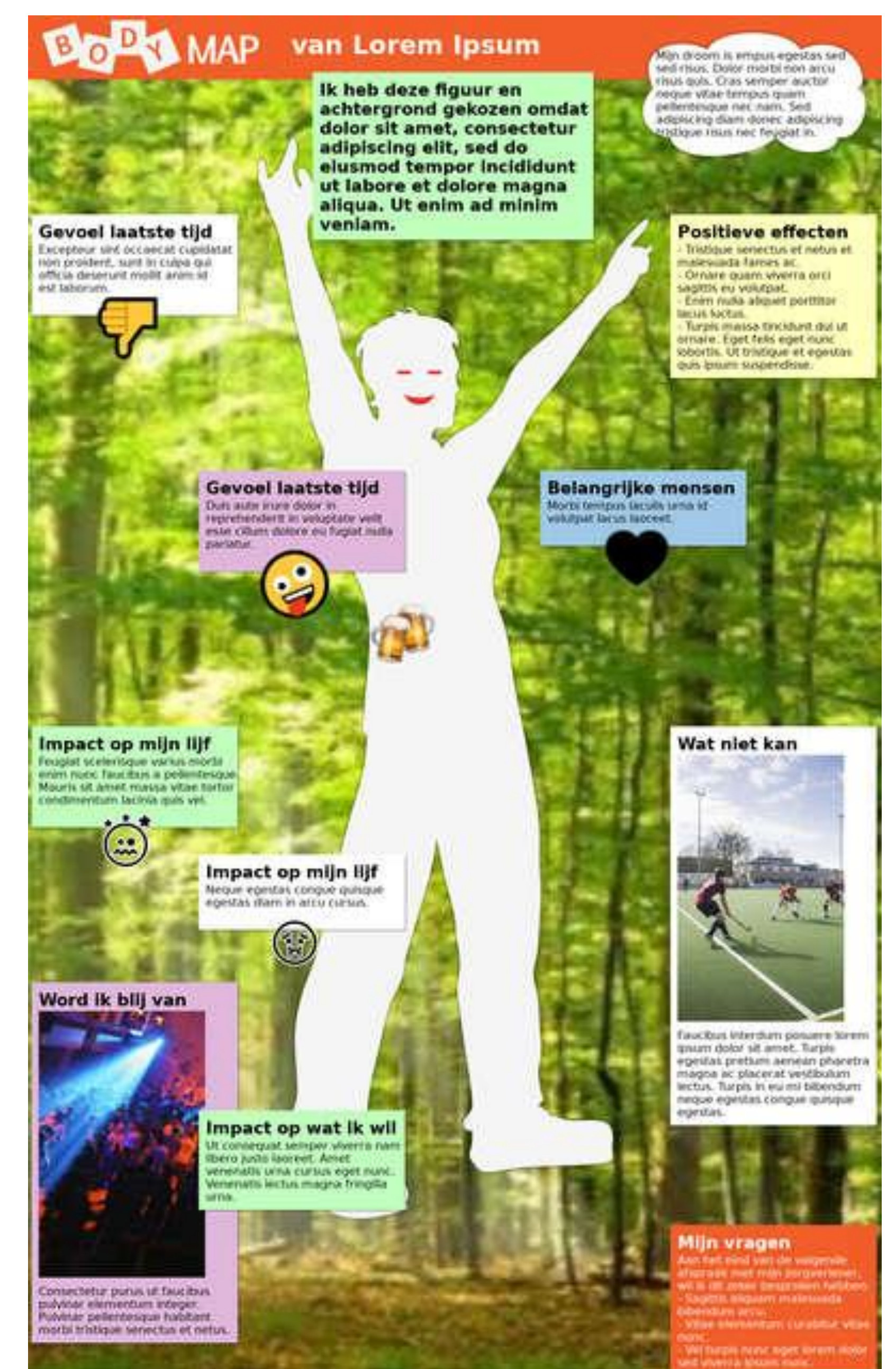
- Iterative process with a team of researchers, young people with a chronic condition and care providers

### Application of tool

- Six workshops with young people
- Dialogue session with young people and care providers

## Results

With the digital Body Map Tool, young people create a 'body map': an image of a body in which they depict treatment burden with photos, icons and text. A 'chat robot' guides this process. Young people can print the body map and discuss it with their care provider.



### What do the users think of the tool?

- **A picture is worth a thousand words:** The tool helps to discuss topics that are difficult to express in words.
- **Taking control:** It helps to tell your story and take control in dialogues with care providers.
- **Being seen as a person:** It helps to draw attention to treatment burden.

## Conclusion

Our digital Body Map Tool helped young people with a chronic condition to tell their stories, as they could visualize and show experiences before discussing them. We are currently developing a similar tool – called UP! – to support communication between young people with a mental chronic condition and care providers. The use of a visual body map tool may also be of interest to adult patient groups, such as people with low health literacy.



# Self-care and digital health in the 5th Self-Care Week of semFYC.

## Authors

María del Campo Gimenez, Elena Muñoz Seco, [Francisco Camarellés Guillem](#). [Spanish Society of Family and Community Medicine](#).

## Background

**Self-care interventions** favor greater health coverage and access, reduce health inequalities, promote equity in health, are related to an improvement in the quality of services, better results are obtained in terms of health, human and social rights, and there is a more efficient use of health services and resources. For all this, the World Health Organization recommends various self-care interventions, including digital health interventions. *Digital health interventions offer opportunities to promote and provide information on self-care interventions.*

## Methods

The Spanish Society of Family and Community Medicine (semFYC) celebrates its **V Self-Care Week october 2022**.

The objectives of the Self-Care Week are to promote self-care in health, inform and sensitize patients about the importance of self-care, raise awareness and motivate health professionals, focusing this year on **digital health**.

In this edition, the main objective is to find out **how patients use websites, social networks, forums and mobile applications related to health and self-care**.

For this purpose, semFYC has launched an online survey addressed to patients: [Autocuidado y salud digital](#).

## Findings

The results will be published during the celebration of the **V Self-Care Week on 17-21 October 2022**.

## Discussion

The results will allow expanding knowledge about self-care and digital health and developing action plans to improve the self-care of the population.

## Preliminary results

They have participated 924 people in the form. 74,5 % were female, 25,1 % were male, and 0,4 % were non-binary. 87,6 % have university studies.

- 55,9 % have consulted about their health on the internet in the last month, and the most frequent topics have been symptoms, prescription drugs and healthy lifestyles.
- 58,9 % use digital devices related to their health, mainly used to measure daily steps, heart rate and monitoring of physical activity.
- 76,6% have an APP related to their health, used to check their medical history and to make an appointment with their health.

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# Graphical tools for visualizing the results of network meta-analysis of multicomponent interventions

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## Goal of this work

We propose novel ways of visualizing network meta-analysis (NMA) results with multicomponent interventions to explore the behaviour of the components and to identify which component (combination) works better.

## Quick Revision

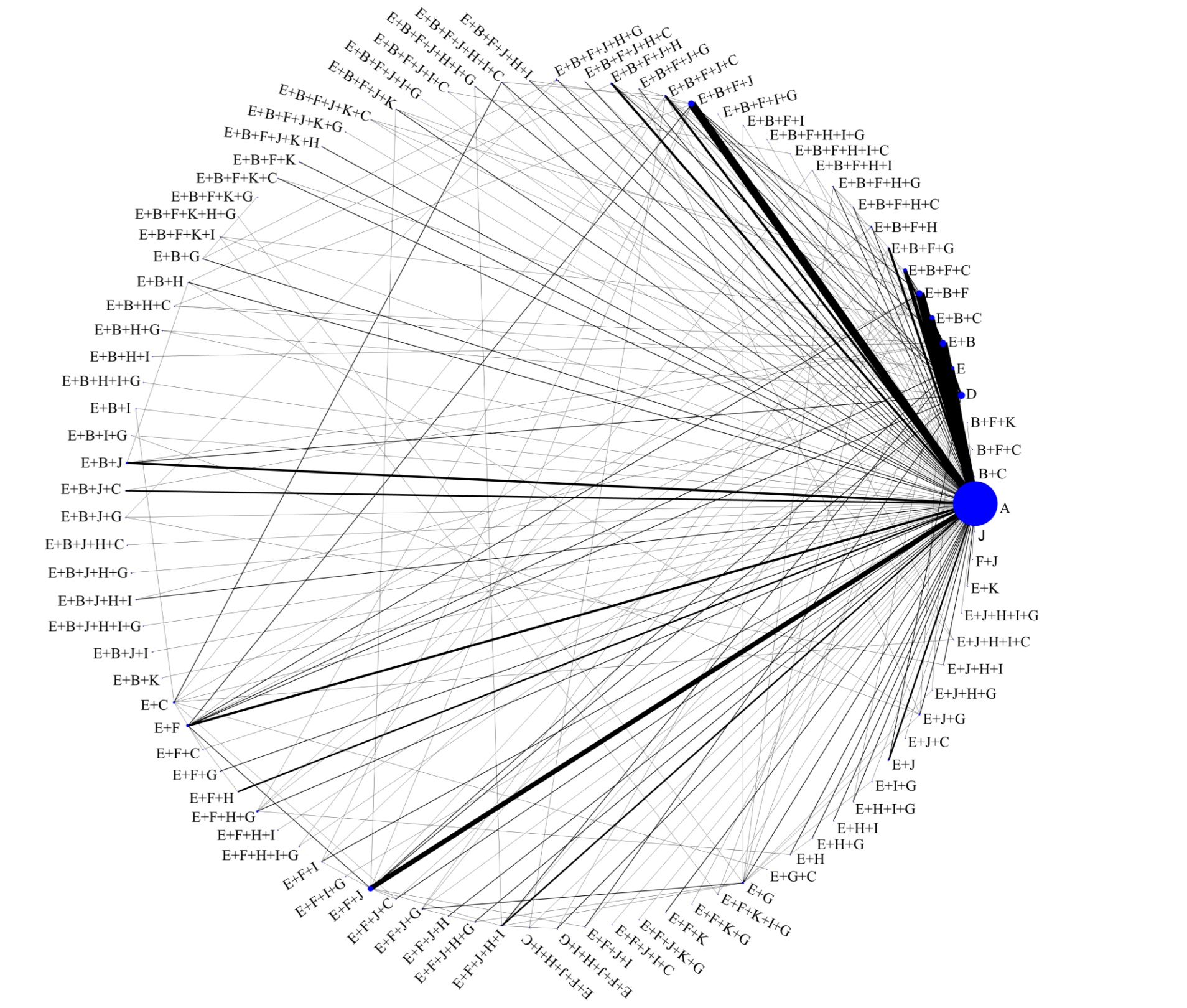
Networks of multicomponent interventions are typically sparse and classical NMA inference is not straightforward.

Component NMA (CNMA) is typically used to analyze multicomponent interventions, however, in sparse networks transitivity is challenged.

The proposed figures are based on the NMA estimates.

## Dataset

- 461 studies,
- 97 self-management interventions
- 11 components



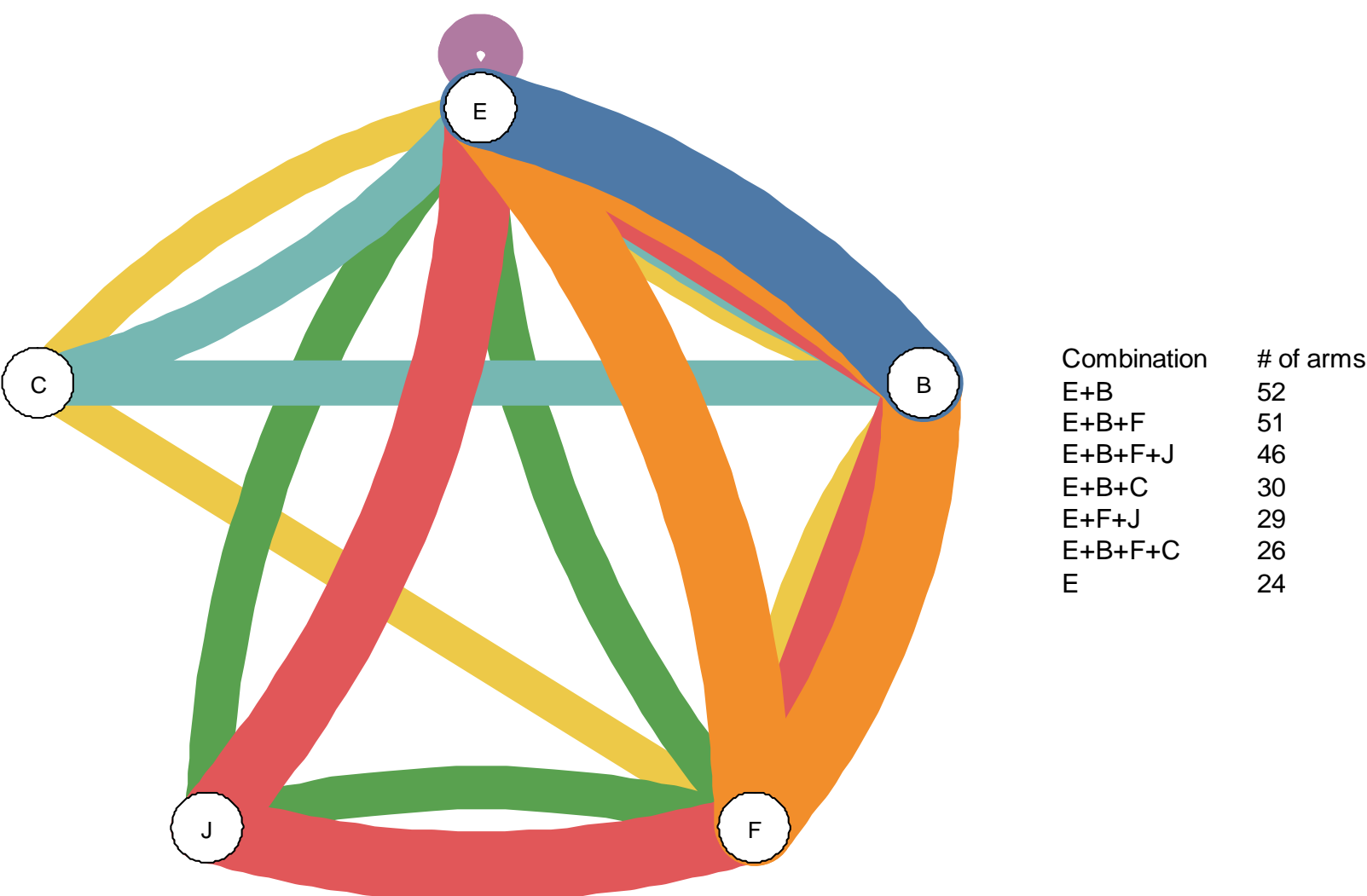
## Crosstable

Visualizes the components' frequencies in order to identify which components (combinations) are the most frequent.

	0	20	5	0	27	25	6	3	2	10	28
K	(0/334)	(20/371)	(5/117)	(0/52)	(27/565)	(25/352)	(6/117)	(3/133)	(2/73)	(10/231)	(28/957)
J	0	141	39	0	229	180	45	73	44	231	10
	(0/334)	(141/371)	(39/117)	(0/52)	(229/565)	(180/352)	(45/117)	(73/133)	(44/73)	(231/957)	(10/28)
I	0	34	9	0	73	51	23	51	73	44	2
	(0/334)	(34/371)	(9/117)	(0/52)	(73/565)	(51/352)	(23/117)	(51/133)	(73/957)	(44/231)	(2/28)
H	0	80	16	0	133	97	48	133	51	73	3
	(0/334)	(80/371)	(16/117)	(0/52)	(133/565)	(97/352)	(48/117)	(133/957)	(51/73)	(73/231)	(3/28)
G	0	57	1	0	117	67	117	48	23	45	6
	(0/334)	(57/371)	(1/117)	(0/52)	(117/565)	(67/352)	(117/957)	(48/133)	(23/73)	(45/231)	(6/28)
F	0	240	67	0	349	352	67	97	51	180	25
	(0/334)	(240/371)	(67/117)	(0/52)	(349/565)	(352/352)	(67/117)	(97/133)	(51/73)	(180/231)	(25/28)
E	0	367	114	0	565	349	117	133	73	229	27
	(0/334)	(367/371)	(114/117)	(0/52)	(565/565)	(349/352)	(117/117)	(133/133)	(73/73)	(229/231)	(27/28)
D	0	0	0	52	0	0	0	0	0	0	0
	(0/334)	(0/371)	(0/117)	(52/957)	(0/565)	(0/352)	(0/117)	(0/133)	(0/73)	(0/231)	(0/28)
C	0	98	117	0	114	67	1	16	9	39	5
	(0/334)	(98/371)	(117/957)	(0/52)	(114/565)	(67/352)	(1/117)	(16/133)	(9/73)	(39/231)	(5/28)
B	0	371	98	0	367	240	57	80	34	141	20
	(0/334)	(371/371)	(98/117)	(0/52)	(367/565)	(240/352)	(57/117)	(80/133)	(34/73)	(141/231)	(20/28)
A	334	0	0	0	0	0	0	0	0	0	0
	(334/957)	(0/371)	(0/117)	(0/52)	(0/565)	(0/352)	(0/117)	(0/133)	(0/73)	(0/231)	(0/28)
	A	B	C	D	E	F	G	H	I	J	K

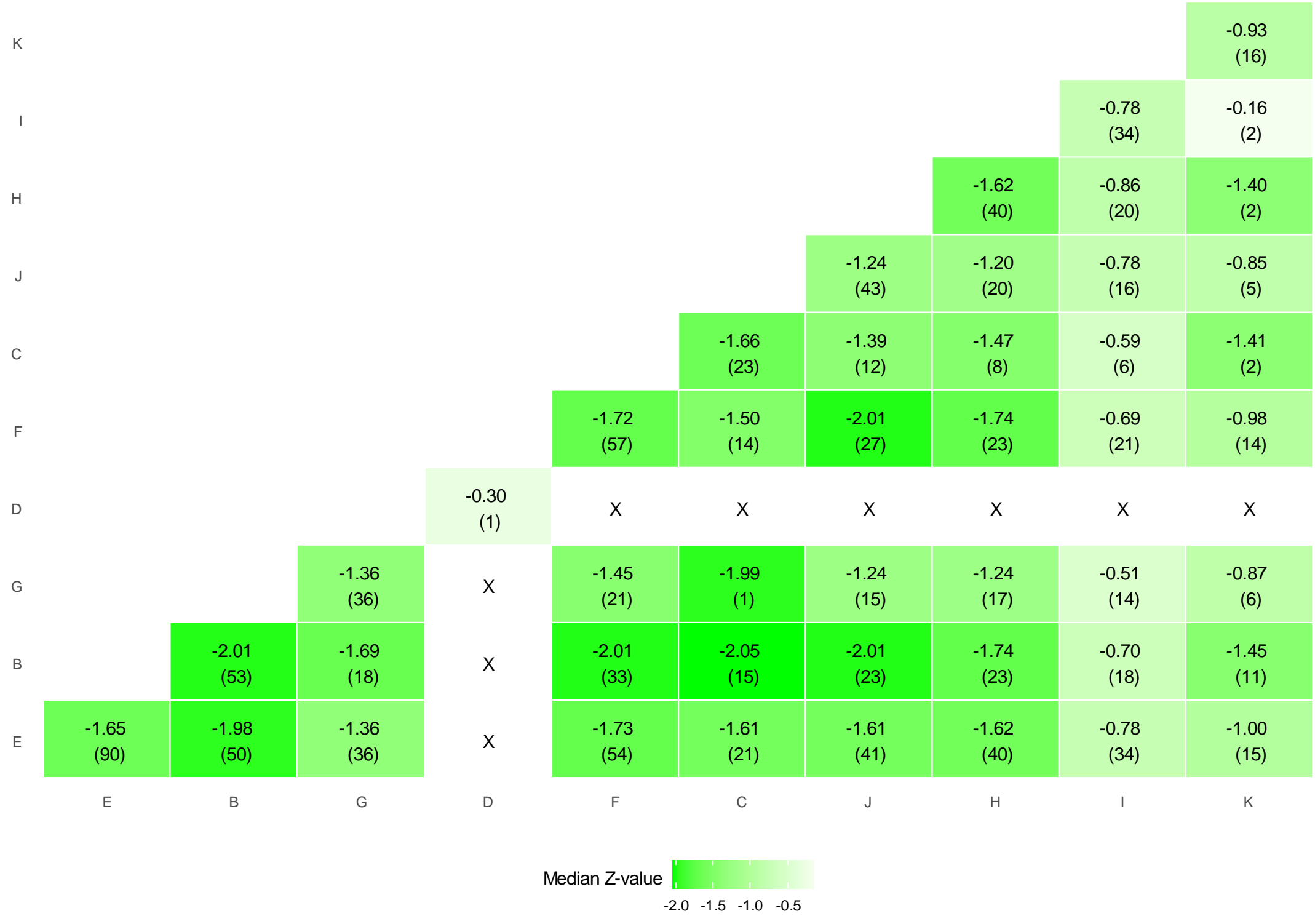
## Components Network Graph

Visualizing the frequency of components' combinations found in the network.



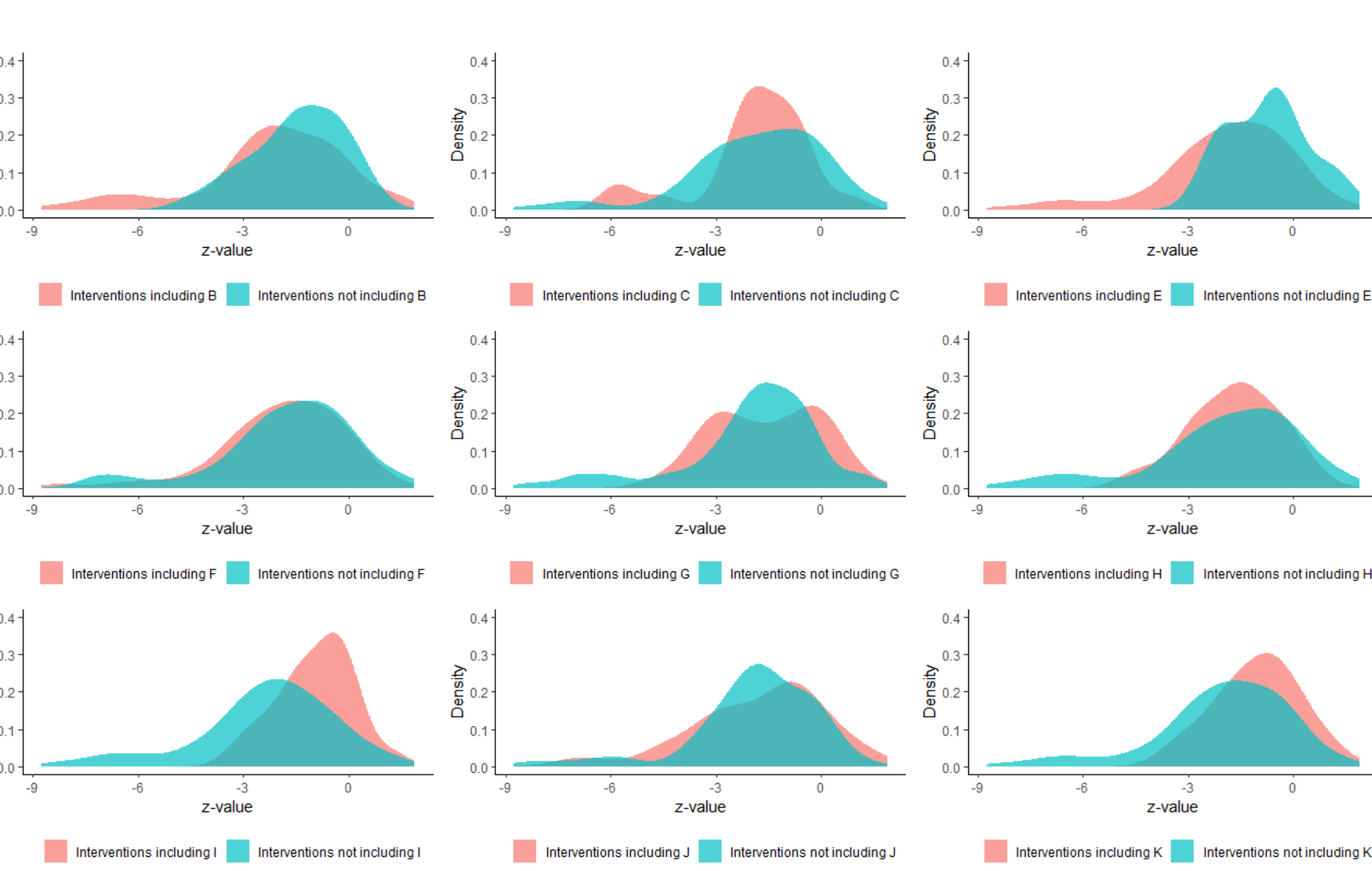
## Components Heat Plot

Explores the efficacy of component pairs of interventions.



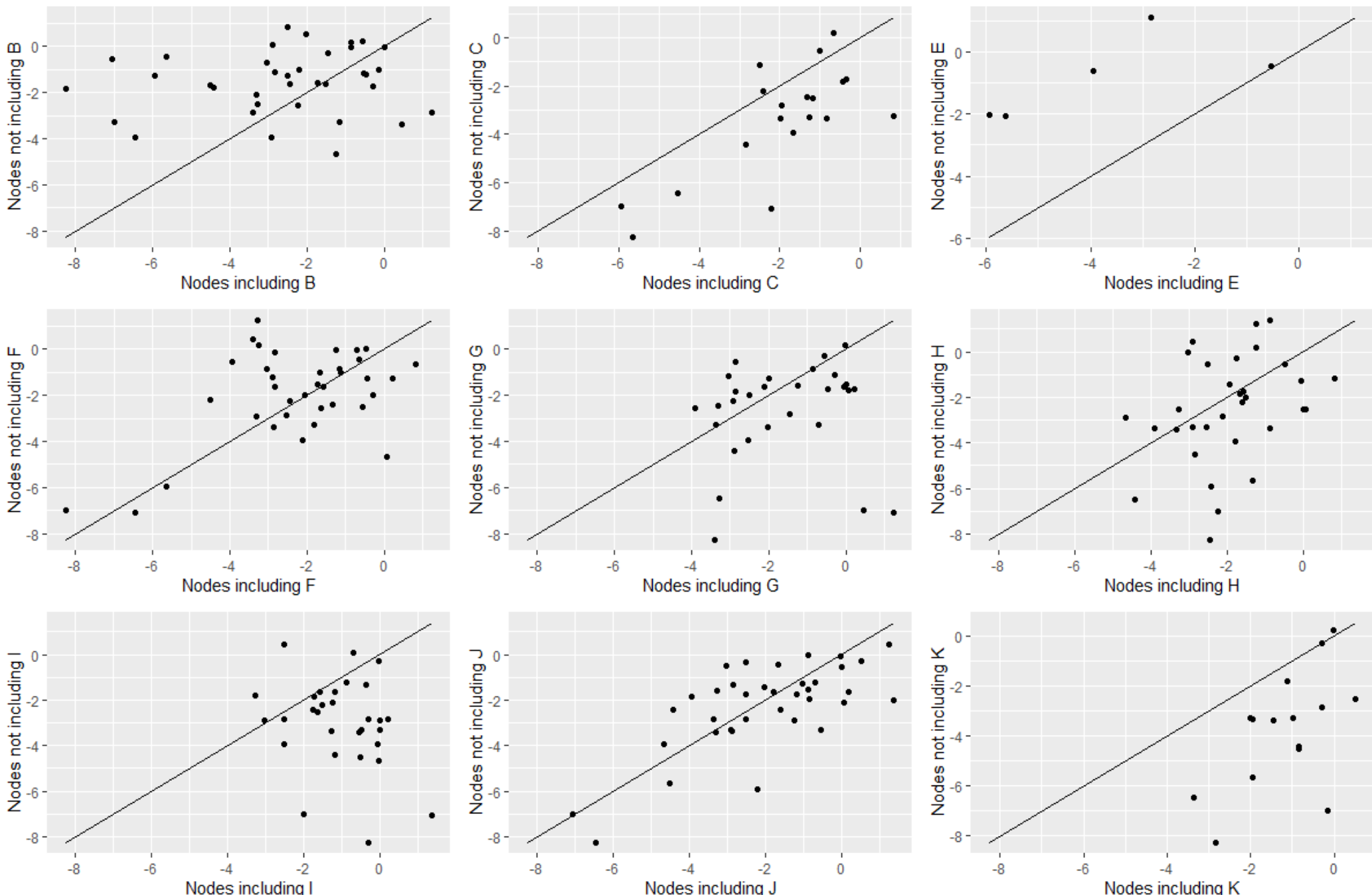
## Density Plot

Compares the corresponding density of all z-scores that include each of the components (or a combination of them) to those not including the component(s) of interest.



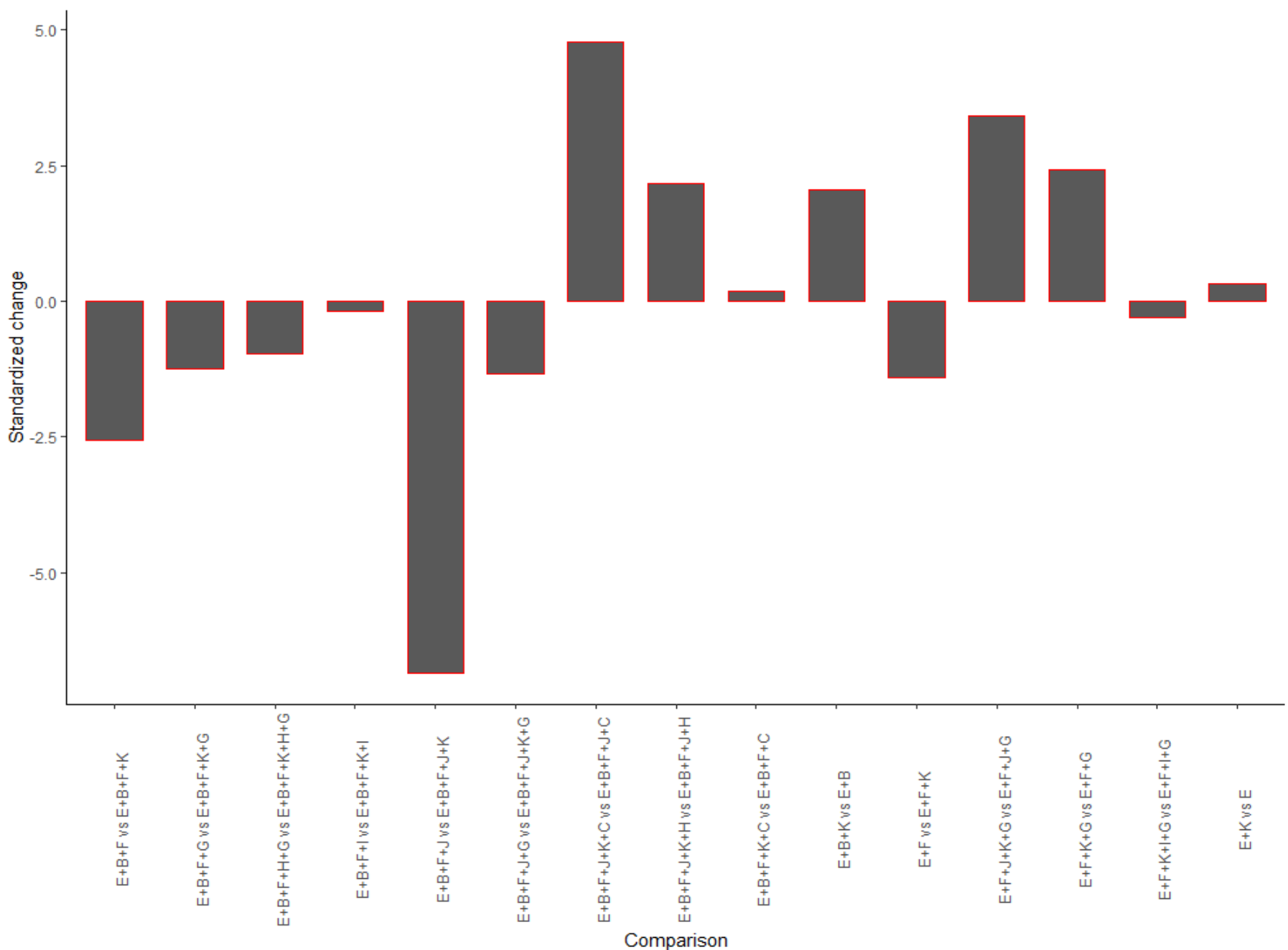
## Leaving one component out scatter plot

Explores whether the inclusion or exclusion of a component has a positive or negative impact on the efficacy of an intervention.



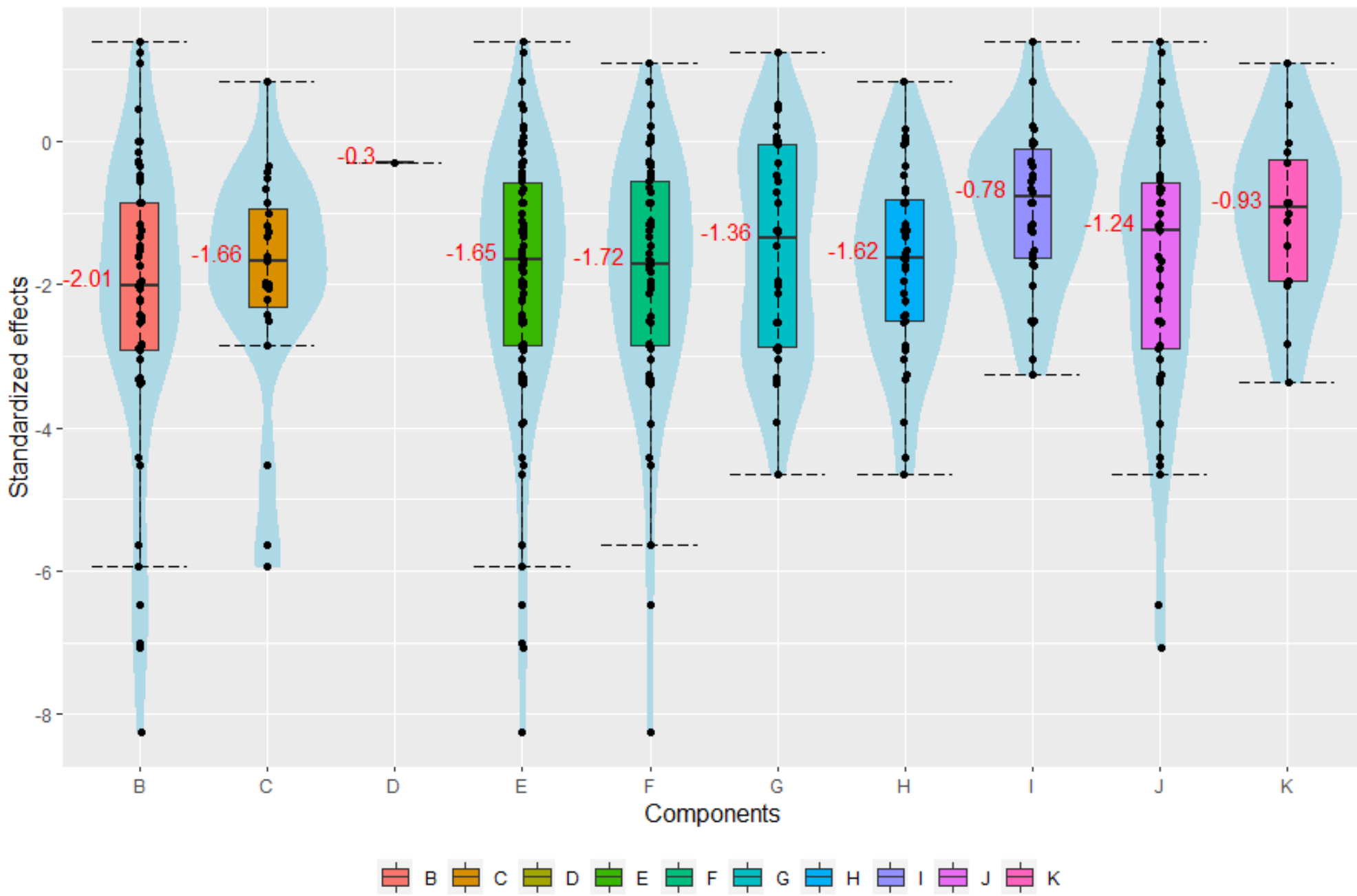
## Waterfall plot

An alternative to "leaving one component out scatter plot".

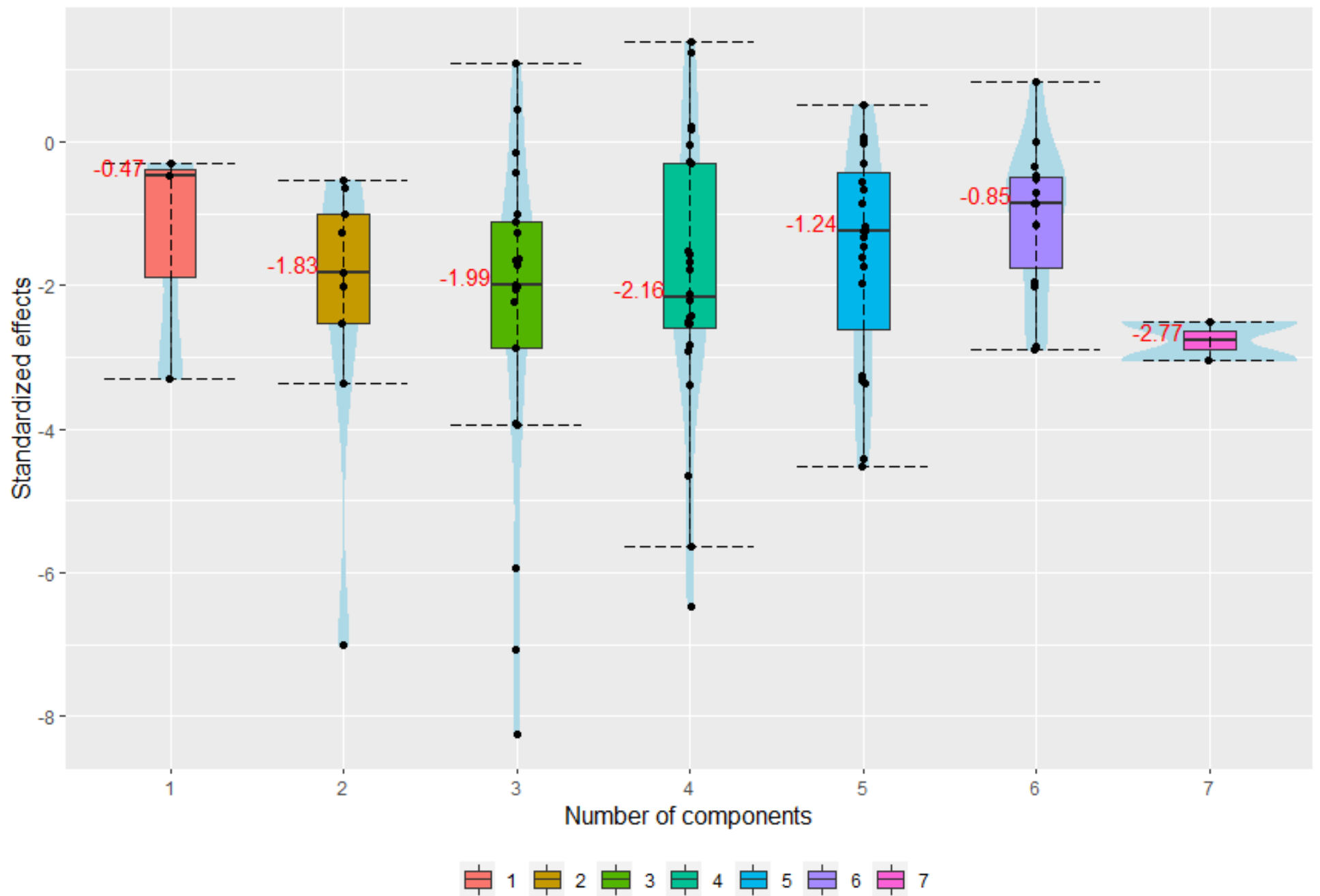


## Violin plot

Data points denotes the z-scores for the interventions that include the corresponding component.



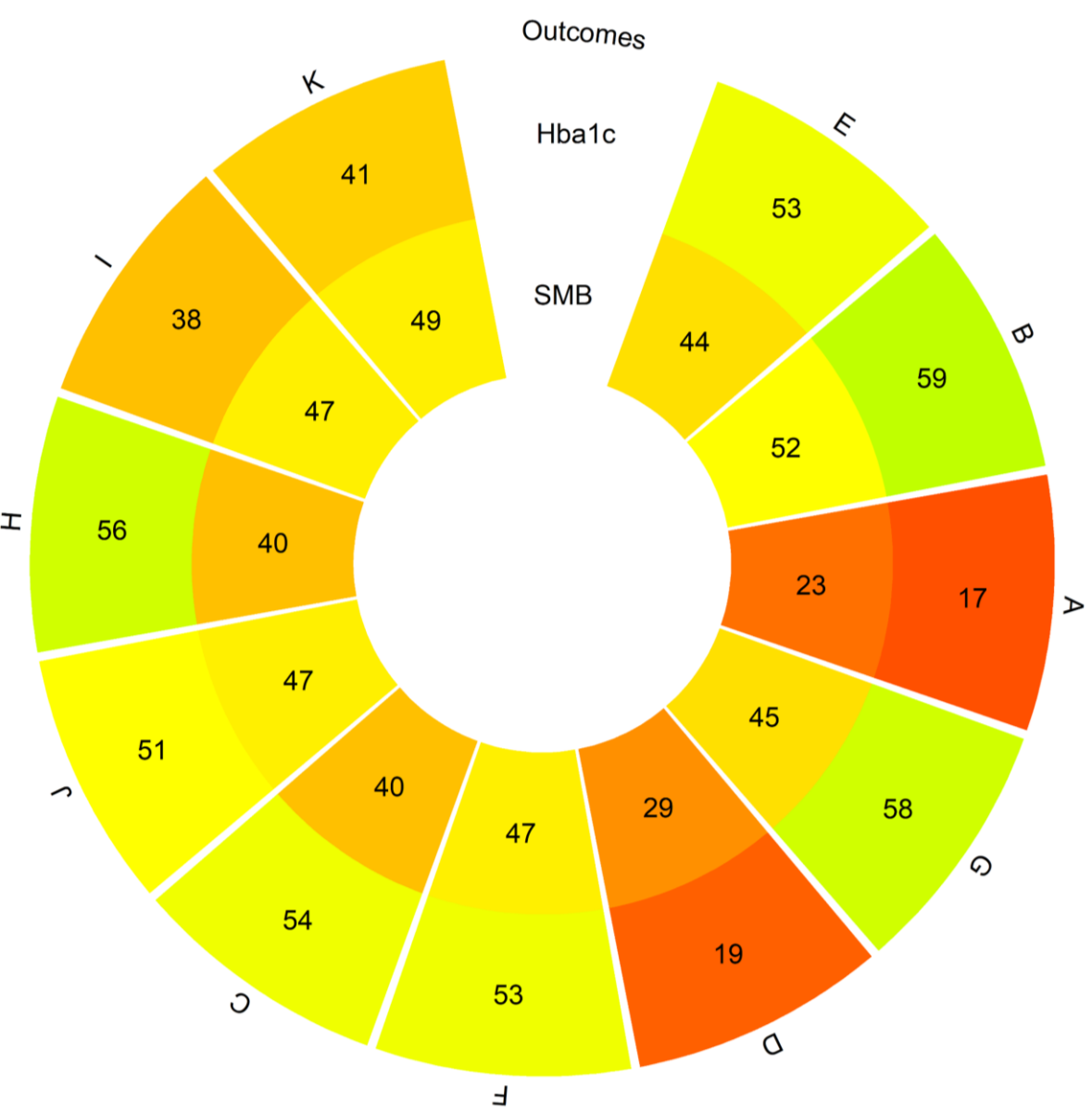
Data points denote the z-scores for the interventions that includes the corresponding number of components.



## Rank-heat plot

Useful when dealing with multiple outcomes.

Summarizes the components p-scores for multiple outcomes.



## Conclusion

- Perform both NMA and CNMA when dealing with multicomponent interventions.

- The proposed figures offer insight into components' efficacy and help on understanding their behavior.

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COMPAR-EU



EVIDENCE  
SYNTHESIS  
METHODS  
STATISTICS TEAM



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# Knowledge and self-care behaviors of patients hospitalized for acutely decompensated chronic heart failure: a neverending work in progress

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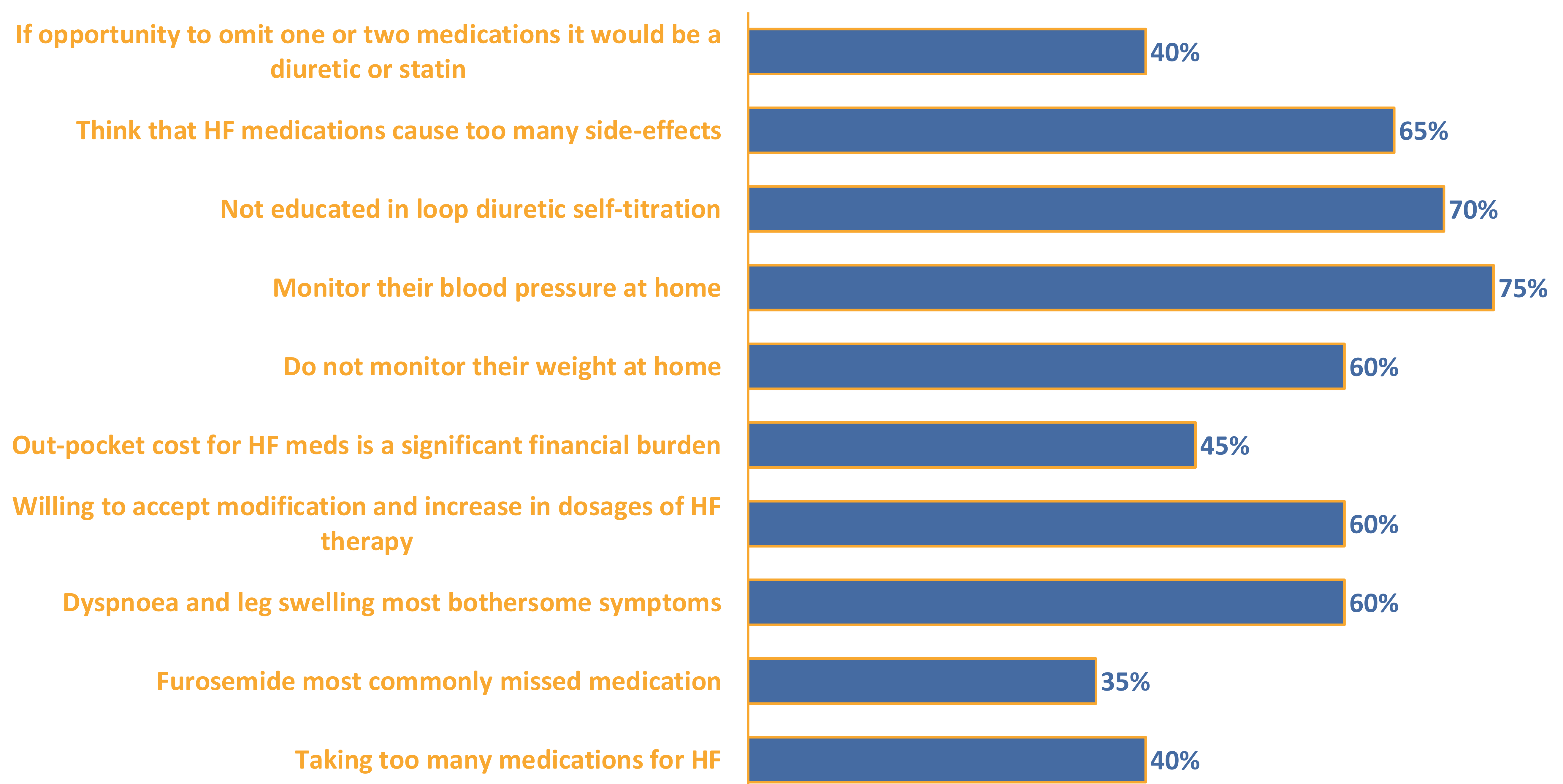
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**BACKGROUND:** To assess inpatient behaviors toward HF medications and self-care measures in the setting of acutely decompensated chronic heart failure (ADHF) prior to discharge from a tertiary clinical center.

**METHODS:** Twenty patients with ADHF were provided an educational HF booklet and completed a 20-item questionnaire before discharge.

**FINDINGS:** The mean age of patients was 70±11.8 years and 85% were male. Mean dyspnea per VAS scale prior to discharge was 2.9/10 points. Shortness of breath and leg edema were the most bothersome HF symptoms in 60% of patients. Forty percent of patients reported they feel they are taking too many medications for HF while 65% thought these medications cause them too many side effects. However, all patients reported that they would take as many HF medications as needed to treat their disease. Nearly half of patients (9/20) reported that financing and out-of-pocket costs for HF medications impose a significant financial burden on them. Up-titration of HF medications, as self-reported, did not occur in 70% of a patient during the period of last 12 months while 45% of patients were hospitalized due to HF at least once during the previous year. In terms of self-care, 40%, 75%, and 70% of patients reported they are regularly monitoring their weight, blood pressure, and salt or fluid intake at home, respectively. More than two-thirds of patients revealed they are not educated about the self-titration of diuretics at home. Patients identified antihypertensives and diuretics as the most important drugs for HF management while 50% of them would remove either diuretic or statin if they could omit one medication.

**DISCUSSION:** Patient knowledge and self-care incentives regarding heart failure management were insufficient in several domains. Therefore, more educational interventions geared towards patients with ADHF are urgently needed to improve self-care behaviors thus potentially impacting relevant clinical outcomes. Main results are presented in the **Figure** below.





# Exploring efficacy of self-management interventions in self-efficacy on chronic disease

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Ourania Koutsiouroumpa<sup>1</sup>, Styliani Zevgiti<sup>1</sup>, Stavros Nikolakopoulos<sup>1</sup>, Areti-Aggeliki Veroniki<sup>1,2</sup>, Dimitrios Mavridis<sup>1,3</sup>

1. University of Ioannina, Greece, 2.University of Toronto, Canada,  
3.Université Paris Cité, France

## Background

Self-management support may improve self-efficacy but there is uncertainty about which type of support is the most effective to manage chronic diseases.

## Introduction

Self-efficacy is an outcome in the COMPAR-EU explored across 4 chronic diseases: Diabetes Type-II, Obesity, Heart-Failure and COPD. A total of 111 studies involving 14684 participants met the criteria for inclusion in our component and standard network meta-analysis (NMA). This represented 86 distinct types of interventions and 116 comparisons (61 for diabetes, 14 for Obesity, 18 for COPD, and 42 for Heart failure).

## SMIs vs UC/UCP

Self-management interventions (SMI) improved self-efficacy compared with usual care. Specifically, for diabetes SMD= 0.27 [0.22, 0.31], for obesity 0.62 [0.46, 0.78], for heart failure 0.09 [0.03, 0.16] and for COPD 0.40 [0.29, 0.50].



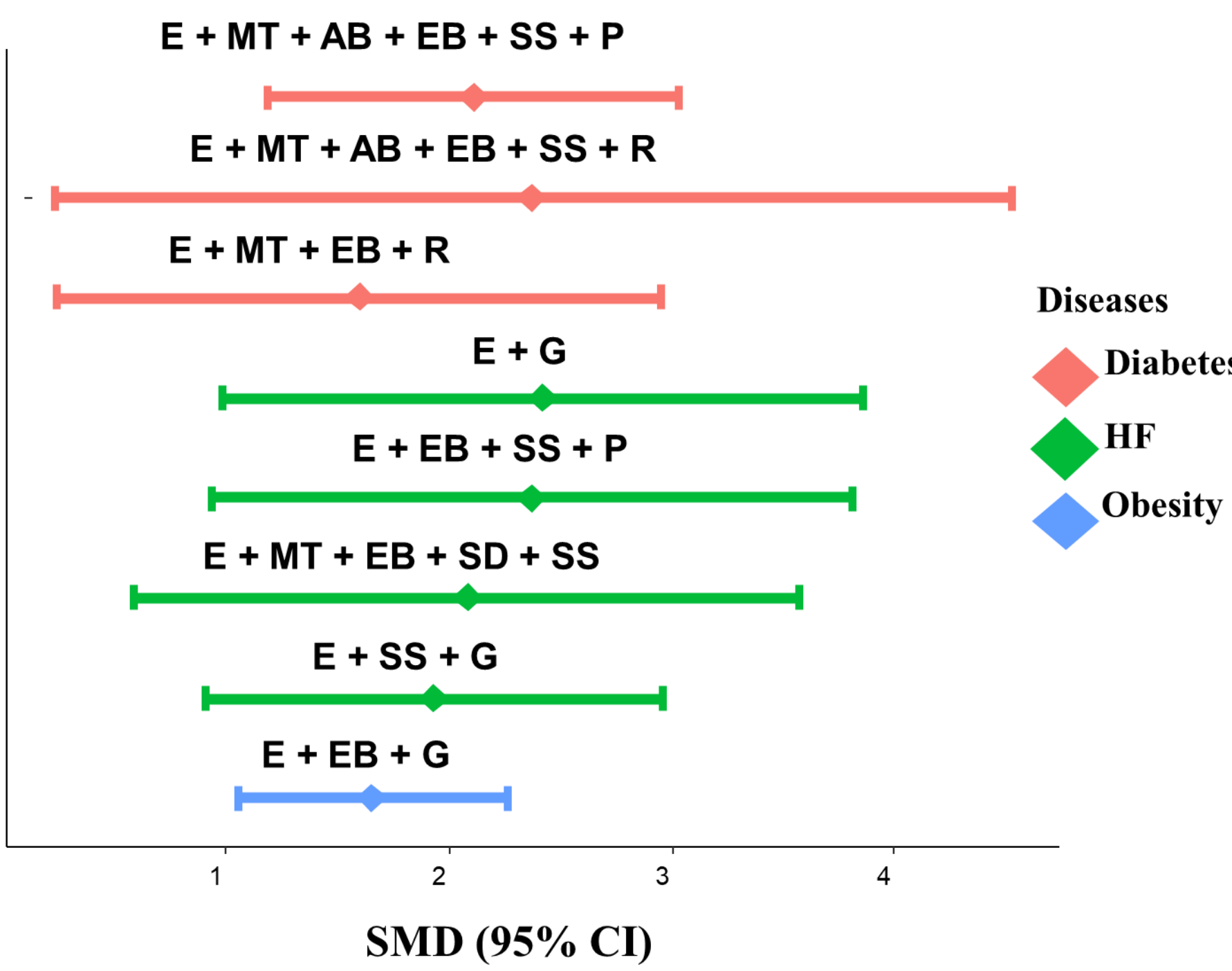
## Network Meta-Analysis

Network Meta-analysis is a very useful statistical method that synthesizes direct and indirect evidence and allows estimation of the relative effectiveness between any pair of interventions within a network of treatments<sup>1,2</sup>. Additionally, NMA can rank all the available treatments in the network. We ranked all treatments in each outcome by using P-scores<sup>3</sup>. P-scores assume values from zero to one and the larger the p-score the better the treatment.

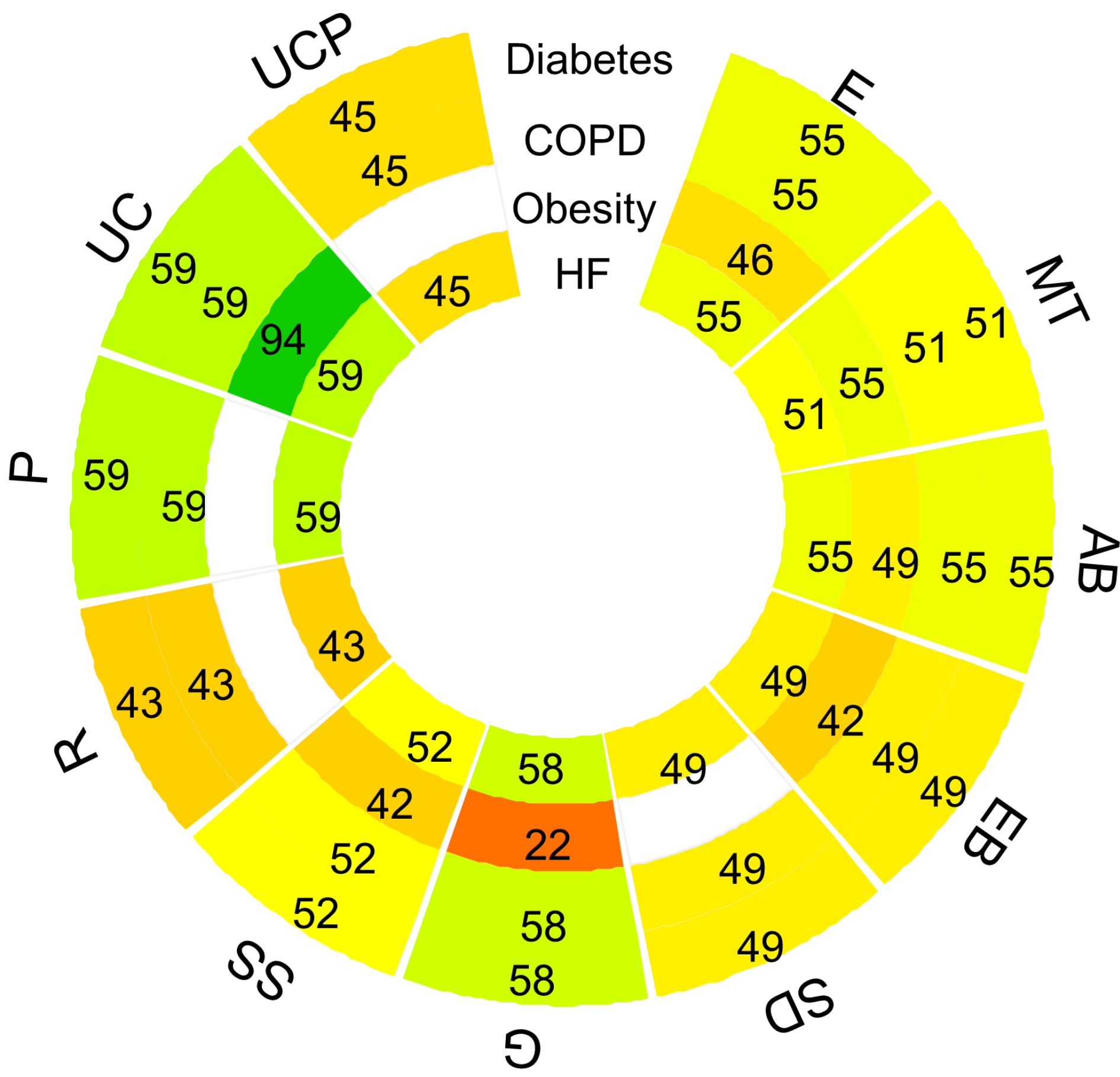
## NMA results

In Figure 2 the most effective treatments according to their P-scores are presented. A threshold of 80% was used for P-scores. However, for COPD, the included interventions did not achieve a P-score greater than 80%.

### The most effective interventions



### Rankheatplot: Components across multiple outcomes.



## Component Network Meta-Analysis (CNMA)

In NMA, interventions can be multicomponent/complex; for example, some interventions may be combinations of others or common components. In standard NMA, all existing (single or combined) treatments are different nodes in the network. However, sometimes an alternative model is of interest that utilizes the information that some treatments are combinations of common components, called component network meta-analysis model<sup>4</sup>.

In our project, there are 11 components, presented their abbreviation.

Abbreviation	Component
1	AB
2	E
3	EB
4	G
5	MT
6	P
7	R
8	SD
9	SS
10	UC
11	UCP

## CNMA results

### Most efficacious components

- Diabetes  
EB: 0.44 [0.11 , 0.78]  
SS: 0.35 [0.02 , 0.68]
- Heart Failure  
E: 0.95 [0.41 , 1.49]

## Discussion

- Most NMA intervention effects were associated with much uncertainty.
- CNMA showed that the education component improves self-efficacy considerably for all 4 chronic diseases.
- Most of the trials had medium or high risk of bias.
- In all analyses, we identified substantial heterogeneity.

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UNIVERSITY  
of IOANNINA



# INSIGHTS INTO THE SWISS SYMPTOM NAVI PROGRAMME

## Evaluation of a nurse-led self-management support intervention for people affected by cancer

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## Background

Cancer can cause early and long-term consequences that ask for tailored self-management support (SMS) during and beyond cancer treatments. The Symptom Navi Programme (SNP) is an SMS intervention based on coaching and facilitating patients' self-efficacy. It consists of leaflets providing evidence-based self-management recommendations, semi-structured SMS interventions, and standardised implementation training.

## Objectives

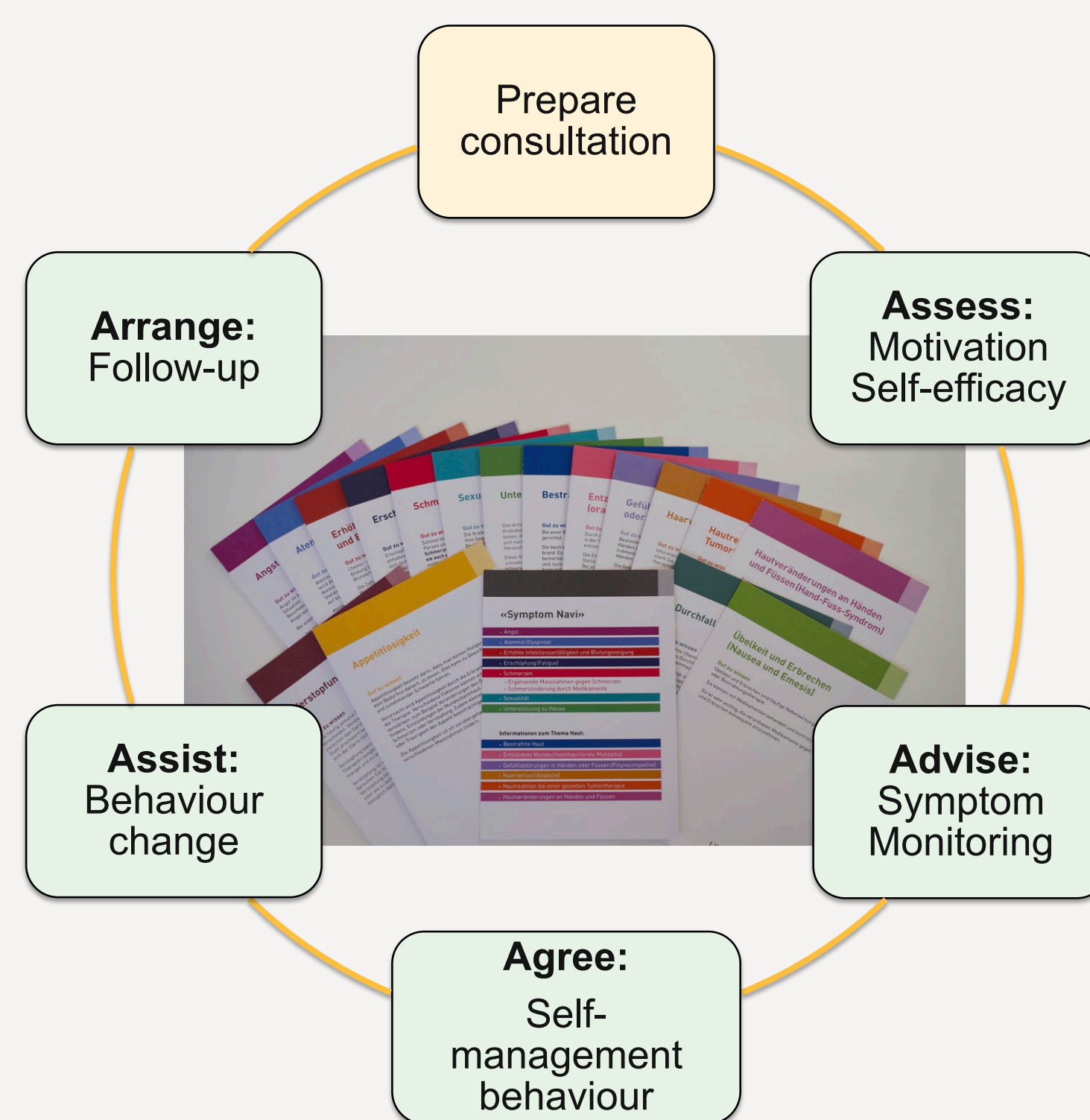
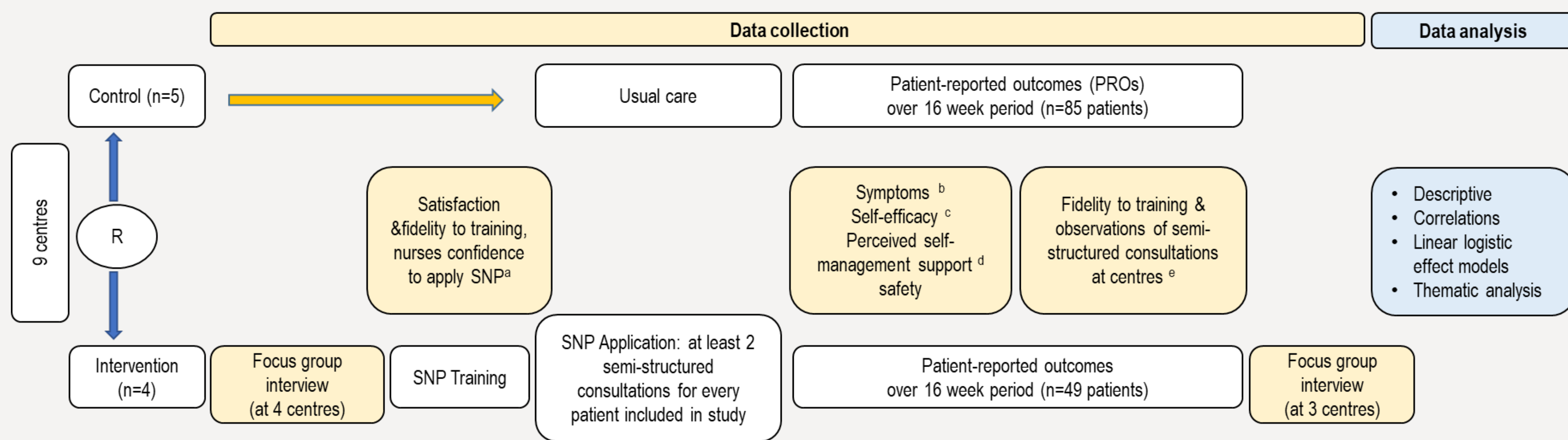
- People affected by cancer in Switzerland will have access to evidence-based self-management recommendations.
- Nurses and other health care professionals will support self-management behaviour and facilitate the self-efficacy of affected persons.

## Methods

We used **patient and family involvement** and **collaborated with health care professionals** to develop the SNP programme.

**Programme evaluation:** Patient and family experience were explored using semi-structured interviews (completed before the pilot study <sup>(2)</sup>)

**Cluster-randomised pilot study** <sup>(3)</sup>: evaluation of the programme's implementation in nine outpatient cancer centres in Switzerland.



Semi-structured consultations based on the 5 As <sup>(1)</sup>

### Symptom Navi pilot study procedures

#### Legend:

- R: randomisation of clusters (=centres)
- a: study specific questionnaires completed by nurses after training
- PROs: Patient-Reported Outcomes
- b MD Anderson Symptom Inventory,
- c Self-efficacy for Chronic Disease 6 item Scale,
- d Patient-Reported Chemotherapy Indicators for Symptoms and Experience (reduced and adapted version for pilot study)
- e: study specific questionnaires nurses completed after every performed intervention

## Results

**Patients and family members** reported that leaflets were helpful and that nurses' consultations were supportive.

**Nurses** reported applying 92% of training content (95% CI: 87-95%). However, direct observation (n=6) and focus group interviews revealed rather poor implementation on coaching behaviour and the facilitation of self-efficacy (see diagram on the right)

**Nurse confidence to use the SNP** in daily routines was positively correlated with working conditions ( $r = .47$ ,  $p = .04$ ).

**On average 88% of patients received the semi-structured consultations as planned** (range related to centres 75-100%).

Over 16 weeks, the intervention showed no impact on any patient-reported outcomes compared to the control group.

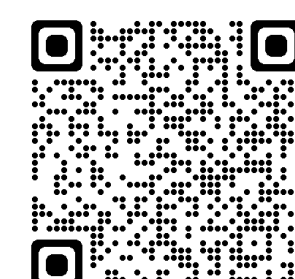
**No adverse events were reported.**

## Discussion / Conclusion

Nurse-led consultations with leaflets are safe and the implementation of SNP at cancer centres is feasible. We improved training regarding coaching behaviour, self-efficacy support, and the adaptation of support to context. Online training modules and a trilingual website now facilitate access to self-management recommendations. We plan for the next year an evaluation study concentrating on effectiveness related to patient self-management behaviour.

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# Developing recommendations of self-management interventions in patients with chronic conditions: the importance of working with panels

Melixa Medina-Aedo<sup>1</sup>, Jessica Beltran<sup>1</sup>, Claudia Valli<sup>1</sup>, Carlos Canelo-Aybar<sup>1</sup>, Ena Niño De Guzmán<sup>1,2</sup>, Carola Orrego<sup>3,4</sup>, Gimón de Graaf<sup>6</sup>, Martine Hoogendorn<sup>6</sup>, Janneke Noordman<sup>5</sup>, Pablo Alonso-Coello<sup>1,7</sup>, for the COMPAREU Consortium

## Background

Current knowledge suggests that self-management interventions (SMIs) may improve clinical outcomes of patients with chronic conditions<sup>(1)</sup>. COMPAREU project aims to identify, compare and rank the most effective and cost-effective SMIs in four high priority chronic conditions in Europe. We assembled four multidisciplinary panels to formulate evidence-based recommendations on SMIs for patients living with Type 2 Diabetes Mellitus (T2DM), Obesity, Chronic Obstructive Pulmonary Disease (COPD) and Heart Failure (HF)<sup>(2)</sup>.

## Objective

To describe the experience of working with panels to formulate recommendations on SMIs in the COMPAREU project.

## Methods

### Recruitment and selection of panelists

Panel members were recruited via open call, through social media, the project website, and referrals from the consortium, were selected according to their expertise or experience in the chronic condition (patient or clinician), self-management, guideline development, or health care research. All members disclosed their potential conflicts of interest.

### Panels composition

Panels included representatives from a variety of backgrounds, such as: health services researchers, guideline methodologists, academics, clinicians, self-management experts, and patients and patient advocates.

### Panels activities

1) Surveys: all panels answered two surveys. The first evaluated the level of agreement with the core outcome set (COS) for each condition.

The second, evaluated the level of agreement with the magnitude of effects thresholds (e.g. large vs a moderate effect) for the selected outcomes. Both surveys used Likert scales.

2) Training sessions: through videos and online meetings, panels were briefed on the project methodologies, like the GRADE methodology; and in particular the Evidence to decision frameworks (EtD) to develop recommendations.

3) Preliminary judgments and recommendations: panels made preliminary judgments for each EtD framework criterion, using the GRADEPro online tool (Panel voice feature). The results, including the degree of agreement, were discussed during online meetings.

4) Final report: draft of a report including the methodology, results of the process, and final recommendations. This needs to be approved by all panels. A manuscript for each condition which will be submitted for publication separately.

## Results

### Panels composition



### Panels activities

- Two initial surveys per panel (n=8)
- Five online meetings per panel (n=20)
- 41 Panel voice surveys
- One Final Report per panel (n=4) (ongoing)
- A process survey per panel (n=4)

### Recommendations

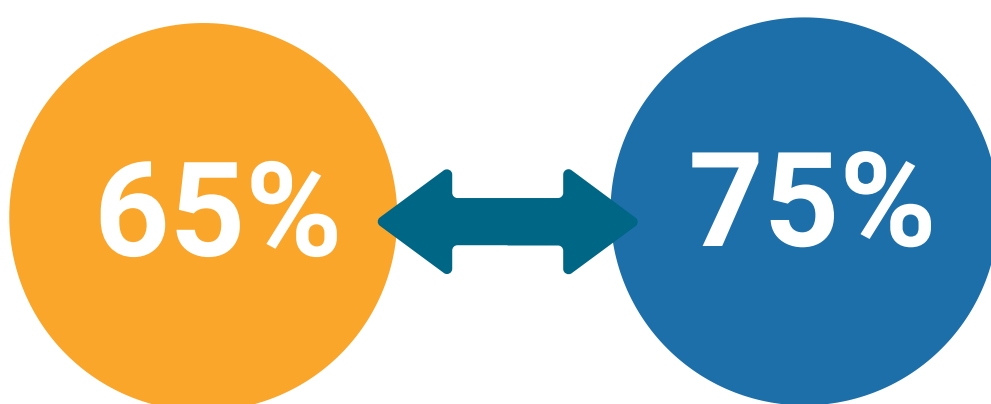
37 recommendations  
1 for all SMIs vs usual care and most effective interventions, per condition



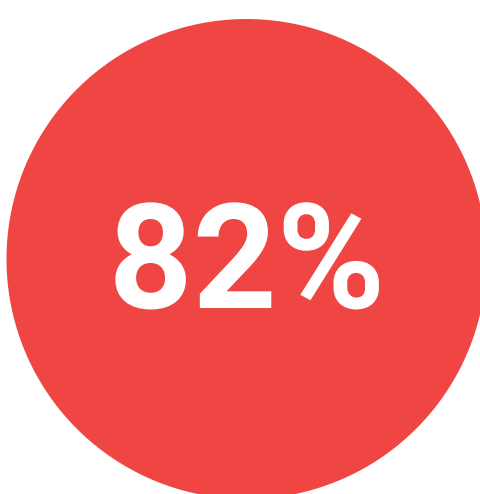
### Conditional recommendations for the interventions

based on low or very low certainty of the evidence

### Panels participation



### Panels' level of agreement with preliminary judgements on EtD criteria



### Panels' feedback

We explored the panels' views about their participation. The results, using the Panel View instrument<sup>(3)</sup>, show that overall the methods were perceived as optimal. Below results for those strongly agreeing or agreeing on some key aspects.



## Conclusions and lessons learnt

Our results highlight the importance of working with panels; their input is crucial for the development of trustworthy recommendations. The process was feasible and acceptable for most of the panelists; however, it is important to be aware of panellists' needs of tailored training, especially in the case of patient representatives.

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# Self-management interventions for chronic diseases: Identifying factors to facilitate the implementation of self- management decision-making tools into routine healthcare practice. A qualitative study.

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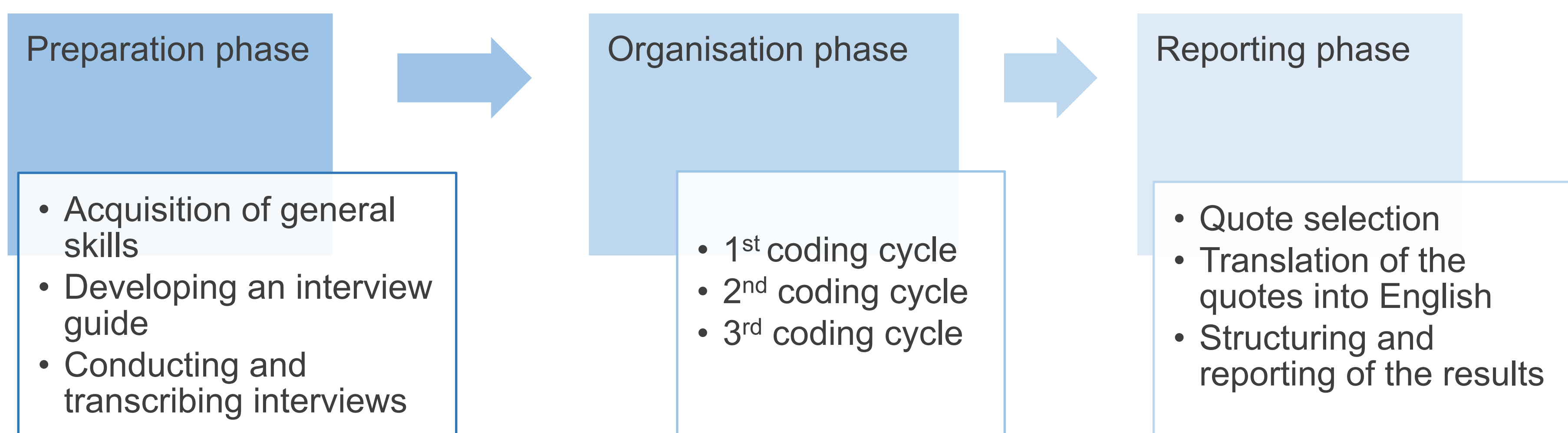
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## OBJECTIVES

A growing body of literature documents the value of self-management interventions (SMI) for chronic diseases, but their implementation in clinical routine is rare. As part of the COMPAR-EU project, this study aims to identify factors for the use of decision tools and furthermore the requirements necessary for an incorporation of evidence on SMI into the clinical environment.

## METHODS

A directed qualitative content analysis and rapid analysis was used to evaluate semi-structured interviews in order to identify factors on a micro-, meso- and macro-organizational level that support or hinder the implementation and use of SMI decision tools. The interview guideline and the deductive coding system were developed in reference to the Tailored Implementation for Chronic Diseases (TICD) framework<sup>1</sup>. Inductive codes were obtained from the interviews through a three-cycle cross-national coding process.



## RESULTS

The findings of this research are based on 37 semi-structured interviews with healthcare professionals (HCPs) and decision makers (DMs) from Germany and Spain. Five main dimensions with key facilitators for implementation emerged from the data analysis: (a) factors of decision tools (added value through structured access to clinical evidence and strengthening collaboration between primary care and hospitals), (b) individual health professional factors (perceived benefit in workflow of decision tools), (c) factors of interaction (shared understanding about decision tools and defining responsibilities in clinical teams), (d) organizational factors (capacity of organizational change and financial, personal and time resources), (e) social, political and legal factors (consistency of decision tools with ways of working in the healthcare system).

*“Our colleagues from other hospitals, or another region, should explain to us the benefits that the tool brings. I think that that is the strategy we should follow. First, explain the purpose of the tool, then, have the experience of another place where we can see the health results that have been achieved thanks to the tools. Show us the experience of patients that are using the tools, and, especially, seeing results. I think that is the key, implementing tools that have an added value in improving health.”* (Spanish DM8, primary care)

*“Well, it's always nice when you see progress in your patients that you've been caring for over a long period of time. And I personally find it very pleasing when you see that someone is feeling better again and you've given them good advice, and through self-management, the patient who is so obese has perhaps lost ten kilos in weight. We are for the patients or work for and with the patients. And when someone comes and has a much better quality of life, is satisfied, that has an effect on the whole environment.”* (German HCP8, primary care)



*“Right, it goes hand in hand with what I said before, resources, employees and time. Because when these innovations are added on their own and they add a workload that doesn't change anything, it means that, if we are going to work with a new tool, with a new process, it needs to substitute the old tool/process, and not be added on top of the old one, because then you start saturating the work capacity.”* (Spanish HCP2, hospital)

*“I don't have the insight on how it is in the outpatient area, what the general practitioners perhaps have, but I think at least from my current state of knowledge, there are not so many tools that could reach the patient. So, I would find it absolutely useful in the health system to implement something like that.”* (German DM16, hospital)

*“I think leadership has to be shared in this moment. I mean, in the hospital you have the head of a service or the one who knows the most about that disease but the patient comes from primary care [...]. We are here to help primary care, and collaborate with them because they are the ones responsible for the patients.”* (Spanish DM11, hospital)

## CONCLUSION

Decision support tools can promote the use of evidence from SMI by making evidence accessible in a structured way. Existing understanding of the benefits of the tools, organizational resources, and political support are a prerequisite for sustainable implementation. The results of this study can contribute to the meaningful use of evidence on SMI in clinical practice, promote collaboration between care sectors, and thus lead to positive changes for patients.

### Keywords:

Self-management interventions, Decision aids, Chronic diseases, Implementation, Evidence-based practice, Qualitative content analysis, Semi-structured interviews

### Funding & Acknowledgements

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### Literature

<sup>1</sup>Flottorp SA, Oxman AD, Krause J, Musila NR, Wensing M, Godycki-Cwirko M, et al. A checklist for identifying determinants of practice: A systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice. Implement Sci 2013;8:1–11. <https://doi.org/10.1186/1748-5908-8-35>.





# Exploring comparative effectiveness component network meta-analysis

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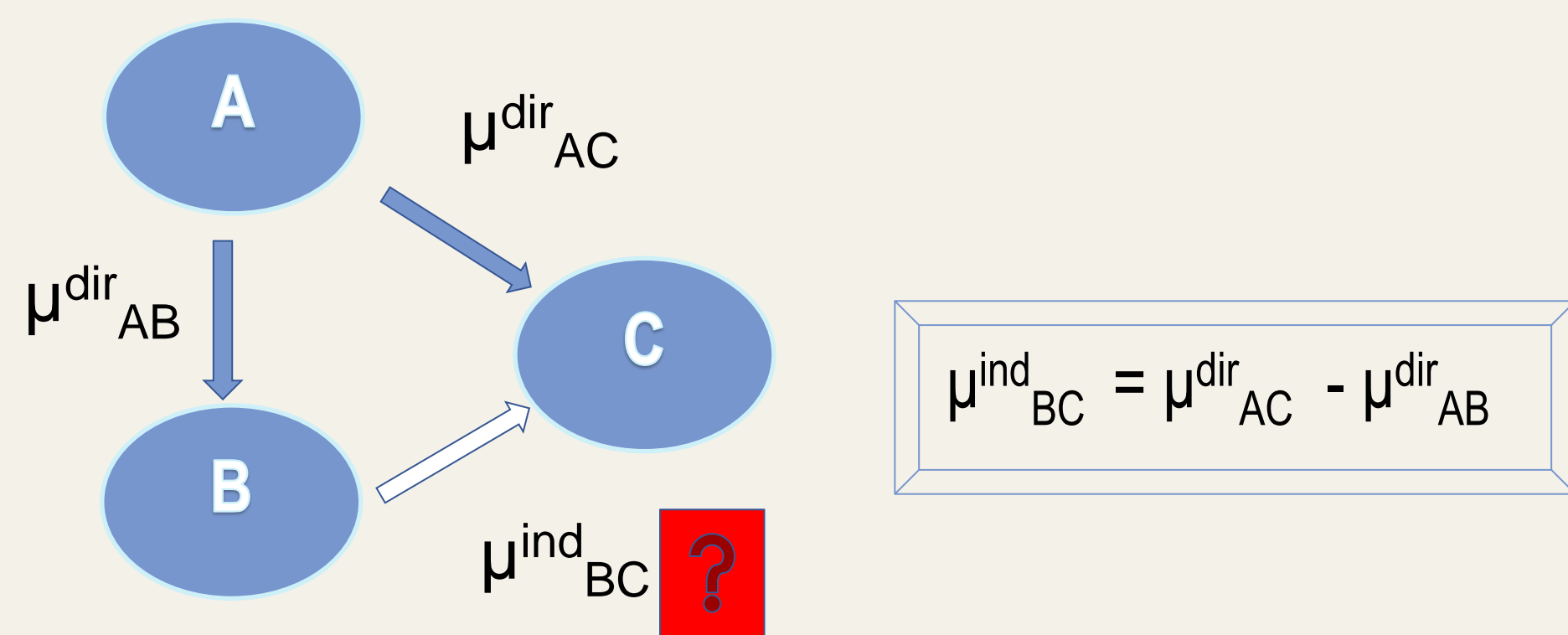
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## Introduction

- Network meta-analysis (NMA) is a powerful tool in clinical decision-making.
- NMA is a statistical method which simultaneously compares multiple (three or more) interventions within a single framework, by synthesizing direct and indirect evidence from multiple studies, addressing the same scientific question.
- Interventions may consist of multiple interacting components.
- Component NMA (CNMA) can estimate both component and intervention effects.

## Network meta-analysis (NMA)

Consider the simple example in which we have some trials comparing A versus B and some trials comparing A versus C, where A is the control treatment and B, C are two active treatments.<sup>1,2,3</sup>



In this case, network meta-analysis (NMA) combines direct and indirect evidence to estimate the relative efficacy for each pair of interventions irrespective of whether these have been directly compared.

## Assumptions of NMA

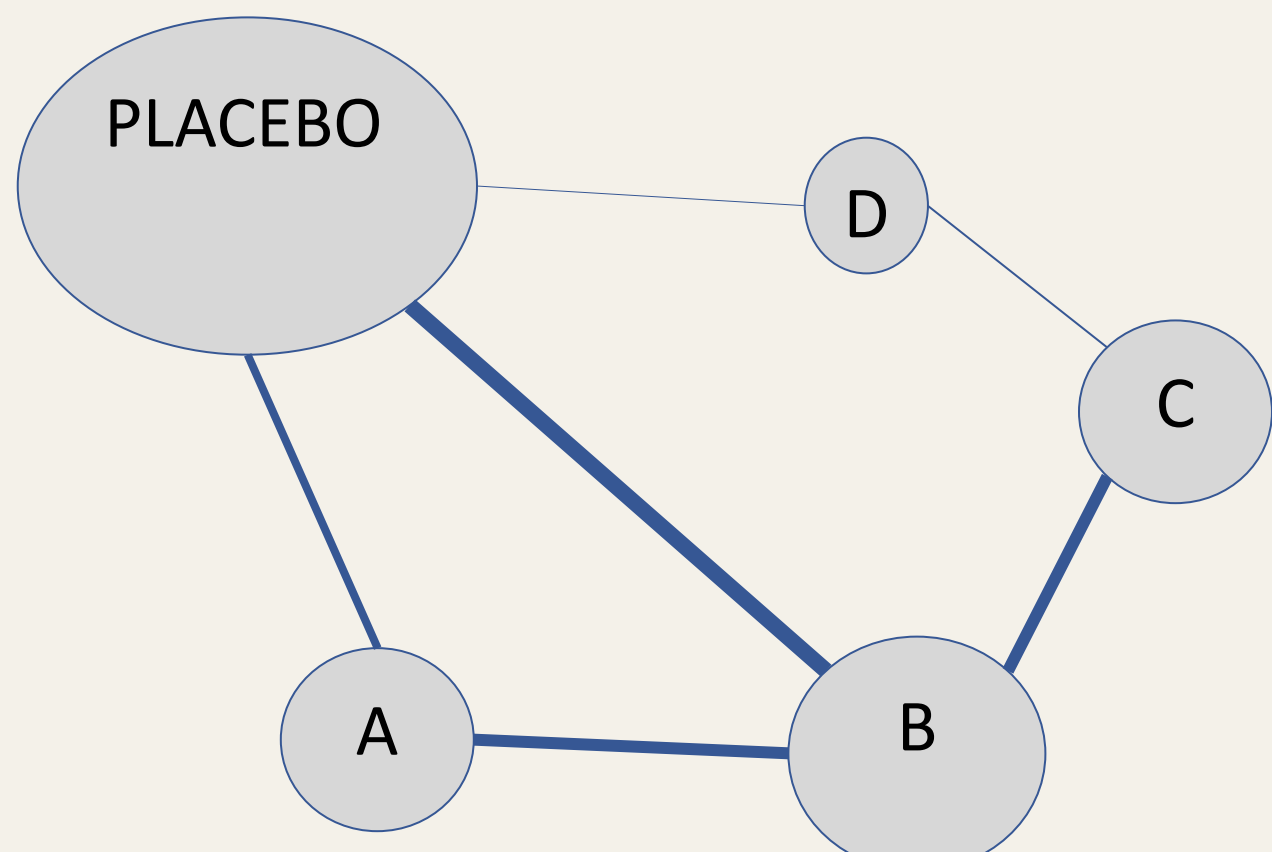
Like any statistical model, NMA makes assumptions and validity of its results depends on the plausibility of the assumptions made.

- The key assumption is that of transitivity, stating that one can learn about B versus C indirectly.
- We approximate transitivity statistically by comparing direct and indirect evidence (consistency assumption).

## What transitivity means

- The distribution of a-priori chosen effect modifiers is similar across treatment comparisons. It is typical to compare publication year across treatment comparisons as it is a proxy for quality of trials, risk of bias and so on.
- Treatments should be similar when they appear in different comparisons (e.g. usual care should be similar across trials).
- Participants, could have been, in principle, randomized to any of the available interventions.

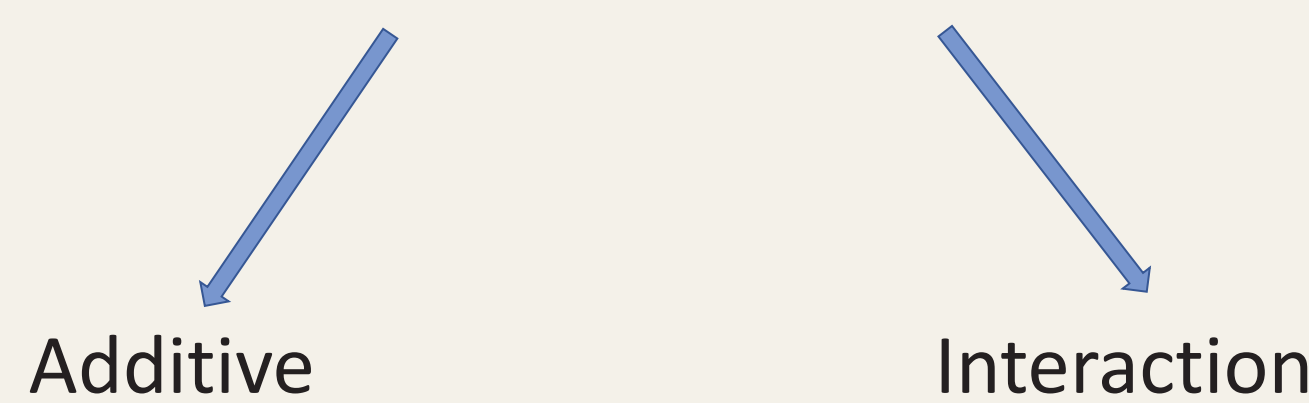
## Network Plot



## Component network meta-analysis (CNMA)

- While NMA focuses on estimating intervention effects, component NMA (CNMA) extracts the effect of each component.<sup>4</sup>
- Such interventions are characterized as ‘complex’ or ‘multicomponent’.

There are two main CNMA models.



Which components work or do not work ?

## Additive model

- The main idea of CNMA lies in the decomposition of multicomponent interventions to estimate the effects of their components.
- The additive effects model firstly estimates the effect of each component and then the effect of each multicomponent intervention is estimated by summing the relative effects of the components comprising this intervention (additivity assumption).

For example, according to CNMA the effect of intervention:  $\text{effect}(A+C) = \text{effect}(A) + \text{effect}(C)$

Assumes: **NO** interaction term

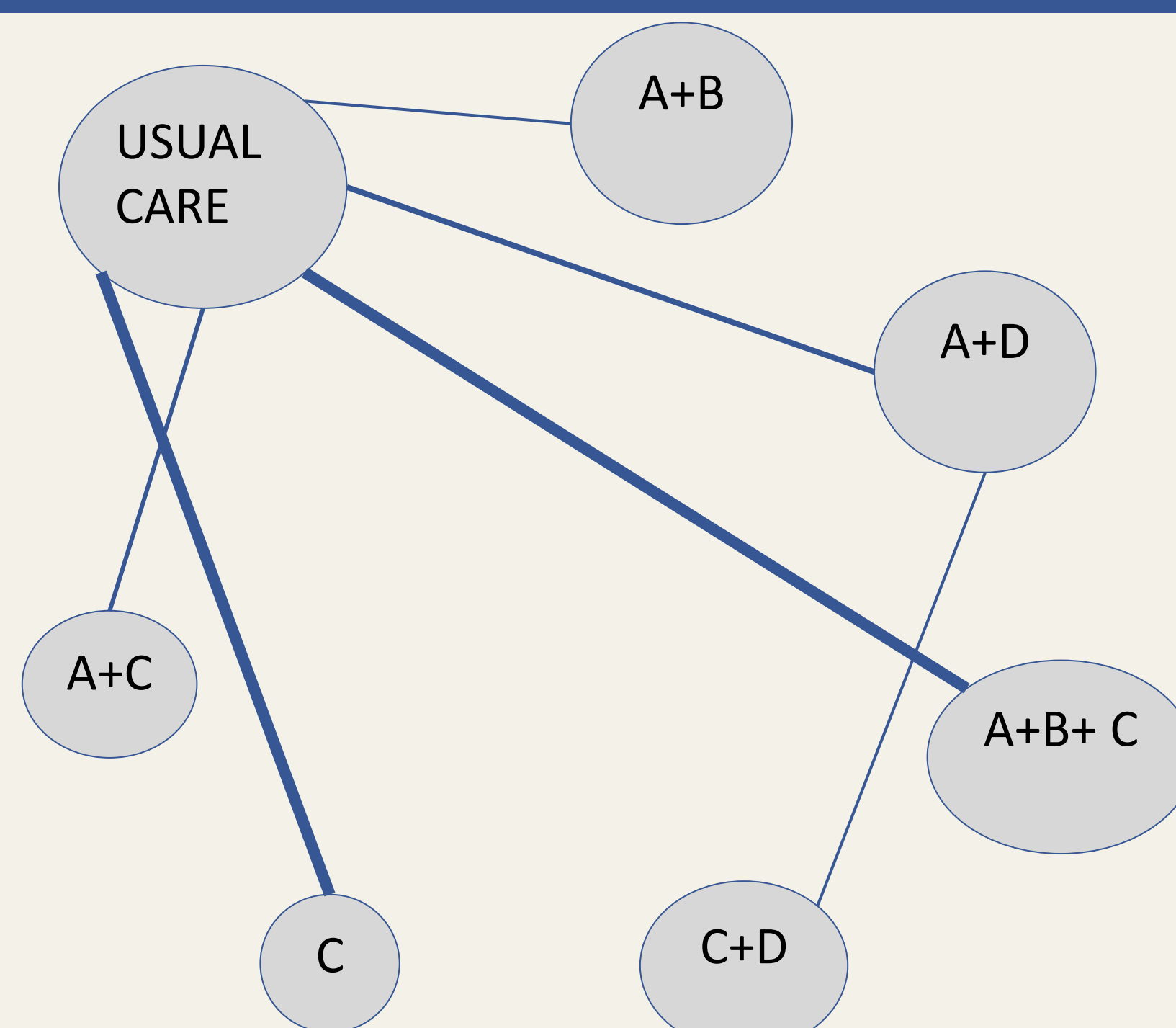
## Interaction model

- Suppose for example that interventions A and C interact with each other. According to the interaction model the effect A + C is:  
 $\text{effect}(A+C) = \text{effect}(A) + \text{effect}(C) + \text{interaction}(A,C)$
- If  $\text{interaction}(A,C) > 0$ . They work synergically and the model has a bigger effect.
- If  $\text{interaction}(A,C) < 0$ . They work antagonistically and the model has a smaller effect.

### CAUTION :

The number of interaction may be large and we do not have data to inform all of them. The decision to choose the interaction terms should be based on plausible reasons and they should be defined in the protocol of the analysis.

## Network Plot



## CNMA vs NMA

To use any statistical method first we should be sure about the assumptions.

- NMA can not be applied to disconnected networks, while CNMA can be applied if the subnetwork share at least one common component.
- When are few head-to-head comparisons and most interventions are compared with Placebo/Usual care, then results are likely to be confounded with study characteristics. In CNMA the effects are informed from studies that share the same components and typically there is much more evidence.
- Transitivity assumption and the statistical equivalent consistency from NMA are difficult to test in CNMA.

## Conclusion

- New methods in NMA for testing and accounting for inconsistency, and for ranking the available treatments are constantly being developed.
- CNMA models represent a generalization of NMA models which can be utilized in disconnected networks. An example of an application of CNMA to a disconnected network is given in Pompoli et al. (2018).<sup>5</sup>
- Before use a statistical model make sure that the assumptions hold otherwise the results are biased.
- Thanks to R (programming language) both NMA and CNMA can be analyzed in ‘netmeta’ package.<sup>6</sup>

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# Self-Management and Related Concepts in Rare Diseases – Empowerment, Implementation, and Relevance

## Background

- Self-management of rare diseases is of the utmost importance. Most rare diseases lack a cure, and many lack effective treatment. **The rarity of the disease comes with a rarity or even lack of expertise,** be it clinical or in living with the disease.
- Acknowledging the importance of self-management and self-management support in this field is even rarer. Our project aims to boost this acknowledgement and **facilitate** subsequent **implementation**.
- This project is a spin-off of the joint guideline-development program of the global organisations of professionals and patients involved with Gaucher disease.

## Step 1: Thorough exploration of literature

This project was initiated by the discussion on Gaucher disease management guidelines by the International Working Group on Gaucher Disease.

We started out by doing a thorough literature review to get ourselves well acquainted with the field. Our extensive findings are compiled into **a comprehensive toolbox**.

We did not find any differences between Gaucher disease self-management and self-management of rare diseases in general, so our review bears on rare diseases as a whole.

We are currently formatting our findings tentitatively into an article **to be published**.

## Contents of the paper to be published

A real life scenario	2	Support programs	27
Rare diseases	2	Measurement tools	29
Definition	2	Paediatric empowerment and support	30
Challenges	3	Childhood	30
Self-management and related concepts	6	Young people	31
Self-management and self-care	6	Parents and siblings	32
Self-management - a closer look	8	Implementation	33
Identity, personality, and narrative	10	Ethics	33
Health literacy	13	Organization	34
Self-regulation, self-efficacy, and control	14	Instrumentation	36
The activated patient	15	Digital Health Interventions	37
Empowerment and support of adults	16	Data management	37
Patient empowerment	18	Knowledge management	38
Self-management support	19	Information management	38
Patient-centred care	20	Relevance	39
Partnering as experts	21	In conclusion	41
Practical and managerial empowerment	23	Appendix A – Support scheme	41
Psychological and sociological empowerment	23	Glossary	41
Family and friends	25	References	42
Peer support	26		

## Discussion

- Our project focuses on rare diseases that evolve into chronic illnesses, as most of them do. For the most part, **the instrumentation of self-management (support) in a specific rare disease is the same for them all**. Where specific insights lack, the body of knowledge generated in more common chronic diseases can be used in rare diseases too.
- Special attention is required on **dealing with the rarity of expertise**, also in terms of a kind of health literacy and in partnering of patient and professional as experts. And on the **autonomy of the individual or dyad living with the rare disease**, as usually being the expert outside the consultation room. Each individual living with a rare disease is unique in the combination of genetic mutations, epigenetics, environmental factors, and self-management potential.
- As most patients with rare diseases are children, paediatrics and family care play an important part. **Siblings and (potential) partners**, having their own burden, must be included in self-management support.

## Step 2: Gaucher disease management guideline

Based on the review of literature we developed a draft disease-specific guideline on self-management. It will be finalised as soon as the review is accepted as an article for publication.

The guideline defines and describes self-management, as well as the role and responsibility of the healthcare providers involved. It touches upon the clinical relevance of self-management.

It also brings others around the patient into view, having a burden of disease in their own way as well as their own role in self-management.

Each discussed item will include recommendations on how to support self-management. The guideline concludes with suggestions for further research.

## Project team

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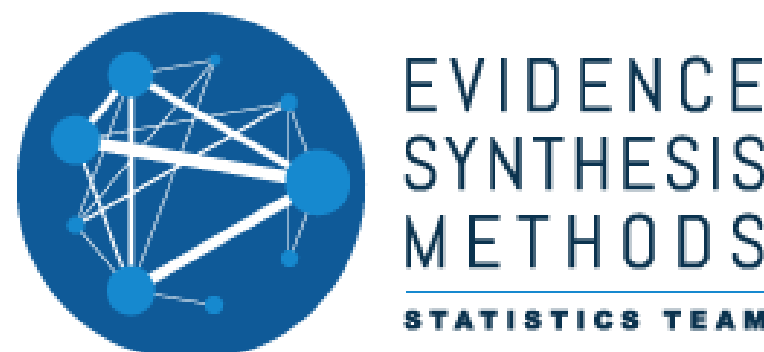
# Exploring effectiveness of self-management interventions on quality of life on chronic diseases

Sofia Tsokani<sup>1</sup>, Georgios Seitidis<sup>1</sup>, Christos Christogiannis<sup>1</sup>, Katerina Maria Kontouli<sup>1</sup>, Ourania Koutsouroumpa<sup>1</sup>, Carola Orrego<sup>2</sup>, Stella Zevgiti<sup>1</sup>, Stavros Nikolakopoulos<sup>1</sup>, Areti-Angeliki Veroniki<sup>1,3</sup>, Dimitris Mavridis<sup>1,4</sup>

1. University of Ioannina, Greece; 2. Avedis Donabedian Research Institute (FAD), Spain; 3. University of Toronto, Canada; 4. Université Paris Cité, France



COMPAR-EU



## 1. Background

Self-management support may improve quality of life; however, there is large uncertainty about which type of support is the most effective to manage chronic diseases.

Network meta-analysis (NMA) is highly attractive for comparing multiple interventions, whereas Component NMA allows to disentangle components' effects, in case of multicomponent interventions.

## 2. Objectives

To explore the performance of self-management interventions (SMI) in improving the quality of life of adults living in Europe with four high-priority chronic conditions: Diabetes Type-II, Obesity, Chronic Obstructive Pulmonary Disease (COPD), Heart Failure.

## 3. Methods

We explored the effectiveness of SMIs in improving Quality of Life in patients with four chronic diseases (Diabetes, Obesity, Heart Failure, COPD). We considered four outcomes in total.

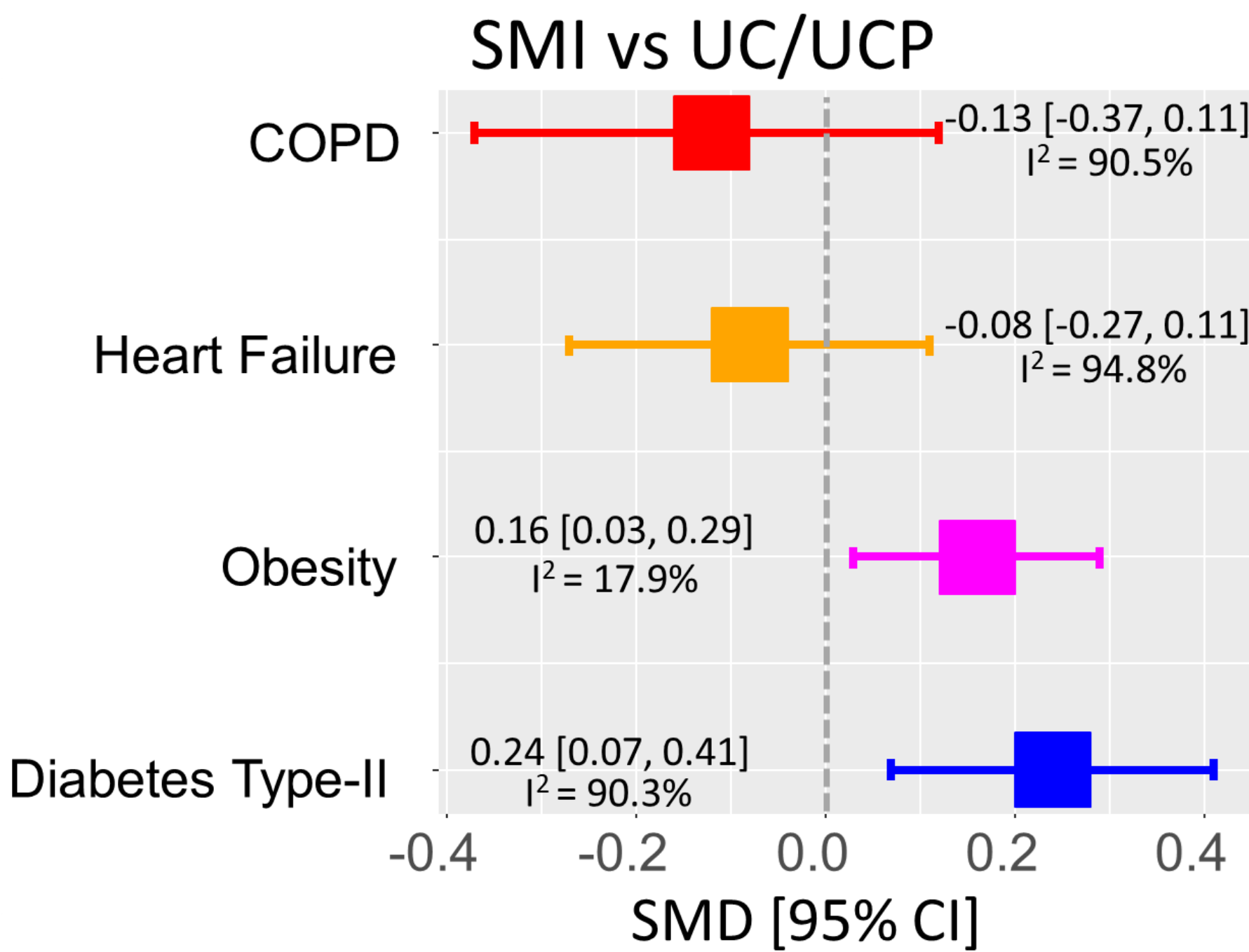
SMIs are multicomponent interventions, consisting of 11 different components. (E: Education, G: Group, EB: Emotional-based behavioural change techniques, SS: Social Support, AB: Action-based behavioural change techniques, MT: Monitoring techniques, P: Peers and lay persons, R: Remote, SD: Shared Decision Making, UC (P): Usual Care (Plus))

- **Type of outcomes:** Beneficial
- **Effect size:** Standardized mean difference (SMD) along with 95% CI
- **Statistical Analysis**
  - Standard pairwise meta-analysis for SMIs versus UC/UCP
  - Network meta-analysis (NMA)
  - Component Network Meta-Analysis
  - Subgroup analysis
    - Socioeconomic Status
    - Cultural/Minority background
  - Meta-regression
    - Disease severity

- **Most Efficacious interventions or components?**  
We considered NMA estimates, P-scores, confidence and prediction intervals.

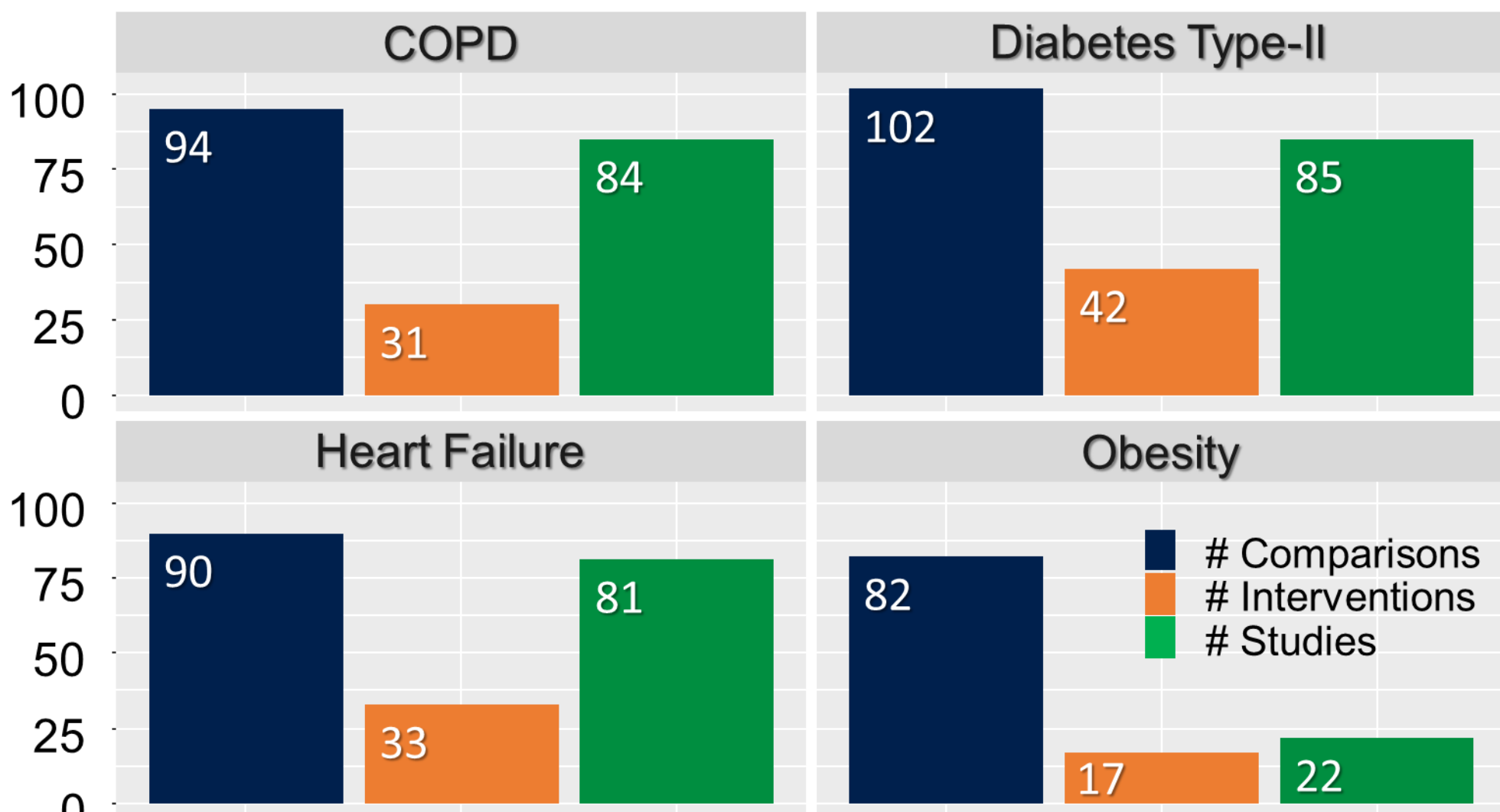
## 4. Results

### Meta-Analysis

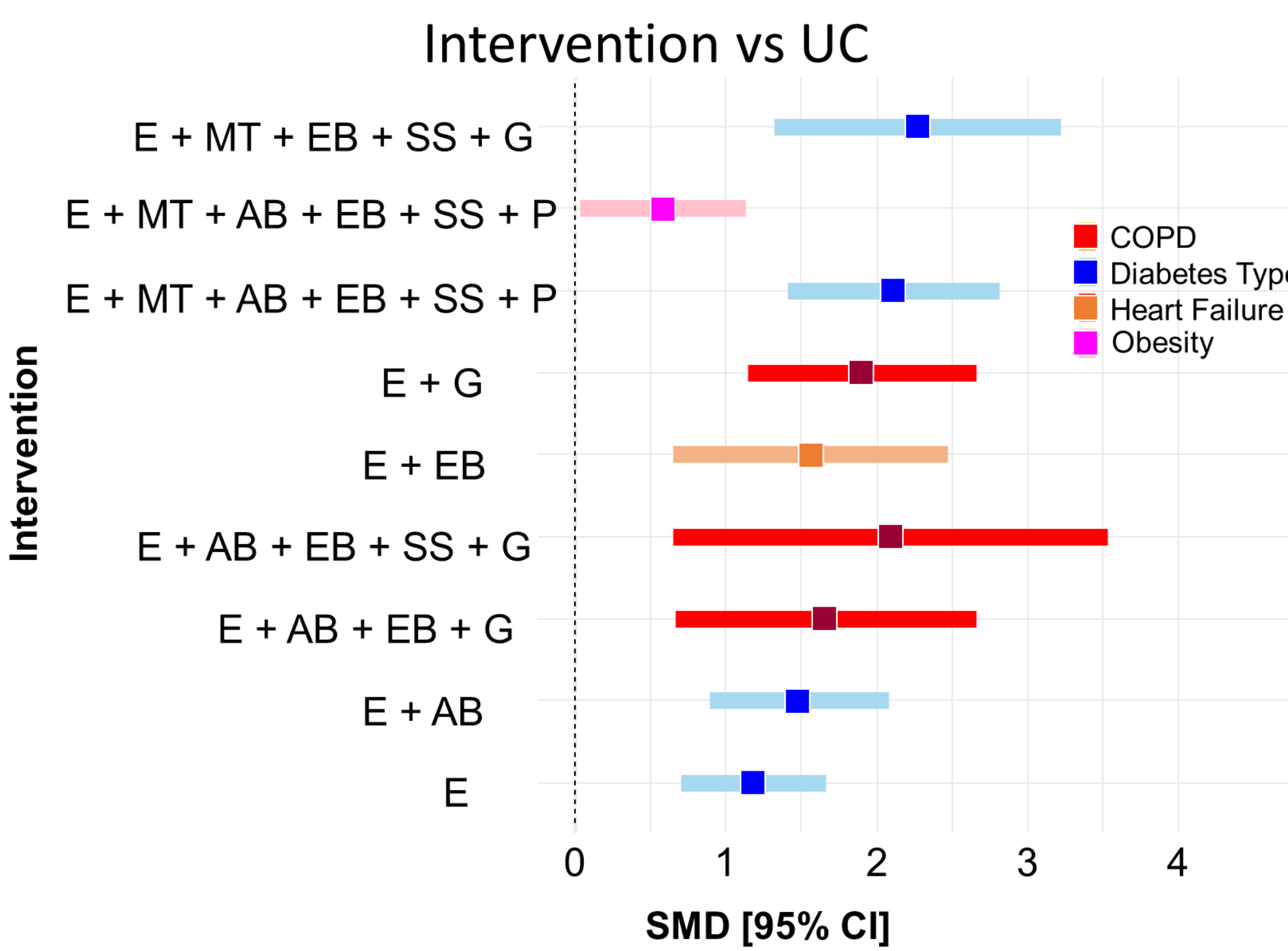


### Network Meta-Analysis (NMA)

#### Network Geometry Details



#### Most Efficacious NMA Estimates



- P-scores > 80%
- High heterogeneity
- Sparse Networks

#### Subgroup Analysis

- SMIs worked slightly differently (P=0.02) in patients with Diabetes based on their cultural minorities:
  - Both groups seem to benefit from SMIs.
  - Stronger impact without cultural minorities.

#### Meta-regression

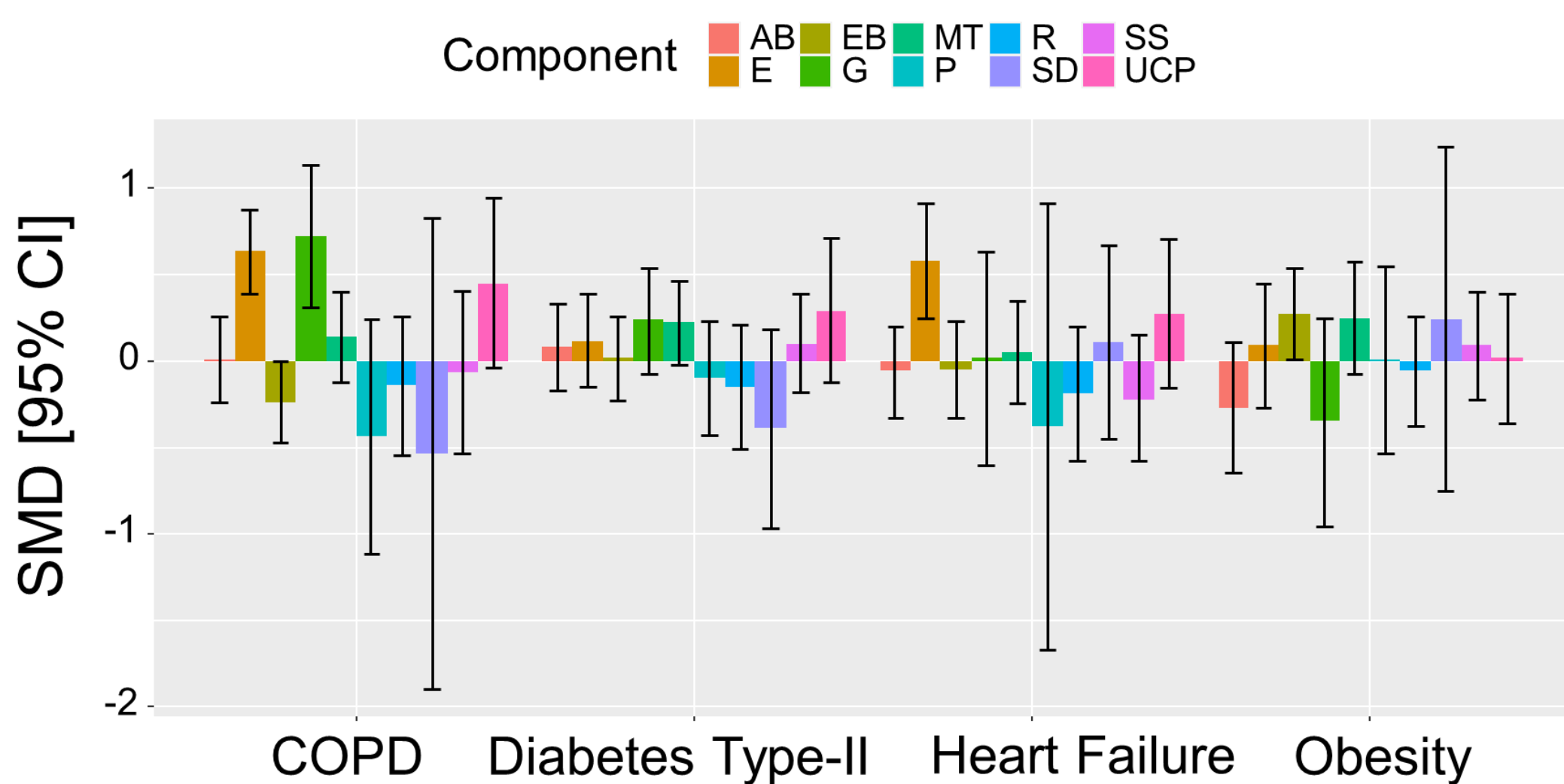
Disease	Coefficient
COPD	0.00 [-0.01, 0.01]
Diabetes Type-II	0.00 [-0.02, 0.01]
Heart Failure	1.83 [1.30, 2.35]
Obesity	0.00 [-0.04, 0.05]

## 4. Results

### Component NMA

#### Most Efficacious Components

- **COPD**
  - E: 0.63 [0.39, 0.87]
  - G: 0.72 [0.31, 1.13]
- **Heart Failure**
  - E: 0.58 [0.25, 0.91]
- **Obesity**
  - EB: 0.27 [0.01, 0.54]



## 5. Discussion

- Most NMA intervention effects were surrounded with much uncertainty.
- According to CNMA, for people with COPD and Heart Failure, education component significantly improves their quality of life.
- The majority of trials are at high or medium risk of bias.
- All analyses revealed considerable heterogeneity.

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3. Tsokani, S., Seitidis, G., Mavridis, D. (2022) Component network meta-analysis in a nutshell. BMJ Evidence-Based Medicine.

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