
Creating a Knowledge Base for Interventions Countering (Violent) Extremism: Intervention Goals and Mechanisms for Different Ideologies.

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Abstract

Many interventions aim to tackle violent radicalization. Monitoring the implementation of interventions results in a better identification of effective interventions and in a more appropriate selection of applicable interventions for practitioners. Using meta-analytic and network analytic methods, we present a method to store and retrieve information about countering (violent) extremism (CVE) interventions using a knowledge base that allows for different searches for relevant information. We describe the construal of this knowledge base using data on 99 European CVE interventions. Subsequently, we present inferences that can be drawn from this sample. Key determinants to identify whether radicalizing people are eligible for participating in CVE interventions were found to be friendship relations, group affiliation and available intelligence. Dependent on the ideology targeted by the CVE intervention different goals and mechanisms were identified. Information on financial costs of CVE interventions was often not available in open sources. Implications of representing the information on CVE interventions into a knowledge base are discussed.

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Introduction

Recent terrorist attacks in cities such as London, Paris, and New York reveal a diversity in methods, level of organization and background factors (e.g., age, level of training, and foreign or homegrown terrorism). This diversity underlines a need for tailored interventions

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countering extreme radicalization, as a single cause of violent extremism is thought to be unlikely². Relevant causes and triggers include a variety of socio-psychological, political, and ideological aspects, trigger mechanisms, and group dynamics (Doosje, Moghaddam, Kruglanski, de Wolf, Mann, & Feddes, 2016; Gielen, 2017; Schuurman, 2018).

CVE intervention program experts are often aware that trying to incorporate all sources of violent extremism is neither necessary nor realistic. A guiding question for CVE intervention programs could be ‘what works for whom’. However, information about the effectiveness of CVE intervention programs is scarce. In a study on evaluations of CVE interventions, empirical evidence about effectiveness of interventions was found to be absent in 88% of participant samples (Feddes and Gallucci, 2015). This points to a need for studies focusing on empirical evaluations as well as for more structured information about aspects of CVE interventions that could play a role in evaluations and effectiveness. For example, a relevant question is what led institutions (not) to pursue a specific CVE intervention. The goal of the present paper is two-fold: a. to present a manner in which relevant information about CVE interventions can be structured and retained, and b. to present sample outcomes that can be derived from such a structured approach.

One initiative of the European Union has been to facilitate local or subnational practitioners to exchange good practices of CVE interventions, for example in the Radicalisation Awareness Network³. This initiative has been praised, but also -partly- criticized because it bypasses scientific rigor, evidence and evaluations that are important to base policy decisions on (Bossong, 2014). Aim of this paper is to investigate to what extent a method for constructing a knowledge base on CVE interventions is viable and helps to adhere more to scientific rigor in sharing information on CVE interventions.

Progress in digital technology has led to searchable databases using knowledge management. Knowledge management is “the coordination and linking of many knowledge

² Radicalisation Awareness Network (RAN), 2016 (https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/networks/radicalisation_awareness_network/ran-papers/docs/issue_paper_root-causes_jan2016_en.pdf)

³ https://ec.europa.eu/home-affairs/index_en

sources” (p.6, Johnson & Sabourin, 2001). A first step in knowledge management is developing a knowledge base of related and searchable data and making explicit which knowledge is relevant. Compared to information sharing and descriptive reviews, knowledge bases have important advantages. Searchable knowledge bases allow for a systematic and dynamic representation of information, whilst retaining the ability to consider further detail. In contrast, descriptive (literature) reviews have limits on the quantity of information included; authors need to choose which information (not) to include. Often, it is a choice between information specificity and breadth of scope. However, for judgments of intervention applicability, detailed information of a large number of interventions is required (Yardley, Morrison, Bradbury & Muller, 2015). Details are important for experts who try to apply knowledge learnt from previous CVE interventions. Examples of such details are how interventions are carried out, which group is the target of interventions, or which geographical region is selected.

Existing knowledge- and databases on radicalization focus mostly on terrorist actors or incidents (e.g., on global incidents, Dugan, LaFre, Cragin & Kasupski, 2008⁴; on right-wing terrorism and extremism in Germany, Koehler, 2014). The quality of these knowledge bases varies. For example, they are sometimes based on source data that fail to meet academic standards (Bhui, Hicks, Lashley & Jones, 2012; Koehler, 2014). For a recent overview of databases on terrorist and related events see Bowie (2017). Information on interventions is available in five of the 60 databases in this overview⁵:

- The Comprehensive Database of African Counter-Terrorism Law and Policy focuses on (new) laws and legislations in Africa (<https://issafrica.org/ctafrika/african-national-legislation>).

⁴ Dugan, L., LaFre, G., Cragin, K., & Kasupski, A. (2008). Building And Analyzing A Comprehensive Open Source Data Base On Global Terrorist Events. <https://s3.amazonaws.com/academia.edu.documents/30789085/223287.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1518530253&Signature=3PZvBxoccKe2ZYOran%2F6W1h%2BjvY%3D&response-content-disposition=inline%3B%20filename%3DDocument Title Building And Analyzing A.pdf>

⁵ The scope of what interventions comprise is large; for example it sometimes includes law making as intervention.

- The Countermeasures against Extremism and Terrorism (CoMET) database focuses on governmental and non-governmental actors against UK Home-grown Islamic Violent Extremists (HIVE-UK), al-Qaida in the Islamic Maghreb (AQIM) and Anti-Abortion Extremists (AAE) in the United States. This knowledge base provides a descriptive overview of an intervention and its methodology, including the timeframe. Links to relevant websites are provided (<http://www.start.umd.edu/news/new-database-provides-insights-terrorism-countermeasures>).
- The Counter-Terrorism Initiatives (African Union) Resource Database focus on policy making intervention initiatives (<http://www.canadianglobalsecurity.com/project/ctiau/>).
- The international Policy Institute for Counter-Terrorism provides the ICT's Incidents and Activists Database, which contains counter terrorism related news and regional developments (<http://www.ict.org.il/ResearchPublications/DatabaseReports/tabid/380/Default.aspx>).
- The Terrorism, Counterterrorism and Radicalisation (Research Database) contains terrorism, counterterrorism and radicalization projects underway in the Netherlands. As of 2011, this database is no longer maintained due to financing issues (<http://www.terrorismdata.leiden.edu>).

Most, if not all of these databases do not include a systematic account of the structure and content of interventions. To fill the gap in available databases on non-policy aspects of interventions, we propose a knowledge base of CVE interventions that draws on a detailed analysis of interventions. It informs about (the design of) interventions and gives a systematic account of the structure and content of interventions. Depending on the expertise, professionals dealing with CVE interventions have different focal points. For practitioners on CVE interventions, information about fit-for-purpose interventions is relevant, such as goals and mechanisms that interventions make use of, types of ideology addressed by interventions,

or target group selection. For policy makers, information about costs and effectiveness is relevant.

The first part of this paper describes the construction of a systematic knowledge base that contains content data and relations data about interventions. The second part of this paper illustrates various inferences that can be drawn based on different forms of data analysis techniques, varying from qualitative analyses and relatively simple quantitative analyses (e.g., frequency counts) to more complex quantitative visualizations (e.g., network analyses). We start out by describing the key terms *interventions* and *deradicalization*, and some requirements of a systematic knowledge base.

Within CVE, interventions are methods used to facilitate change in an individual's and/or group's behavior, emotional state, and/or cognitions (Ballou, 1995). To include disengagement as a type of deradicalization interventions, we define an intervention as any deliberate process by which the potential for change is introduced into peoples' thoughts, feelings and/or behaviors. We focus on interventions that aim to tackle radicalization processes leading to terrorism and violent extremism. Deradicalization has been described as 'the social and psychological process whereby an individual's commitment to, and involvement in violent radicalization is reduced to the extent that they are no longer at risk of involvement and engagement in violent activity' (Horgan, 2009, p.153).

Besides defining key terms, transparency, traceability and reproducibility of data in a knowledge base are vital (Ioannidis et al., 2014; Munafò et al., 2017). All contents of the knowledge base should be traceable to its source, be it empirical research, expert opinion or information on a website, as a guidance of any scientific claim. Munafò et al., (2017) state on the credibility of scientific claims:

“The credibility of scientific claims is rooted in the evidence supporting them, which includes the methodology applied, the data acquired, and the process of methodology implementation, data analysis and outcome interpretation. [...] without transparency, claims only achieve credibility based on trust in the confidence or authority of the originator. Transparency is superior to trust.”

Constructing a knowledge base

A combination of scientific methods from behavioral sciences including general research methodologies, meta-analysis, and network analysis are used as starting point. These methods require different but linked data. The resulting knowledge base is a combination of these data. To perform a meta-analysis, research reports are systematically searched and coded on many sample-related and study-related variables, as well as on statistical outcomes (i.e., to calculate effect sizes). Meta-analysis does not aim to provide true objectivity. Rather it provides an opportunity for shared subjectivity in reviews. Authors of meta-analyses make decisions based on own judgments, such as when defining the boundaries of analyses or deciding exactly how to code moderator variables. Meta-analyses require that these decisions are made public, so they are open to review and comment from other scholars (Cooper, Hedges, & Valentine, 2009; Hunter & Schmidt, 2004). Whereas meta-analyses usually omit data from non-scientific outlets, inclusion of other than scientific data is possible.

This latter point is relevant for application to CVE interventions, because in this domain scientific empirical research is scarce (Feddes & Gallucci, 2015). Including non-scientific sources in an overview on CVE interventions is therefore essential. This allows us to assess frequencies of occurrence in the field, (i.e., which interventions are focused on a certain type of ideology) and simple relationships (e.g., to what extent a certain type of ideology is related to a certain type of intervention) whilst retaining the option to select information from only scientific sources.

Network approaches focus on relations, in this case relations between aspects of interventions. A network (or networks) of relations is called a content network, it can change dynamically, and it can 'learn' (Carley & Kamneva, 2004; Krackhart & Carley, 1998). This allows for more elaborate relationship searches and for network analysis. A content network can give a sophisticated overview of the many variables related to CVE interventions, and can as such aid in obtaining an overview of the many aspects involved. A content network approach implies identifying as many as possible relevant aspects of each of the constructs

and relates each aspect to all other aspects in a network (Cramer, Waldorp, van der Maas, & Borsboom, 2010). This network can be visualized proceeding from questions at hand (Epskamp, Cramer, Waldorp, Schmittmann, & Borsboom, 2012). Because the structure of relationships can be incorporated, other forms of investigation between aspects of CVE interventions emerge, such as information about the relative importance of variables and relationships. A question for this type of data could be: In a network describing relations between aspects of CVE interventions, to what extent are certain aspects of CVE interventions central while others are more peripheral? Representing and investigating knowledge as relations can pinpoint issues and conclusions that guide interventions and evaluations, give indications of which set of CVE intervention aspects is more relevant, and help to decide which aspects should be targeted when trying to prevent violent acts as the result of radicalization.

The knowledge base as proposed in this article has aspects of both meta-analytic and network-analytic studies. However, our data search and data collection were not fully systematic, as there is no simple way to do this with non-scientific outlets. We did follow meta-analytic rigor and structure, but did not use the full meta-analytic method in the sense of collecting effect sizes. The present search and resulting data should be informative about what is known about a collection of relevant CVE interventions. Table 1 gives an overview of the types of method and types of sources used.

Table 1. Type of information of the knowledge base on CVE interventions as a factor of methods and sources used

	Method	
	<i>Meta-analysis</i>	<i>Content network analysis</i>
<i>Reports</i>	(Empirical) information	(Cor)relations, theoretical relations
Sources <i>Non-scientific outlets (websites, brochures, expert opinions)</i>	Descriptive information	Co-occurrence, expert opinions on relations
<i>Questionnaire</i>	Values (answers to predefined questions)	Correlations

Note: *Meta-analysis*: Coding of aspects of CVE interventions and statistical outcomes. *Content network analysis*: Coding of relations between information coded in meta-analysis. Also included in the knowledge base was the source of the information and the type of coded information (e.g., empirical, theoretical, expert opinion).

Below we describe the steps that are needed to create a knowledge base. The steps we distinguish are to a large extent based on meta-analytic methods (Cooper et al., 2009), with additional inclusions from network analysis (Cramer et al., 2010) and general research methodology principles (Mook, 2001). In short, the five steps are:

1. Determine which dimensions and relationships between dimensions to assess
2. Determine elements and cutting points within each dimension
3. Determine what defines relations and directions of relationships
4. Populate the knowledge base with available data
5. Perform analyses and visualizations

We describe each step and the construction of the knowledge base on European deradicalization interventions accordingly. In the final step, we will illustrate sample analyses.

Step 1. Determine which dimensions and relations to assess

Determining which dimensions are relevant can be done in several ways. Typically, a longlist of potential dimensions is identified by analyzing scientific research and by consulting experts. A selection is made based on for example expert sessions and quantitative and qualitative analyses. Examples of relevant dimensions of CVE interventions pertain to the

goals and methods of interventions. An important referential dimension is a link or reference to original documents. Classification of the type of data (empirical data, theoretical assertions, or based on expert opinion) is also important.

For the CVE interventions knowledge base, four days of guided expert sessions determined which dimensions of CVE interventions are of importance (see Ritchey, 2011a and 2011b, for information on this approach). Attending experts (e.g., practitioners, end users and researchers with policy making and behavioral sciences expertise) represented different viewpoints on the topic. The resulting selection of dimensions and elements was subjected to further scrutiny in a workshop with potential end users of the knowledge base. The resulting set of 70 relevant dimensions of interventions is divided into seven categories:

- *Problem identification* refers to the use of key indicators for vulnerability and eligibility for intervention programmes. In other words, based on which indicators do professionals select an individual for inclusion in an intervention programme? Examples are changes in habits, changes in daily activities and certain travel destinations.
- *Target* refers to the type of target of the intervention, such as potentially radicalized individuals, already radicalized individuals, friends and relatives of radicalized individuals and vulnerable groups. It includes information on the ideology of targets (for example, right-wing extremism, and Islamic extremism) and age range of the target group.
- *Goal* refers to goals of the intervention, including mitigation of radicalization and repression of radical behavior (e.g., through detention).
- *Method* refers to ways in which goals of the intervention are achieved, including type of activities applied in the program (e.g., training, counseling, and group activities), how the target group was involved to participate (actively, passively), key dimensions targeted by the intervention (e.g., identity, knowledge, skills, norms, opportunities), and runtime of the intervention (i.e., hours, days, weeks, months).

- *Results and impact* refer to products or impact consequences of the interventions, such as costs of the intervention programme, whether an evaluation was performed, and the level of operation of the organization (e.g., regional, national, international).
- *Resources and conditions* refer to, among other things, characteristics of the organization applying the intervention, the developer of the intervention, and the type of finances that enabled the intervention.
- *Demographic aspects* refers to characteristics of interventions such as year of implementation.

Step 2. Determine elements and cutting points within each dimension

The second step involves deciding how to code the dimensions identified in the previous step. Each dimension is specified in preferably exclusive categories. Categories do not overlap and content fits in one category only. The list of possible elements is inclusive, including an ‘other’ category to code exceptions. For example, runtimes of intervention programs can vary from hours to months or years; in the case of individually customized runtimes, the ‘other’ category could apply.

Below, we describe those elements of dimensions of CVE interventions that require further explanation⁶. We identified three categories of organizations, by relating proximity of typical professionals in these organizations to the ultimate target group of the intervention (e.g., vulnerable individual, families): 1) Policy makers with no direct contact with target groups but direct contact with professionals. Typically, they work for municipality, province or the government; 2) Professionals who have direct contact with front line workers but no direct contact with target groups. Typically, they work in research and development or train the trainer; 3) Professionals who have direct contact with target groups. These include policemen and social workers.

⁶ The full list of elements is available upon request

Based on a diverse array of expertise, seven ideologies that intervention programs aim at were identified: national separatists, right-wing, left wing, Islamic, ecological, anti-globalist, and interventions not specifically targeting one specific ideology, which we will further refer to as ‘not ideologically oriented extremism’.

Bases for assessing vulnerability and eligibility for intervention programs were coded by key indicators or changes thereof. Examples of key indicators are received intelligence, rap sheet, habits, (family) relations, group affiliations and disclosures. More than one category could apply. We also coded the ultimate goal of intervention programs into four groups: 1) inhibit radicalization (with not yet radicalized individuals); 2) mitigate radicalization (with already radicalized individuals); 3) disconnect the radicalized individual from the radical group, and 4) repress radical behavior of individuals through detention.

Key dimensions targeted by intervention programs were identity (e.g., strengthening self-identity), group affiliation (e.g., increase distance to potentially harmful groups), emotions (e.g., reduce negative emotions), strengthen self-esteem, opportunities (offer routes back to main stream society such as education, work, housing), norms (i.e. re-establish acceptance of authorities and societal values), relationships (e.g., re-establish or improve family and friendship relations) and knowledge (e.g., enhance insight, awareness and skills (e.g., improve social skills)). We assessed who funded the execution of intervention programs, with the options own organization, own organization in cooperation with public (governmental) organization, scientific organization, company, charitable institution, volunteer organization, lobby or private individuals, and completely financed by other organizations.

Step 3. Determine what defines relations and directions of relationships

The third step is determining relationships for the content network. Characteristics of CVE interventions can be related or unrelated, and the relationship can be based on different grounds. In scientific literature, a reported (cor)relation between two or more elements is often based on empirical research. Non-empirical sources can provide information on

relations between elements as well, for example based on theoretical assumptions about relationships or (shared) expert opinions of scientists. Sources that describe interventions could also implicitly link elements, for example by mentioning two elements in the same sentence (e.g., physical closeness). Including an indicator to refer to the source of relations (e.g., empirically based, based on textual co-occurrence) is central.

The simplest way for relations data is to describe whether there is a relationship (1) or not (0) between two elements. Inclusion of other aspects, such as valence and strength of relationships (-1.0 to +1.0), enhances the information quality, and provides metrics that can be compared. The resulting data consist of a matrix of all elements related to all elements. This can be reformulated in an edge-list, in which each row represents a relationship between any two elements. We coded relations that were empirically found or explicitly mentioned. We also included relations if elements reasonably co-occurred in the same paragraph, but the relation was not mentioned explicitly. In our sample of 99 interventions this resulted in over 100.000 edges. Table 2 gives the denominators.

Table 2. Denominators used to code relations data of elements of CVE interventions

Denominator	Explanation	Example
Identifier	Identification number	<i>1, 2, ...n</i>
Dimension x	Database dimension	<i>Evaluation effectiveness</i>
Element x	Dimension x specification	<i>Small</i>
Relationship xy	Direction, valence and strength of the relationship between elements x and y	$+>^i$
Relationship quality	Type of evidence of the relationship	<i>Empirical</i>
Dimension y	Database dimension other than x	<i>Target information</i>
Element y	Dimension y specification	<i>Male</i>

Step 4. Populate the knowledge base

The fourth step focuses on the extent and type of the data search. Central decisions are determining which data (not) to include and logging the types of searches. Meta-analytic theory advises to have two or more coders who independently code all data, or at least code partly overlapping samples. Preparation of detailed coding instructions and training sessions for coders are useful, as well as discussing difficulties between coders.

Considering the more illustrative nature of our data collection, we focused on interventions mentioned in four reports⁷. We searched online and offline for detailed information about the CVE interventions that were summarized in these reports. We included those interventions that had sufficient information and documentation available. Furthermore, a questionnaire was sent out to 305 CVE professionals. The content of the questionnaire was analogous to the coding scheme of the knowledge base. Twenty-one questionnaires were returned. In combination with the coded interventions a total of 99 interventions were included in the knowledge base. Four experienced coders started out by coding three interventions together. Issues that arose during coding were discussed until agreement was met.

Step 5. Perform analyses and visualizations

Following these steps results in a knowledge base containing frequency data and relations data, on which a large variety of analyses can be performed⁸. To illustrate the type of queries that can be done using these data, we describe a sample of findings from the CVE

⁷ Alex Schmid (2013). "Radicalisation, De-radicalisation Counter-radicalisation: A Conceptual Discussion and Literature Review," *ICCT Research Paper*, (International Centre for Counter-terrorism – The Hague, 2013); Wijn, R. (2013). *What matters in counter- and de-radicalization efforts?* SAFIRE: Results and Findings of the FP7 Project, 35-41; TNO (2011). *Evaluations of Interventions (from WP3.1). Synthesis report on the results from WP 3 & 4, 29-32.*, <http://www.safire-project-results.eu/documents/deliverables/3-4-modeling-culture-indicators-and-intervention-evaluation.pdf>; Lousberg, M., Van Hemert, D., & Langelaan, S. (2009). *Dealing with radicalisation: Options for first-line workers*. The Netherlands: TNO; Preventing Radicalisation to Terrorism and Violent Extremism: Strengthening the EU's Response. RAN Collection Approaches, lessons learned and practices. First edition 15 January 2014; for the current version: https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/networks/radicalisation_awareness_network/ran-best-practices/docs/ran_collection-approaches_and_practices_en.pdf

⁸ Access to the knowledge base can be requested through helma.vandenberg@tno.nl

interventions knowledge base, focusing on differences between ideologies associated with CVE interventions. We start with frequency data.

Type of ideology targeted by intervention. Do interventions in the knowledge base address some ideologies more than others? We assessed in eight (yes/no) questions the extent to which intervention programs focused on specific ideologies. Many interventions could be - partly- described as ‘targeting no specific ideology’ (43% of the responses were affirmative to this question). These consist of interventions that are either generally oriented or customized toward specific needs of individuals without taking ideologies into account.

Over a third of the interventions did (also) address Islamic extremism (38% affirmative), and 21% of the intervention programs (also) addressed right-wing extremism. Fewer interventions aimed at left-wing extremism (nine %), national-separatist extremism (six%), ecological activism (four%), and anti-globalism (three%). An open-ended ‘other’ category characterized interventions that addressed various other ‘ideologies’, such as violence in the name of Christianity and gang involvement (24%).

Almost one fifth of the interventions addressed more than one ideology. The majority of these focused on a combination of Islamic extremism and right-wing extremism (12%). In the remainder of this paper, we focus on the three largest ideologies: interventions that targeted no specifically ideology, were oriented toward Islamic extremism, or oriented toward right-wing extremism. To avoid bias, we included interventions that focused on more than one ideology , resulting in non-exclusive groups.

Type of ideology and type of organization. Does type of targeted ideology differ per type of organization? We identified four exclusive types of organizations by level of interaction with their ultimate target group (e.g., potential radicals). The largest proportion involved professional organizations with direct contact with the target group (56%). The second largest was professional organizations with indirect contact with the target group (e.g., through front-line workers; 28%). The remaining types of organizations were policy-making organizations with no direct contact with the target (6%), and other types of organizations (10%).

A weighted comparison between the two largest groups, professional organizations with, and without direct contact with the target groups, demonstrates that there is a different distribution of ideologies depending on the type of organization (Figure 1). Of organizations in direct contact with potential radicals, a little over a third (34%) addressed no specific ideology, 30% targeted Islamic extremism and only nine % targeted right-wing extremism. Of organizations with indirect contact with the ultimate target group, 39% of interventions targeted no specific ideology, 21% interventions targeting right-wing extremism, and 19% interventions targeting Islamic extremism. Thus, there is a different distribution of ideologies depending on the type of organization: There are more interventions targeting Islamic extremism in organizations with direct contact with the target group, and less in organizations with indirect contact with the ultimate target group.

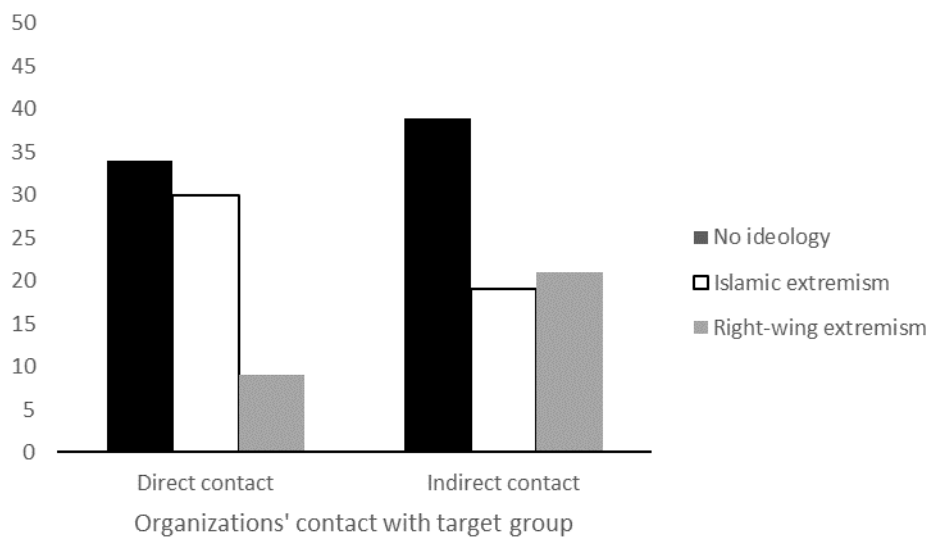


Figure 1. Organizations' contact with the target group by intervention focus on target-group ideology.

Determination of eligibility by key dimensions. Which rationale is present for enrolling individuals in interventions? Figure 2 shows a weighted word cloud⁹ of 18 key dimensions that could be considered when deciding if people are eligible for intervention programs. More

⁹ https://en.wikipedia.org/wiki/Tag_cloud#Frequency

than one indicator could apply. Most used key dimensions by professionals are ‘relations with the group individuals are affiliated with’, ‘contacts that individuals have with family or friends’, and ‘received intelligence’.

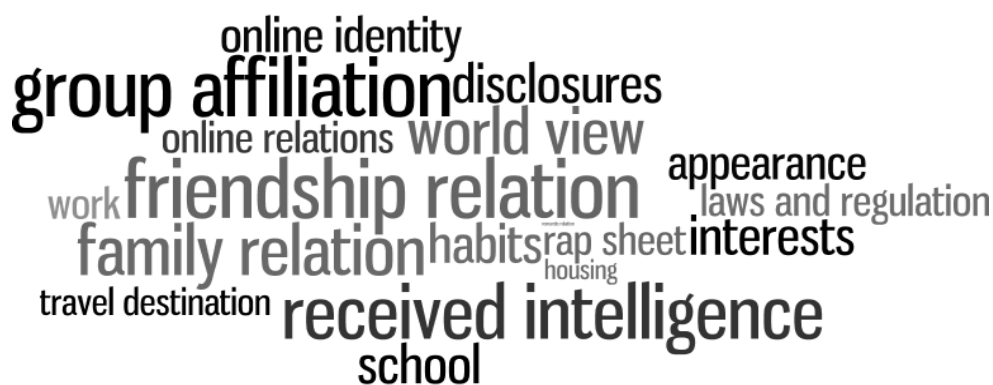


Figure 2. Weighted word cloud of dimensions mentioned to assess vulnerability and eligibility to intervention programs. Size of the words refers to how often the indicator was mentioned, ranging from ‘friendship relation’ (15 times mentioned) to romantic relations (one time mentioned).

Relatively few interventions used romantic relations, housing issues or travel destination as indicators, but we expect that this increased since 2014, considering for instance Islamic extremists travelling to Syria. For seven interventions, none of the proposed dimensions were applicable.

Goal of intervention program and relation to ideology. Sixty-two interventions provided information about intervention goals. More than one goal could apply. Many intervention programs focused on prevention of not-yet radicalized individuals (36%), followed by mitigation of already radicalized individuals (28%). Disconnecting radicalized individuals from radical groups was the goal of 14% of the interventions, and repressing

radical behavior (e.g., through detention) occurred in seven %. The remaining 15% focused on other goals, such as reducing re-offending by juveniles, and preventing and suppressing gang violence.

Do goals of interventions (prevent, mitigate, disconnect, repress) differ depending on interventions targeting different ideologies? Within each ideology, we determined the distribution of goals of interventions. Figure 3 demonstrates that for every ideology, prevent and mitigate are the most common goals. Interventions focusing on extreme right-wing ideologies had as goals to disconnect (working with already radicalized individuals) to a larger extent as compared to Islamic extremism, or not ideologically oriented interventions: less than a third of the interventions on Islamic extremism or no specific ideology focused interventions had ‘disconnect’ as goal.

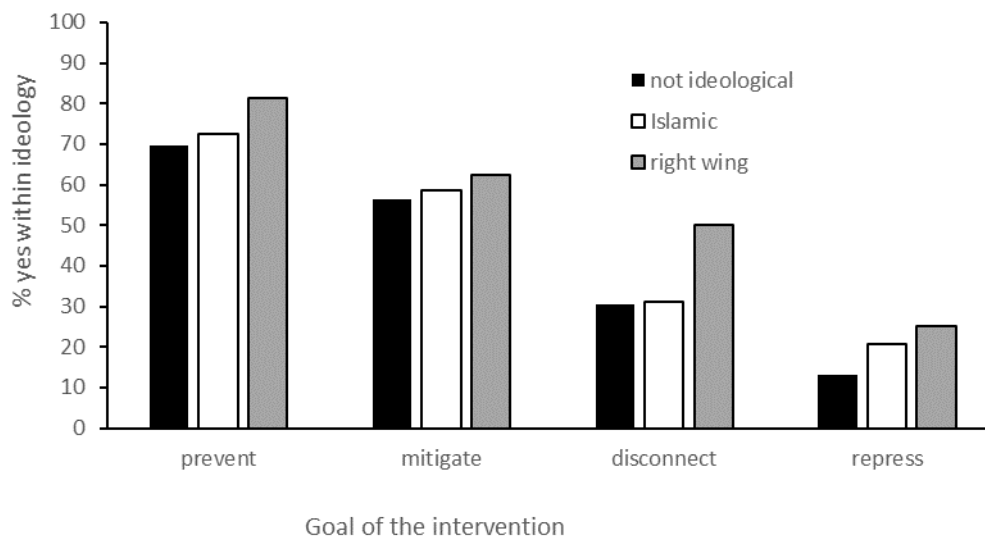


Figure 3. Percentage of goal of the intervention (more than one could apply) by interventions focusing on no specific ideology, Islamic extremism and right-wing extremism

Key mechanisms targeted by the interventions. Which are the key mechanisms targeted by intervention programs? Information about key mechanisms was available for 95 interventions. An intervention could address more than one key mechanism. Over two-third

(68%) of interventions addressed ‘increasing knowledge’ as a way to achieve their goals. ‘Extending skills’ (36%) was the second largest key mechanism, followed by ‘other’ key mechanisms (35%) (for example building resilience, counter-communication and probation). Further key mechanisms were ‘strengthening self-identity’ (29%), ‘offer opportunities such as routes back to main-stream society’ (28%), ‘reduce negative emotions and strengthen self-esteem’ (26%), ‘norms such as re-establish acceptance of authorities and societal values’ (25%), ‘re-establish or improve family and friendship relationships’ (22%), and ‘increase distance to potentially harmful groups’ (22%).

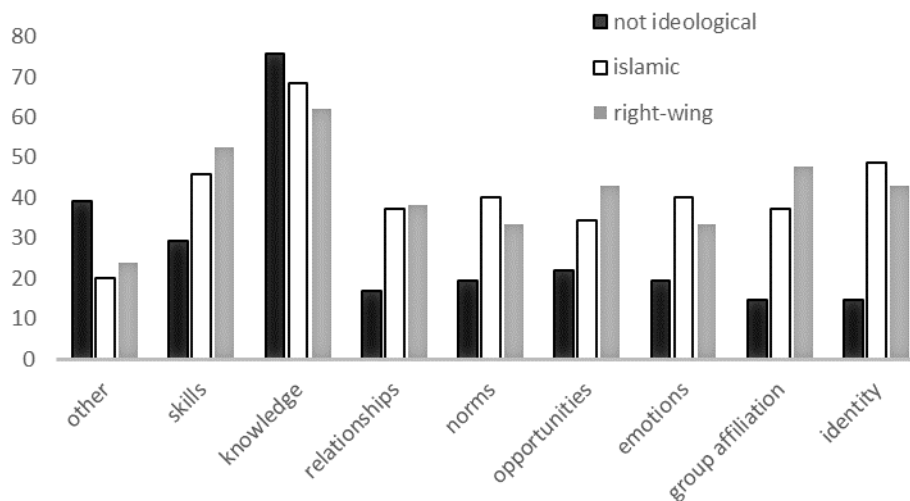


Figure 4. Percentage of ideology focused on by interventions by key mechanisms addressed by interventions

We identified key mechanisms of interventions for different ideologies (Figure 4). Notable differences are seen between interventions focusing on Islamic - and right-wing ideologies and interventions not targeting a specific ideology. Key mechanisms such as norms, relationships, skills and emotions are most pronounced for Islamic extremist - or right-wing extremist ideologies. Interventions not targeting a specific ideology focus on key mechanisms such as knowledge and ‘other’ mechanisms. This suggests that CVE

interventions targeting specific ideologies are associated with more detailed and content-related key mechanisms as compared to interventions not targeting a specific ideology.

Key mechanisms targeted by interventions related to start of interventions. Are there changes over time in terms of key mechanism targeted? We compared the starting year of the interventions with key mechanisms targeted. Information about start of the intervention was available for 73 interventions. The earliest year in which an intervention started was 1975. Over one-third (35%) of the interventions started at 1-4 years prior to 2014, the year the assessment was carried out, and 29% of the interventions started between 2005 and 2009. Eighteen percent of the interventions started between 2000 and 2004, and the remaining 18% started before 2000. Over the years, we see changes in key mechanisms targeted by intervention programs (Table 3). Self-identity as a key mechanism is highest in the more recent years 2005-2014. Also notable is the steady increase in the targeting of norms. Other key mechanisms did not demonstrate notable deviations over time.

Table 3. Progression over years in focus on key mechanisms targeted by interventions.

	Before 2000	2000-2004	2005-2009	2010-2014
Strength of self-identity	23%	8%	53%	36%
Norms	15%	17%	37%	44%

Note. Percentage of total interventions per period

Intervention activities. How are interventions executed? Of the 99 interventions, 97 had information about this aspect. More than one of six categories could apply. Many interventions used one or more educational activities, such as training (51%) or dialogue (42%). Social activities included improving social relationships (20%), involving parents (18%), or sports (seven %). Counseling activities applied for some interventions, for example individual counseling (19%) and creative activity (eight %). Few punishment activities applied, such as community service (eight %). Finally, information activities applied, included

information campaigns (10%) and dissemination of research results (14%). Forty-eight percent (also) mentioned other activities such as giving benefits in prison or getting the community involved and field trips. Results show there is much diversity in intervention activities and that educational activities such as training are often used. Not many intervention activities involved punishment. This is in line with intervention goals, where only a minor portion targeted repression.

Finances and costs. There is not much information available on costs of interventions. Of the 99 interventions, there were five interventions that estimated costs of interventions. This ranged from 500 to 320.000 euros (annually for seven intervention projects). Information on financing was available for 72 interventions. Of these, 49% reported financing by public organizations, eight % by private organizations, seven % by charitable institutions and one % for scientific organizations, lobby/private individuals and volunteering each. Twenty-eight percent of the interventions mentioned other financing, for example crowd funding and EU funding.

Evaluations. Of the 97 interventions that had information on evaluations, 54% reported that the intervention was evaluated, 9 % reported that the intervention was not evaluated, and 37% reported that at that time there had been no evaluation. For each ideology targeted, we found the percentage of non-evaluated interventions to differ: for interventions targeting Islamic extremism, the percentage of non-evaluated interventions was 19%, and for interventions targeting extreme right-wing extremism this was 14%. Notably the percentage of interventions that was not evaluated was smallest for interventions focusing on no specific ideology (five %), although for almost half (48%) of the interventions without targeting a specific ideology, it was not yet known whether they were going to be evaluated or not. Information about the focus of evaluations was available for only 48 interventions. A relatively small amount (19%) of the interventions focused on the financial aspects. There were different suppliers of the information the evaluations were based on. The biggest supplier of information on evaluations were professionals associated with the intervention itself (82%). The target group (e.g., potential radicals) was included in 66% of the

interventions that were evaluated. The intervention program was evaluated for 61% by the organization that developed it.

Networks. The relations data were analyzed to represent networks of relations between the afore-mentioned aspects, using Gephi software¹⁰. Gephi is an interactive visualization and exploration platform for all kinds of networks in dynamic and hierarchical graphs. It allows for visualizing relationships between all aspects, or a subset of aspects.

As with frequency analyses, in our network representations we focused on three ideologies targeted by interventions: Islamic extremism, right-wing extremism and not oriented toward a specific ideology. Within each ideology, we selected relations between intervention goals, mechanisms used in interventions and effectiveness (small, medium, large). We included only those relations that were mentioned ten times or more. As is common in network analyses (cf. social network analyses), the dimensions with the highest degree of relations with other dimensions are represented in the center of the network, by using the correction of Fruchterman and Reingold (1991).

Figure 5 shows the dimensions most relevant for interventions targeting no specific ideology. Interventions targeting no specific ideology aim to inhibit and mitigate radicalization and use increasing knowledge, possibilities and competences as mechanisms. No dimensions on effectiveness are visible in the network; this means that no strong relations between this type of intervention and any level of effectiveness were found.

8 (<http://gephi.github.io/>). Gephi is an interactive visualization and exploration platform and runs on Windows, Linux and Mac OS X. Gephi is open source.

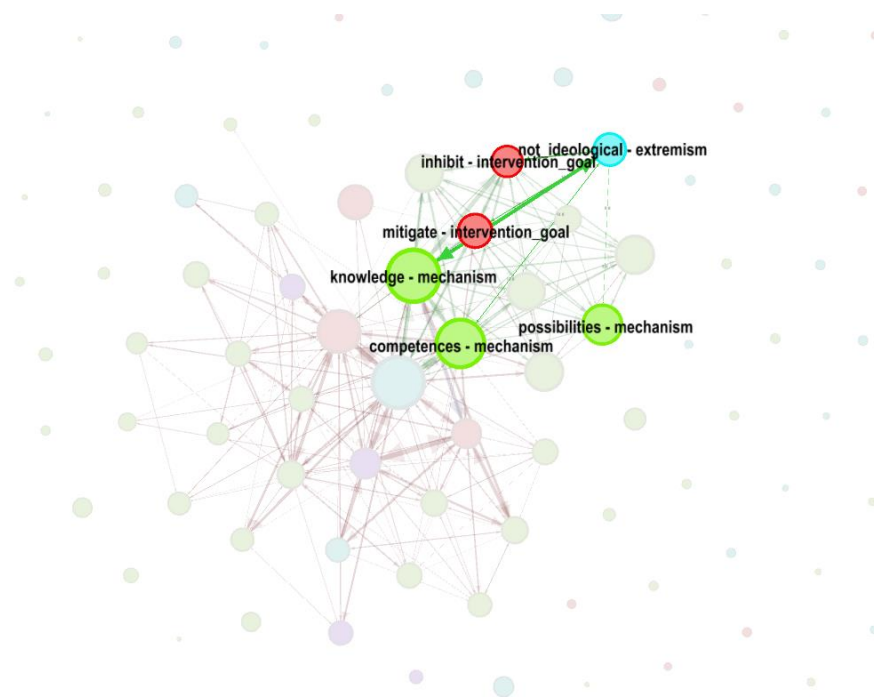


Figure 5. Network of relations between elements of interventions targeting no specific ideology, cut-off score >10. Mechanisms of interventions are depicted in green, goals of interventions are depicted in red, effectiveness is depicted in purple and ideology is depicted in blue. Size of the nodes corresponds to (in and out) degree, and thickness of the arrows corresponds to the strength of the relationship. Position of the nodes corresponds to centrality. Naming of the nodes: First the element is named, followed by the corresponding dimension.

Figure 6 shows the most relevant dimensions for interventions focusing on right-wing extremism. Interventions targeted at right-wing extremism generally have the goal to disengage the radicalized individual from his or her peer group, use an exit-strategy mechanism, and have strong effects. Exit programs typically use counternarratives to convince members of extreme right groups to end their connection with these groups.

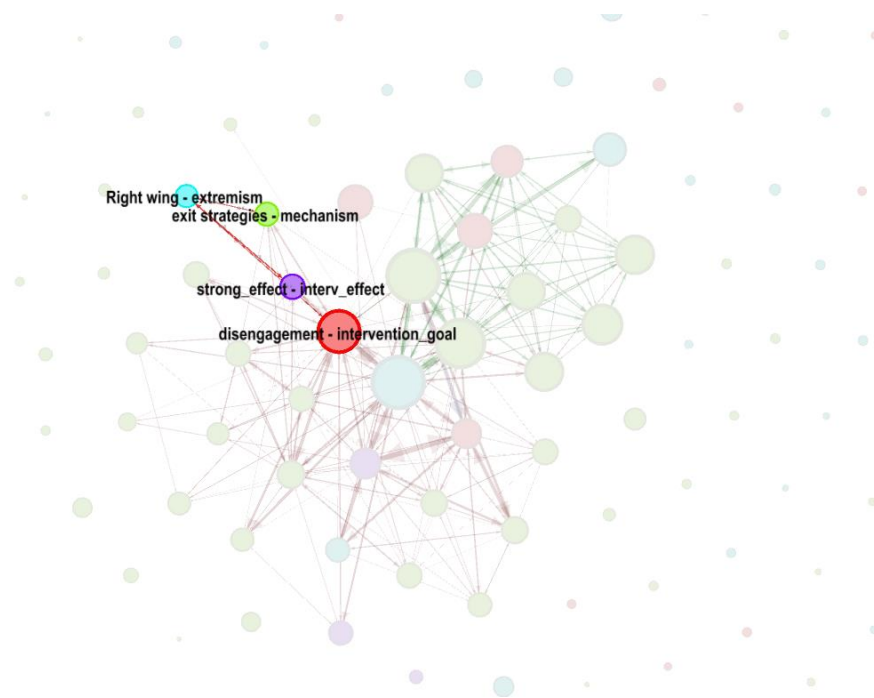


Figure 6. Network of relations between elements of interventions targeting right-wing extremism, cut-off score >10. Mechanisms of interventions are depicted in green, goals of interventions are depicted in red, effectiveness is depicted in purple and ideology is depicted in blue. Size of the nodes corresponds to (in and out) degree, and thickness of the arrows corresponds to the strength of the relationship. Position of the nodes corresponds to centrality. Naming of the nodes: First the element is named, followed by the corresponding dimension.

Figure 7 represents the relations between dimensions of interventions targeting extreme Islamism that were mentioned more than 10 times. All intervention goals were regularly found, but predominant intervention goals were prevention and disengagement. All intervention mechanisms are present; predominant mechanisms are increasing knowledge and increasing competences. Effectiveness ranges from weak to strong.

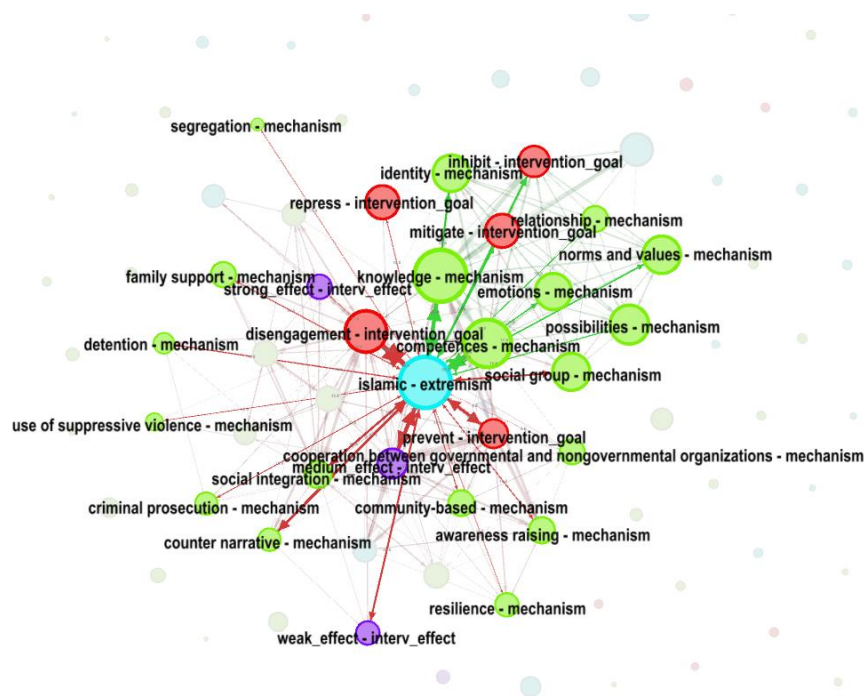


Figure 7. Network of relations between elements of interventions targeting Islamic extremism, cut-off score >10. Mechanisms of interventions are depicted in green, goals of interventions are depicted in red, effectiveness is depicted in purple and ideology is depicted in blue. Size of the nodes corresponds to (in and out) degree, and thickness of the arrows corresponds to the strength of the relationship. Position of the nodes corresponds to centrality. Naming of the nodes: First the element is named, followed by the corresponding dimension.

Figures 5-7 demonstrate once more that characteristics of interventions in the knowledge base differ depending on ideology targeted. Also, using the same cut-off scores results in networks that vary in elaborateness, that cannot -solely- be explained by differences in number of interventions present in the knowledge base.

Conclusion

This paper focused on construing a knowledge base on CVE interventions. We described a five-step method to manage detailed information about CVE interventions and how to construct a knowledge base. Advantages of the use of a knowledge base are that information can be stored and retrieved as objectively as possible, and that experts can use several preferred entry points, so that customized information can be retrieved. In addition, a

knowledge base increases data precision, and creates the opportunity to develop a living knowledge base.

We used two types of data; relatively common frequency data and data of relations between CVE intervention aspects. Relations between aspects of CVE interventions were included to demonstrate how data can be meaningfully represented in networks to provide new insights. Using a sample of CVE interventions, we exemplified different kinds of information, ranging from financing CVE interventions to goals and mechanisms used in interventions.

In relatively heterogenic and complex matters, such as CVE interventions, data on relations can offer insights that can supplement and extend frequency analyses. Network visualizations offer information on which aspects are related, strengths of relationships between aspects of CVE interventions, and the number of relationships aspects have with other aspects. Visualizations on relations between aspects of CVE interventions offer oversight and can broaden viewpoints. Examples of potential analyses for further use are cohesiveness and centrality of aspects of CVE interventions. Network theory is now applied in several fields, for example in the development of political attitudes (Dalege et al., 2016). Dalege, Borsboom, van Harreveld and van der Maas (2017) described how estimation and analyses of networks can demonstrate how outcome variables (for example attitude towards ideology-based violence or effectiveness of CVE interventions) are influenced by various other aspects in the network (for example aspects of interventions). Using this method could lead to the use of network theory in hypothesis testing (e.g., to measure effectiveness of CVE interventions). The described method in knowledge base construction can be used for issues other than CVE interventions, for example for causes of radicalization, research on gangs, or criminality or insurgency in general.

The use of other outlets than empirical journals is worthwhile in a meta-analysis as it opens a way to systematically use non-scientific outlets. In all meta-analyses, but especially when including non-scientific sources and data, a value should be included for each data point to estimate the scientific rigor with which the data was collected. For example, in our database

we distinguished theoretical, expert opinion, and empirical type of data. Ideally, a more elaborate set of values is included to allow for an estimate of data quality and to shed light on the level of bias in the database. As our sample of present data relied on the information that was available in scientific as well as non-scientific outlets, the present sample lacks randomness and can be accidentally biased. Interpretations of the present findings should be done while keeping in mind that they are not a reflection of CVE interventions as such but restricted to what was included in the knowledge base. In addition, the correlational structure of the data merits caution for causal interpretations.

As sample outcomes, we described frequency data and data of relations between aspects of CVE interventions. We mainly focused on three ideologies: CVE interventions targeting Islamic extremism, CVE interventions targeting right-wing extremism and CVE interventions targeting no specific ideology. Data of relations demonstrated differences between these ideologies that cannot be explained by differences in the number of interventions present in the database. Using the same cut-off score, we compared relations between goals, mechanisms and effectiveness between the ideologies. This resulted in visibly different networks: Whereas the network for CVE interventions focusing on Islamic extremism was quite extensive, a much simpler network for CVE interventions focusing on right-wing extremism as well as with no specific ideology focus was found. Although the simpler network on right-wing extremism could potentially be ascribed to the smaller number of CVE interventions in the data, this explanation does not hold for the network of interventions targeting no specific ideology, as the number of interventions in the knowledge base was largest. The more extensive network seen on interventions targeting Islamic extremism represents a broader approach of CVE intervention: Whereas goals, mechanisms and effectiveness show relatively simple relations between aspects of CVE interventions targeting right-wing extremism and interventions targeting no specific ideology, relations are more varied for CVE interventions targeting Islamic extremism.

In the current sample, we found most CVE interventions targeting no specific ideology, followed by CVE interventions targeting Islamic extremism and right-wing

extremism. Which aspects of CVE interventions varied as a function of ideology targeted? For CVE interventions targeting no specific ideology, predominant goals of CVE interventions were *inhibit* (prevention) and *mitigation* (of already radicalized people). For CVE interventions targeting right-wing extremism, using the same cut-off score, the predominant goal of CVE interventions was *disengagement* from radical groups. CVE interventions targeting Islamic extremism predominant goals were *inhibit* (prevention) and *disengagement*. Thus, although the present sample could be accidentally biased, it is likely that the intervention goals differ as a function of ideology targeted.

In addition, the mechanisms used in CVE interventions seem to vary. For CVE interventions targeting no specific ideology, mechanisms were predominantly related to *increasing knowledge*, *increasing competences* and *creating possibilities*. For interventions targeting right-wing extremism, one mechanism emerged, namely *exit strategy*. Mechanisms used by CVE interventions targeting Islamic extremism are related to *increasing knowledge* and *increasing competences*, and many others, such as *using the social group*, *dealing with emotions*, *providing possibilities* and *working on norms and values*.

Taken together, the following pattern may be inferred from the current sample: CVE interventions targeting no specific ideology tend to focus on general mechanisms and on early stages of radicalization. CVE interventions targeting Islamic extremism also focus on general mechanisms but tend to use other mechanisms as well. The predominant mechanisms of right-wing extremism are disengagement -, more specifically *exit strategies*. Thus, interventions focused on specific ideologies (Islamic extremism, right-wing extremism) tend to use more specific mechanisms for CVE interventions.

Also, a difference between ideologies targeted and the coded effectiveness measures emerged. The fact that we found that CVE interventions targeting no specific ideology tend to focus on early stages of radicalization could be an explanation for not finding a relation with effectiveness measures for this group of CVE interventions. In early stages of radicalization, it is difficult to determine who benefitted from interventions and who were otherwise radicalized. For the CVE interventions that tackled Islamic extremism and right-wing

extremism, we did find a relation with effectiveness measures. For CVE interventions targeting Islamic extremism, relations with effectiveness varied from weak to strong. For CVE interventions targeting right-wing extremism a relation with strong effectiveness was found. The pattern of relationships for CVE interventions targeting right-wing extremism, showing strong effectiveness, disengagement as a goal, and exit strategies as a mechanism, reflects a particularity in the data and arguably current literature on CVE interventions targeting right-wing extremism. In it, we found a strong prevalence of data on exit strategies propagated by Exit Germany, which reflect a relative homogeneity of interventions for extreme right ideologies. This could also be a reflection of a successful reporting policy on effectiveness studies by programs like Exit Germany. The ability to compare the effectiveness of CVE interventions does rest on the availability of data on effectiveness. Various ways have been suggested to improve current practice in effectiveness studies (Feddes and Gallucci, 2015; Koehler, 2016).

A notable finding is the lack of information about intervention financial costs. Although professionals in the radicalization domain did indicate that costs are one of the prime points of interest in interventions, there seems to be a lack of insight and transparency about what intervention costs are. For the sources of financing of interventions more information was available. Nearly half of the CVE interventions in our sample were being financed by public organizations. Our results indicate that evaluations could improve by considering financial or economic resources in relation to outputs, outcomes, or impacts. Other improvements on evaluations are related to the finding that 61% of the evaluations were executed by the organizations that developed the CVE interventions, which makes them vulnerable to overly positive evaluations. Ways to prevent bias in evaluations are to outsource evaluations to independent parties, or to follow traceable predetermined evaluation assessments.

Other recommendations include a need for evaluations of CVE interventions and studies on effectiveness that include relations between investments and outcomes. Whereas a focus on the number and quality of CVE interventions is important, effectiveness information

could guide choices of which interventions to use in what circumstances. General availability of effectiveness information, but also other information about CVE interventions helps to decide what is relevant given the target group and other relevant aspects. It is advocated to outsource studies on effectiveness to research organizations because institutes performing the CVE interventions often lack both financial resources and expertise to execute thorough evaluations. In addition, this reduces the risk of self-serving outcomes. Finally, the lack of databases on counter-violent extremism interventions should be addressed by further developing knowledge bases that include detailed information on interventions.

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