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Psychosocial Prevention Programs against Radicalization and Extremism: A Meta-Analysis of Outcome Evaluations

Irina Jugl[a], Friedrich Lösel[a, b], Doris Bender[a], and Sonja King[a]

[a]Friedrich Alexander, University Erlangen-Nürnberg, Germany; [b]University of Cambridge, United Kingdom

ABSTRACT

Politically, religiously, and otherwise motivated radicalization and violent extremism is a topic of high priority in many countries. Therefore, beyond intelligence and police measures, there is a strong increase of psychosocial prevention programs in this field. However, little is known about their effectiveness. We aimed to fill this research gap by conducting a systematic international review and meta-analysis of outcome evaluations. We screened about 14,000 reports on the topic of extremism prevention, but in spite of broad criteria of eligibility, we only found nine more or less well-controlled outcome evaluations from seven countries. Six programs addressed religious/ethnic extremism, one targeted nationalist/separatist extremism, and one different types of extremism. Most evaluations had a quasi-experimental pre-post design, only one contained a randomized controlled trial (RCT). Overall, programs had a significant mean positive effect on behavioral and psychosocial outcomes related to extremism ($\bar{d}$ = 0.50, $\overline{SE}$ = 0.12). Regarding the specific effects of the programs on psychosocial aspects such as for example extremist attitudes alone, we found similar results ($\bar{d}$ = 0.56, $\overline{SE}$ = 0.11). We found stronger effects for programs with target groups from mixed ethnic backgrounds and approaches addressing both at-risk individuals and participants from the general population. Despite these promising results, the low internal validity of most evaluations and small number of eligible studies limit generalization. More high-quality evaluations are clearly needed. These would help to allocate resources in an evidence-oriented manner and provide a better understanding of the mechanisms of successfully preventing radicalization and violent extremism.

Programas de prevención psicosocial contra la radicalización y el extremismo: meta-análisis de las evaluaciones de los resultados

RESUMEN

La radicalización y el extremismo violento por causas políticas, religiosas o de otro tipo es un tema prioritario en muchos países. Además, más allá de las medidas de servicios de inteligencia y policiales, hay un aumento de los programas de prevención psicosocial en este campo. Sin embargo, no se sabe mucho de su eficacia. Para llenar este vacío en la investigación llevamos a cabo una revisión sistemática internacional y un meta-análisis de la evaluación de los resultados. Revisamos alrededor de 14,000 informes sobre prevención del extremismo, pero a pesar de que utilizamos un criterio de selección de artículos amplio solo encontramos nueve evaluaciones de resultados más o menos bien controladas de siete países. Seis programas abordaban el extremismo religioso/étnico, uno el nacionalista/separatista y uno consistía en un ensayo controlado aleatorizado (ECA). En general, los programas mostraron un efecto promedio positivo y significativo en los resultados comportamentales y psicosociales relacionados con el extremismo ($\bar{d}$ = 0.50, $\overline{SE}$ = 0.12). En cuanto a los efectos específicos de los programas en las dimensiones psicosociales, tal como las actitudes extremistas, encontramos unos efectos similares ($\bar{d}$ = 0.56, $\overline{SE}$ = 0.11). Hallamos efectos mayores en los programas con grupos diana de antecedentes étnicos mixtos y enfoques que se dirigían tanto a sujetos en riesgo como a participantes de la población general. A pesar de unos resultados prometedores, la escasa validez interna de la mayoría de las evaluaciones y el bajo número estudios que cumplían los criterios de selección limitan la generalización. En consecuencia, se necesitan más estudios con diseños de buena calidad. Estos ayudarían a asignar los recursos sobre la base de evidencia científica y proporcionarían una mejor comprensión de los mecanismos de prevención con éxito del extremismo violento y la radicalización.

Political, religious, and other forms of extremism are a global threat endangering democratic structures and causing much human suffering as well as high financial costs. Therefore, this development called for effective measures of prevention (Mastroe & Szmania, 2016; Schmid, 2013). Preventive measures became even more important since security and control actions to fight terrorism have turned out to be less successful than expected (Borum, 2011). The phenomena mentioned are complex and there is no generally used terminology in the different fields of research (Nasser-Edine et al., 2011; Silke, 2018). In the present article, we use the following descriptions as a plausible approach: "extremism" implies a verbal or active opposition to basic values in a society, such as democracy, equality, liberty, rule of law, and tolerance for the faiths and beliefs of others; "radicalization" is a dynamic process by which a person adopts extremist beliefs that justify the use of violence for social and/or political change; "terrorism" is viewed as an intentional act or threat of violence from a non-state actor that aims to attain a political, religious, economic, or social goal and coerces or intimidates an audience beyond the direct victims (e.g., Doosje et al., 2016; Maskaliūnaitė, 2015; Strom et al., 2017). While attacks carried out in the name of Islam or by right-wing aggressors are very prominent in the minds of the public as well as policy makers (see Gruber et al., 2016; Neu, 2012), extremist attacks are based on differing underlying motives and goals (Doosje et al., 2016; Europol, 2018). According to Doosje et al. (2016) these motives can be categorized into nationalist/separatist, right-wing, left-wing, single issue (e.g., ecology or animal protection), and religiously motivated extremism. With regard to religious extremism, especially in the case of Islamist motivation, ethnic background often also plays an additional role so that one can assume an overlap of religious/ethnic extremism (Lösel et al., 2018).

In order to develop and implement effective programs, it is important to have solid and profound research knowledge on how people radicalize and why they commit extremist acts. Processes leading to violent extremism have been widely discussed and phase models aim to explain the steps towards violent attitudes and extremism (Borum, 2011; Schmid, 2013). They often describe how radicalization progresses while giving less information on why individuals move from one stage to another (Borum, 2011). In the last twenty years, there has been a surge in scientific research on extremism (LaFree & Freilich, 2017; Silke, 2018). Although to date there is not a widely accepted theory on extremist development, various authors have discussed important mechanisms motivating the progression towards violent extremism (see Silke & Brown, 2016). For example, McCauley and Moskalenko (2008) emphasized factors such as individual and group grievances as well as group mobilization processes. Kruglanski et al. (2014) stated that loss of significance and the associated goal to restore one's identity are connected to radicalization. However, while research on such risk factors and processes offers explanations on the reasons why an individual engages in extremism and violent behavior, it does not answer the more general question why many people with the same set of risk patterns do not turn to violence (Lösel & Farrington, 2012). Therefore, it also needs to be asked what protects individuals from radicalizing in the first place and/or against further progression from radical beliefs to the active participation in violent actions (Lösel et al., 2018). And while the need for more integrative theories has lately been recognized (Pauwels & De Waele, 2014), research on radicalization has so far still addressed risk much more than protective factors (King et al., 2019; Lösel et al., 2018). Therefore, primary research on protective factors is needed for understanding, predicting, and preventing violent extremism.

Knowledge on protective factors is, for example, applied in tools for violence risk assessment (Loinaz & de Sousa, 2020; De Vries Robbé et al., 2012) as well as for violent extremism (King et al., 2018) to reduce the problem of high proportions of false positives that are critically discussed in the literature (e.g., Sarma, 2017). With regard

to the process of radicalization, Doosje et al. (2016) emphasize "shields of resilience" that can prevent people from cognitively and emotionally opening up to extremist ideologies, becoming a member of an extremist group, or committing violent acts in the name of this group. In a systematic review of research, we found that various protective factors were similar to protective factors and mechanisms in other fields of youth violence. For example, factors such as positive parent-child-relations, self-control, good school achievement, non-deviant peers, a stable employment, and a basic acceptance of societal institutions seem to protect against radicalization and violent extremism (Lösel et al., 2018).

Protective factors should also be used in prevention programs because strengthening these factors could enhance desistance from extremist ideologies and violent behavior (Lösel et al., 2020). For example, findings on positive effects of stable employment in preventing crime and delinquency underline the importance of accessible educational and vocational training for young people (Lösel & Bender, 2017). In the conceptualization of prevention programs, basically three approaches can be distinguished, namely primary, secondary, and tertiary prevention. Primary prevention programs in the present field of research aim at the general population to stop radicalization in the first place whereas the latter two prevention approaches would address the phenomena of disengagement and de-radicalization (Kober, 2017; Mastroe & Szmania, 2016). Disengagement describes a "behavioural" change leading people to cease participation in extremist action (see Doosje et al., 2016), and, accordingly, disengagement programs aim at stopping an individual from participating in violent extremist behavior (Mastroe & Szmania, 2016). De-radicalization, on the other hand, is primarily a "cognitive" process in which extremist attitudes are being rejected (Berger, 2016; Doosje et al., 2016). Typically, these programs are tailored to an individual's needs (Mastroe & Szmania, 2016) and often delivered in the form of exit programs, which offer the opportunity to work on a one-on-one basis (Bjørgo & Carlsson, 2005).

Prevention programs against radicalization and extremism have seen a strong rise in recent years (Maskaliūnaitė, 2015; Pratchett et al., 2010; Romaniuk, 2015). The collection of approaches and practices by the Radicalisation Awareness Network (RAN) reports about 180 major initiatives in the European Union to counter violent extremism (RAN, 2018). A recent publication by the German Federal Criminal Police Office (BKA) retrieved more than 2,000 projects implemented by private and public stakeholders in Germany alone (Gruber et al., 2016), suggesting that high numbers of programs are to be expected in other countries as well. However, the programs often lack sound empirical evidence regarding their effectiveness (Bellasio et al., 2018; Lum et al., 2006; Mastroe & Szmania, 2016).

In a systematic review of counterterrorism strategies worldwide, Lum et al. (2006) retrieved only 21 evaluated projects and out of these only seven studies applied sound methodological designs. Although recent reviews retrieved higher numbers of evaluated initiatives countering radicalization, sound methods are still rare (Bellasio et al., 2018; Feddes & Gallucci, 2015; Mastroe & Szmania, 2016). Feddes and Gallucci (2015) found in their review of 55 studies that about 50% gave merely anecdotal description of the examined project and only twelve percent contained a systematic qualitative or quantitative evaluation. Similarly, Mastroe and Szmania (2016) found only five studies in the context of primary prevention that used quantitative outcome assessment to measure program effects. More studies were available in the context of de-radicalization and disengagement. These focused on assessing recidivism, though often without clear definitions of the term. Therefore, the authors state the need for more reliable data and suggest frameworks to better assess program outcomes (Mastroe & Szmania, 2016). Bellasio et al., (2018) also note the limitations in robustness of program evaluations. About half of the 48 studies included in their review used mostly qualitative evaluation designs. Largely, the respective literature reports goals

and contents of the projects rather than evaluations (e.g., Butt & Tuck, 2014; Madriaza & Ponsot, 2016; RAN, 2018) and while existing reviews have helped to gather insights into evaluation techniques and program diversity (Bellasio et al., 2018; Feddes & Gallucci, 2015; Mastroe & Szmania, 2016), questions regarding the effectiveness of the prevention programs remain.

Therefore, the present article aims for at least some answers. We report a systematic review and meta-analysis that concentrates on quantitative evaluations of psychosocial prevention programs focusing on risk factors or causes of extremism related to an individual (e.g., Bellasio et al., 2018; Lösel et al., 2020).

Method

Criteria of Eligibility

Expecting a small number of controlled studies, we set broad eligibility criteria:

1) Program characteristics. We made no restrictions regarding the type of extremism and, therefore, included programs targeting nationalist/separatist, right-wing, left-wing, single issue, religiously motivated extremism, as well as approaches aiming to prevent extremism in general. Programs were eligible if they focused on prevention of radicalization and extremism during any phase of the radicalization process, i.e., as a means of primary, secondary, and/or tertiary prevention. While we included programs reaching out to participants in face-to-face settings, we excluded measures without personal contact, e.g., media campaigns. We made no restrictions concerning the providers of the programs and the context of implementation. We focused on direct psychosocial interventions, i.e., projects targeting aspects on the individual level, such as building resiliency or strengthening skills in individuals to be protected from radicalization or to help individuals de-radicalizing and disengaging. We, therefore, excluded security measures or environmental design approaches that focus on preventing incidents rather than addressing the causes of extremism (Bellasio et al., 2018).

2) Target groups. Eligible programs could be designed for the general population (e.g., community samples or students), but also for at-risk groups or radicalized individuals in and outside the prison system (e.g., in exit programs). We made no restrictions regarding participants' age, gender, or ethnicity. However, we excluded programs that offered social support for people affected by radicalization, such as families or peers, rather than preventing radicalization of individuals. Projects that solely trained, informed, educated, or connected practitioners, researchers, teachers, or politicians were not eligible because their main goal was sharing knowledge among experts.

3) Outcome measures. Outcomes examined in the evaluations had to be evidently related to radicalization and extremism. Therefore, we included violent extremist behavior or willingness to participate in violent actions and considered related behavior for inclusion. We also set very broad criteria for including psychosocial constructs in our analysis. These psychosocial variables could, for example, contain extremist attitudes, cognitive patterns, or other outcomes that were considered to be relevant for preventing radicalization, e.g., self-esteem.

4) Evaluation design. We searched the literature for quantitative study designs offering suitable data to compute relevant effect sizes for meta-analytic integration. To avoid losing potentially relevant information, we included all types of designs as described in the Maryland Scientific Methods Scale (SMS; Farrington et al., 2002) adapted by Schmucker and Lösel (2015). The adapted SMS identifies five different levels of evaluation designs. While level 1 describes evaluations using no control group (CG), level 2 equals studies applying non-equivalent control CGs, whereas level 3 studies report CGs incidentally assigned. The soundest designs are found on levels

4 and 5 with the former applying matching procedures and the latter randomized controlled trials (Schmucker & Lösel, 2015). Although we included weak designs to increase the number of primary studies, we will analyze methodological quality as a potential moderator.

5) Type of publications. We included reports as well as articles in books and journals worldwide and searched for studies in English, German, and French. We focused on recent evaluations and covered studies between 2000 and 2019 to reflect current trends in psychosocial prevention responding to the present challenges of violent extremism and radicalization.
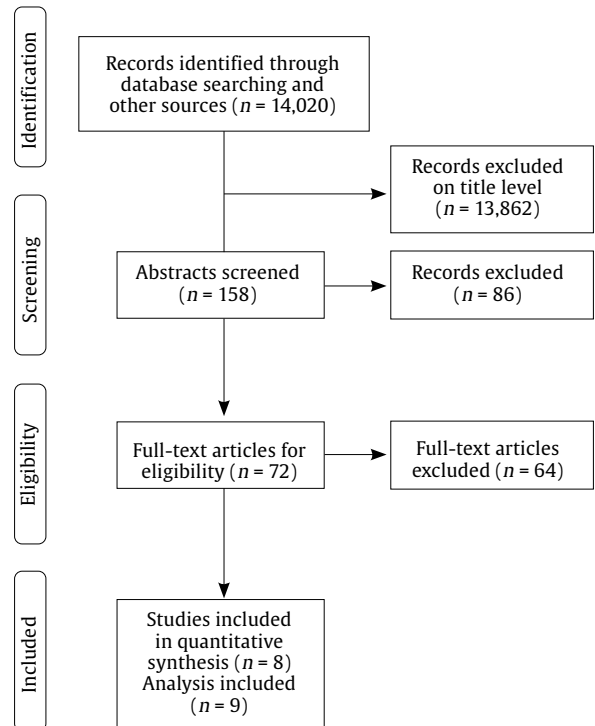
Figure 1. PRISMA Flow Diagram Depicting the Search Procedure for the Meta-analysis.

Search Strategy

Our search procedure is summarized in Figure 1. At first, we searched in the most relevant scientific databases, such as Cochrane Library, Campbell Collaboration, ERIC, JSTOR, NCJRS, ProQuest, PsycInfo, and SCOPUS with search strings including radical*, terror*, extrem*, far-right, right-wing, far-left, left-wing, islam*, interven*, program*, train*, treat*, prevent*, diseng*, derad*, eval*, impact*, quant*, and effect*. As literature data bases often do not contain the full range of relevant studies for systematic reviews (Schmucker & Lösel, 2011), we also searched websites and databases on the topic of radicalization and extremism, including counterextremism.org, Violence Prevention Network, Demokratie-leben.de, against-violentextremism.org, www.dpt-map.de, www.blueprintsprograms.org, www.radicalisationresearch.org, and www.bpb.de. Furthermore, we used previous studies and reviews for a snow-balling search.

If this provided names of programs, we conducted an internet search with relevant keywords as well. In addition, we contacted researchers in the field to discover grey literature. When evaluations did not provide sufficient data to calculate effect sizes, we tried to contact the authors for additional information. In spite of these efforts, we still had to exclude some studies because effect size calculation was not possible. Although we identified about 14,000 potentially relevant texts, screened 158 abstracts, and

Table 1. Program Descriptions from Studies Included in the Meta-analytic Integration

Authors	Program name	Country	Type of extremism	Program goals	Implementation	Sample description	Type of prevention
Amjad and Wood (2009)	"Perceptions of Jews among Muslims" Lecture	Pakistan	r/e	Decreasing bias against out-group and acceptance of aggression against Jews to reduce willingness to join extremist organizations.	Educational intervention (Lecture and discussion for students with a British-Pakistani psychologist) lasting for 1hr 40 min.	$N = 92$ Age: 21-29 $n\male = 39$ $n\female = 53$ Muslim students	Primary
Boyd-MacMillan (2016)	Being Muslim Being Scottish (BMBS)	United Kingdom	r/e	Reducing narrow world views and vulnerability to extremism by increasing cognitive/integrative complexity and value pluralism, while strengthening ties between practitioners and Muslim community.	Experiential pedagogy involving group action-learning via DVD and critical reflections (e.g., through role play) delivered on two days over one weekend, debriefing session one weekend later.	$N = 21$ Age: 19-59 $M_{age} = 42.05$ $n\male = 13$ $n\female = 8$ Practitioners, Muslim community members	Primary/ secondary
Feddes et al. (2015)	Diamant	The Netherlands	r/e	Increasing resilience against radicalization by strengthening agency, self-esteem, perspective taking skills, empathy and decreasing strong sense of dual identity and relative deprivation.	Three modules over three months to improve critical thinking about own and others' behavior as well as working on social & professional competencies to help with job placement and strengthening of identity.	$N = 46$ Age: 14-23 $M_{age} = 16.93\ (SD = 2.76)$ $n\male = 36$ $n\female = 10$ Muslim adolescents with migrant background	Secondary
Liht and Savage (2013)	Being Muslim Being British (BMBB)	United Kingdom	r/e	See Boyd-MacMillan (2016)	Group action learning via DVD and critical reflections (e.g., through role play) delivered in eight two-hour sessions between five to fifteen weeks in seven pilot groups.	$N = 81$ $n_{\text{demographic data}} = 49$ $M_{age} = 19.48\ (SD = 2.14)$ $n\male = 29$ $n\female = 19$ At-risk youths from Muslim community and practitioners from prevention projects	Primary/ secondary
Lüter and Glock (2017)	Concepts against Islamist radicalization – Module Prevention of radicalization	Germany	r/e	Raising awareness on threats of radicalization, empowering youths and promoting democratic views.	Delivered in 8th and 9th grades; workshop with four units lasting 90 minutes either as a stand-alone or included in a general course discussing Salafism and Islamism.	$n_{pre} = 22$ $n\male = 13$ $n\female = 7$ $n_{post} = 30$ $n\male = 17$ $n\female = 12$ Students in 8th grade around age 14	Primary
Savage (2014)	Being Kenyan Being Muslim (BKBM)	Kenya	r/e	See Boyd-MacMillan (2016)	Group action learning via DVD and critical reflections (e.g., through role play) delivered in eight two-hour sessions in four days.	$N = 24$ $M_{age} = 29.6\ (SD = 6.27)$ $n\male = 12$ $n\female = 11$ Practitioners, Al Shabaab[1] members; at-risk individuals	Secondary/ tertiary
Webber et al. (2017)	The Sri Lankan Rehabilitation Program	Sri Lanka	n/s	De-radicalizing former members of LTTE of Tamil ethnicity by providing alternative means to gain significance (see significance quest theory by Kruglanski et al., 2014) and helping individuals to integrate into society.	Seven training programs in rehabilitation centers; three programs are assumed to be most successful in influencing significance: – Educational rehabilitation – Vocational rehabilitation – Psychosocial rehabilitation	Study 1: $n_{\text{IG with full treatment}} = 490$ $M_{age} = 24.97\ (SD = 5.67)$ $n_{\text{CG with minimal treatment}} = 111$ $M_{age} = 29.18\ (SD = 6.71)$ Study 2: $n_{IG} = 179, n\female = 85$ $M_{age} = 31.15\ (SD = 6.12)$ $n_{CG} = 144, n\female = 86$ $M_{age} = 30.33\ (SD = 11.89)$	Tertiary
Williams et al. (2016)	WORDE's volunteering & multicultural programming	USA	Mixed	Activities to counter violent extremism, e.g., by bringing together people from different backgrounds and promote civic engagement.	Projects include voluntarily preparing and providing food for homeless people as well as collaborations to produce digital content promoting social change.	$n_{IG} = 133, n_{CG} = 46$	Primary

Note. r/e = religious/ethnic; n/s = nationalist/separatist; [1]Al Shabaab is a Somalian militant group associated with al-Qaeda with some members living in Kenya (Wise, 2011); LTTE = Liberation Tigers of Tamil Eelam, members of the Tamil ethnic group in Sri Lanka, who fought for an independent state from the Sinhalese community (Webber et al., 2017); WORDE = World Organization for Resource Development and Education.

assessed 72 reports in detail, only nine evaluations (from eight reports) finally met our not very rigorous eligibility criteria.

Study Coding

We coded descriptive characteristics such as year and language of publication and sample sizes, as well as origin, gender, religious affiliation, and age of participants. We also coded type, i.e., primary, secondary, or tertiary, and duration of the program as well as their implemented content and the setting and country in which they took place. For details, see Table 1. In addition, we coded the design (internal validity) of the evaluation using the SMS. Since some aspects are more complex to code, two members of our research team assessed these variables independently to increase objectivity. Complete

Table 2. Effect Sizes Calculated from Given Data in the Studies Included

Authors (Year of publication)	Study design	SMS	Analytical sample	Effect sizes[1] Cohen's d (SE) 95% CI
Amjad and Wood (2009)	Randomized control trial	5	46 participants 46 non-participants	$d_{attitudes}$ = 0.97 (SE = 0.30) [0.38, 1.56] $d_{behavior}$ = 1.22 (SE = 0.26) [0.65, 1.79]
Boyd-MacMillan (2016)	One-group pre-post design	1	21 participants	$d_{attitudes}$ = 0.51 (SE = 0.22) [0.08, 0.94]
Feddes et al. (2015)	One-group pre-post design	1	32 participants	$d_{behavior}$ = 0.25 (SE = 0.25) [-0.24, 0.74] $d_{attitudes}$ = 0.27 (SE = 0.25) [-0.23, 0.76] $d_{psychological\ outcomes}$ = 0.24 (SE = 0.13) [-0.01, 0.49]
Liht and Savage (2013)	One-group pre-post design	1	7-238 units analysed in group discussions and written responses	$d_{attitudes}$ = 1.48 (SE = 0.22) [1.05, 1.91]
Lüter and Glock (2017)	One-group pre-post design	1	18-28 participants	$d_{attitudes}$ = 0.09 (SE = 0.12) [-0.15, 0.33]
Savage (2014)	One-group pre-post design	1	21-24 participants	$d_{attitudes}$ = 1.09 (SE = 0.19) [0.72, 1.46] $d_{behavior}$ = - 0.59 (SE = 0.14) [-0.86, -0.32]
Webber et al. (2017)	Pre-post quasi-experimental design with CG	3	490 participants in full treatment 111 participants in minimal treatment	$d_{attitudes}$ = 0.40 (SE = 0.16) [0.09, 0.71]
	Quasi-experimental design with CG	3	179 former participants 144 community members	$d_{attitudes}$ = 0.64 (SE = 0.08) [0.48, 0.80]
Williams et al. (2016)	Quasi-experimental design with CG matched via propensity score	4	133 participants 46 non-participants	d_{mixed} = 0.32 (SE = 0.05) [0.22, 0.42]

Note. Positive effect sizes indicate a positive impact of the program; SMS = Maryland Scientific Methods Scale; 95% CI = confidence interval; CG = control group. [1]Additional data for effect size calculation was provided by the authors.

consistency of coding was present in the variables study design, the SMS as well as the type of targeted extremism. In three cases, the evaluation of the type of prevention program did not match. Consensus was reached through discussion in the research team.

Effect Size Calculation and Statistical Procedures

Based on the reported statistics we calculated comparable effect sizes (Cohen's d) for all studies. Studies often report different kinds of effect sizes (Salgado, 2018). If that was the case, we transferred them into our common metric. For group comparisons as well as one-group pre-post designs we computed the unbiased standardized mean difference (Lipsey & Wilson, 2001). Calculating effect sizes for one-group pre-post designs requires the correlation between pre- and post-test, whose primary studies did not provide. Although any correlation could be suitable to derive the effect size (Lipsey & Wilson, 2001), we used the most conservative approach suggested by Lenhard and Lenhard (2016) and set r = .00 for estimating effect size in these cases. In one case a multinomial logistic regression was reported (Amjad & Wood, 2009). We calculated odds ratio and its confidence interval as described by Rodríguez (2007) and converted it into Cohen's d (see Borenstein et al., 2009). When studies reported several effect sizes belonging to the same type of outcome, we combined them to an overall effect size. Positive effect sizes correspond to favorable effects for the intervention group, i.e., increase of a positive or decrease of a negative outcome.

We integrated the results based on the weighting model by Hedges and Olkin (1985) using IBM SPSS Statistics 24 with the macros for meta-analyses from Wilson (2005). Heterogeneity or homogeneity of effects was tested via the Q-statistic, but also with I², which measures the inconsistency of the study effects and counterbalances problems of the Q-statistic such as a low

test power for meta-analysis with few studies (Higgins et al., 2003). For moderator analyses, we used a mixed effects model to consider both systematic between-study differences and random unobserved variables (Lipsey & Wilson, 2001). To assess whether the located studies differ systematically from non-retrieved studies, we estimated the unbiased effect size using the trim and fill method (Borenstein, 2005).

Results

Descriptive Data

We located six papers published in journals and two published in other reports. The majority was written in English (n = 7) and one study was in German. While no unpublished studies were retrieved, we received additional data for effect size calculation for the evaluation by Williams et al. (2016) from M. J. Williams (personal communication, May 25, 2019).

Programs took place in Europe (n = 4), Africa (n = 1), Asia (n = 2), and North America (n = 1). Program settings included educational institutions (n = 2), the community (n = 4) as well as a correctional facility (n = 1). The setting of one program was not discernible. Of the eight programs, three took no longer than a week to be completed and one program lasted three months. One program offered to different groups lasted between five and fifteen weeks depending on the implementation by the facilitator. In one de-radicalization project, participation lasted at least one year. For one project, duration could not be determined. Two of the longest running programs offered a variety of modules, e.g., educational and psychological training. The shorter interventions as well as the program lasting between five and fifteen weeks offered a more focused approach with fewer components mainly tailored to changing mind-sets and attitudes.

Three programs where applied as primary prevention, one as secondary, and one as tertiary prevention. Three programs could not be clearly distinguished in this respect and were therefore subsumed under a mixed approach.

One program aimed to prevent re-emerging nationalist/separatist extremism and one addressed different types of extremism. Most programs (n = 6) targeted religious/ethnic extremism. This was often connected to helping Muslims strengthen their stance in society; therefore, two programs aimed at Muslim individuals and five programs included Muslim as well as non-Muslim participants. In the program targeting nationalist/separatist extremism, religious affiliation varied among the participants, although the faiths were not specified. Regarding the ethnicity of participants, one program explicitly targeted Muslim people with a migrant background. In three programs, at least some participants had a migrant background. Four studies did not clearly state the background of the participants. No program explicitly reported targeting only males or females. The majority of the programs (n = 7) included both sexes.

To measure the success of the programs, different outcomes were analyzed in the studies. Most outcomes were based on self-reports of the program participants. Behavior connected to violent extremism as well as the intention to engage in violent extremism were measured in three evaluations. This included willingness to join extremist groups and participate in violent action, but also conflict styles prone to extremist means. More frequently, the studies used extremist attitudes as criterion (eight evaluations). We also subsumed value complexity and integrative complexity in this category (examined in three studies). The former is the ability to accept and integrate different and even opposing values at once in contrast to value monism (Liht & Savage, 2013), while the latter describes the connection of different viewpoints, with low integrative complexity enhancing potential for conflict (Savage, 2014). Some studies used various outcome measures, which we condensed in one overarching outcome for meta-analytic integration. The same applies to one study measuring several psychological outcomes (e.g., self-esteem and perspective taking), and to another study that assessed mixed outcomes. These outcomes included, for example, community engagement, psychological well-being, or attitudes towards out-groups.

With regard to the quality of the evaluation designs, we found that most studies scored very low on the SMS and were only rated as level one (n = 5). The design in one article reporting two studies on the same program (Webber et al., 2017) was rated at level three, another one on level four, and only one study received a rating of five (randomized controlled trial, RCT) on the SMS.

Meta-analytic Results

Overall effect of prevention programs. First, we integrated all thirteen outcomes to assess the overall effectiveness of the prevention programs. The effect sizes are presented in Table 2.

There was significant heterogeneity between the various findings, $Q(12)$ = 121.11, $p < .001$. Similarly, I^2 = 90.09% proved that the effects varied strongly across the included studies. Therefore, we applied a random effects model which revealed a moderate effect of the programs of $\bar{d}$ = 0.50 ($\overline{SE}$ = 0.12), 95% CI [0.26, 0.74]. This effect was significant at $p < .001$.

The heterogeneity of effect sizes suggested the analysis of potential moderators. Of course, the small number of studies only allowed a pilot and not a theoretically sound analysis of moderators. Moderators included in our model were country and setting of implementation, the duration and content of the programs, type of prevention and extremism, as well as the internal validity of the evaluation. We also analyzed sample characteristics such as religious affiliation and ethnic background. However, none of the applied

moderators turned out to be significant. Neither did our check for publication bias indicate a change of the estimated effect size.

Specific effects of prevention programs on attitudes and psychological outcomes. Guided by explorative and theoretical considerations as well as the high heterogeneity in our first analysis, in a next analysis step, we excluded the three behavioral outcomes and focused on the specific effects of prevention programs on extremist attitudes as well as other psychosocial outcomes related to radicalization. These outcomes were also significantly heterogeneous, $Q(9)$ = 60.55, $p < .001$; I^2 = 85.14%, although reduced in comparison to our overall analysis. Thus, we integrated the effects based on a random effects model. The mean program effect was moderate and significant, $\bar{d}$ = 0.56 ($\overline{SE}$ = 0.11), 95% CI [0.35, 0.78], $p < .001$.

Table 3. Moderator variables for Attitudinal and Psychological Outcomes

Variables	k	$Q_{between}$	Cohen's d (SE)	CI 95%
Type of prevention		11.02*		
Primary	3		0.35* (0.16)	[0.04, 0.65]
Secondary	2		0.25 (0.21)	[-0.15, 0.66]
Tertiary	2		0.54** (0.18)	[0.18, 0.89]
Mixed	3		1.03*** (0.18)	[0.68, 1.38]
Migrant background		10.19**		
Yes	2		0.25 (0.21)	[-0.16, 0.66]
Mixed	3		1.03*** (0.18)	[0.68, 1.38]
Not reported	5		0.43*** (0.12)	[0.19, 0.66]

Note. k = number of effect sizes; $Q_{between}$ = between category variance; CI 95% = confidence interval.
*$p < .05$, **$p < .01$, ***$p < .001$.

As heterogeneity was high, we also tested for possible moderator influences and applied the above-mentioned categories. Mixed preventive programs had the largest positive effect, followed by tertiary and primary prevention. Programs where all participants had a migrant background had no significant effect, while programs with participants from different ethnic backgrounds showed comparatively large effects. Where migrant background was not reported, the mean effect was moderate as can be seen in Table 3. We found no indication of a publication bias.

Sensitivity analysis. As the findings were quite heterogeneous, we investigated whether one or the other extreme result biased the overall picture. Therefore, we carried out a sensitivity analysis that tested different correlations between the outcome measures. Only minor variation appeared in this sensitivity analysis indicating robustness of the findings.

Discussion

Numerous actions have been taken in recent years to counter radicalization and extremism. These actions include security measures to implement the "war against terrorism", but also the launch of many prevention programs against radicalization and violent extremism (Borum, 2011; Mastroe & Szmania, 2016; Trautmann et al., 2017). However, there is a widespread consensus among researchers about a clear deficit of sound evidence on the effectiveness of these programs (e.g., Beelmann, 2017; Bellasio et al., 2018). Against this background, we conducted a meta-analysis of international programs that were at least to some degree systematically evaluated. Despite our broad search criteria, we only located eight eligible programs. Six programs targeted religious/ethnic extremism, one nationalist/separatist extremism, and the other addressed different forms of extremism. The programs successfully influenced variables such as violent extremist behavior, extremist attitudes, and related psychological factors. The mean effect size of $\bar{d}$ = 0.50 was in a similar range as it

was found in the much larger body of research on general violence of young people (Farrington et al., 2017).

Using different approaches, such as group discussions, pedagogical measures as well as voluntary work, the examined programs often aimed to broaden participants' perspectives. Goals included decreasing prejudices against out-groups, strengthening identity and complex thinking, as well as promoting democratic views. Promoting these perspectives helps to break up black-white thinking characterizing extremist ideologies that segregate the world in good and evil (Doosje et al., 2016; Schmid, 2013). Some programs also offered vocational training and aimed to promote civic engagement as well as re-integration into society. Attachment and integration into communities have been shown to protect against radicalization (Lösel et al., 2018), since social bonds also help to desist from crime and violent extremism and decrease negative strains on individuals (Hirschi, 1969; Schils & Pauwels, 2016).

However, the variety of goals and methods applied in the projects suggests that there is little consensus on what works best. Since a variety of factors are related to the development of radicalization (e.g., Lösel et al., 2018; LaFree et al., 2018), broad approaches strengthening skills and promoting positive development in prevention programs are likely to have some kind of impact and counteract radicalization processes. Still, the mechanisms behind the programs are not yet clear. However, when identifying those strategies that are most successful, resource allocation could be guided more thoroughly and be invested into those projects that work best. Some insights about prevention programs against radicalization and extremism, for example, can be drawn from existing programs for the prevention of crime in general. They also offer opportunities for strengthening participants' social and cognitive skills, such as interpersonal problem-solving skills, self-control, or victim empathy. In contrast to many radicalization prevention programs, however, these approaches have already shown significant positive effects in systematic evaluations (e.g., Beelmann, 2008; Lösel & Beelmann, 2003; Vazsonyi et al., 2004). Applying tools and content from these preventive measures could open up resources to evaluate which specific factors are most relevant for preventing extremist action and radicalization. While some aspects have been proposed to be relevant for radicalization, such as the quest for significance (e.g., Kruglanski et al., 2009; Kruglanski et al., 2014), more systematic research is still needed to replicate these and other findings (Lösel et al., 2018). This would fit to the more general need of replication in criminological interventions (Farrington et al., 2019; Lösel, 2018). Combining program aspects shown to significantly improve personal development and prevent violent behavior in general with extremism-specific factors could lead to more tailored and successfully replicated approaches.

Furthermore, focus on specific outcomes and tools eases meta-analytic integration as outcomes are more homogeneous and enable clearer statements regarding their effectiveness on specific outcomes (Schmucker & Lösel, 2011). Therefore, in our analysis, we conducted a separate integration of those evaluations focusing on psychological outcomes as well as extremist attitudes and cognitive styles. We found that programs were successful in changing such beliefs, which are seen as a major influence in the process of radicalization (Maskaliūnaitė, 2015). Kruglanski et al. (2014) argue that ideology advocated by the in-group influences an individual's attitudes on the use of violence as a legitimate action and therefore fosters radicalization. Successful prevention programs might counteract such group effects that are for example facilitated by charismatic leaders (Kruglanski et al., 2009) and, in turn, also have positive impacts on attitudes in certain groups. Rejecting extremist attitudes is also an important step for an individual to de-radicalize (Mastroe & Szmania, 2016). Our analysis suggests that programs are indeed capable of positively influencing extremist attitudes and could reduce the impact of extremist narratives and strengthen critical thinking among individuals.

Among evaluations of attitudes and other radicalization related outcomes, we also detected certain moderators influencing the programs' success. Programs that used a mixed type of prevention and did not exclusively focus on primary, secondary, or tertiary approaches as well as programs with participants from different ethnic backgrounds showed positive effects on attitudes and psychological outcomes. In these mixed programs practitioners from the local communities, at-risk Muslims, and even members of terrorist organizations participated (Boyd-MacMillan, 2016; Liht & Savage, 2013; Savage, 2014). Already Allport (1954) emphasized that intergroup contact leads to a less negative view of the out-group by transforming cognitive representations from a perspective of 'us versus them' towards an understanding of 'we'. This is supported by findings on inter-group prejudice (Pettigrew & Tropp, 2008; Tajfel & Turner, 1979) that can be reduced in specific training programs (Beelmann & Heinemann, 2014). Programs offering interactions between different groups reduce anxiety towards the out-group and strengthen empathy and perspective taking (Pettigrew & Tropp, 2008). Interaction with others also offers social learning opportunities (Akers, 2009; Bandura, 1973; Hirschi, 1969; Veliz & Shakib, 2012) promoting non-violent behavior patterns as well as the transmission of positive norms and values such as democracy, pluralism, and individual freedom. These factors could explain the positive effect of mixed preventive programs in our meta-analysis as they address factors that strengthen extremist views, namely positive in-group perceptions while simultaneously degrading the out-group (Besta et al., 2015; Doosje et al., 2016; Tajfel & Turner, 1986). The creation of intergroup contact possibilities within prevention programs may not only reduce prejudice amongst participants, but also avoid the above-mentioned counter-productive influence of extremist leaders in homogeneous groups. However, the moderator effects found in our meta-analysis stem from the same set of studies, which might influence the explanatory power of our findings. Such confounded moderators are a common issue in meta-analysis (Lipsey, 2003), which in our case resulted presumably from the small number of studies we were able to retrieve.

Another finding of our study was that most programs applied evaluation designs of low quality. The majority did not use control groups and only conducted pre-post measurements, limiting the explanatory power of the results. Therefore, one cannot rule out alternative explanations as well as factors contributing to the effects outside the programs (Farrington et al., 2002; Lösel et al., 2013). Furthermore, the main outcomes in our review were psychological factors as well as extremist attitudes. This resembles the lack of clear consensus on what defines terrorism and its related concepts, which affects the assessment of preventive measures (Silke, 2018). Kober (2017), for example, criticizes that non-behavioral indicators fail to show whether extremist criminal activity was indeed prevented by program participation. In this review, we also noticed that behavioral outcomes were rare, mainly measured through self-report not objective data. While self-reported information on criminal activity is influenced by measurement bias, objective data are limited to official records, disregarding unreported criminal actions (Baier et al., 2016; Gomes et al., 2019). Coupled with the fact that only few people engage in violent extremism at all, assessing such behavior is a difficult task (Clubb & Tapely, 2018; Mastroe & Szmania, 2016).

Limitations

Although our review had the strengths of being systematic in a mostly narratively discussed field and provided quantitative data on effects, it had various limitations. For example, our review could only be based on a small number of studies. The small retrieval of systematically evaluated studies contrasts with the high number of prevention programs implemented in recent years (Nordbruch, 2017). However, the call for more sound evaluations had already been made more than ten years ago (Lum et al., 2006) and has since been

repeated by other researchers as well (e.g., Beelmann, 2017; Nasser-Edine et al., 2011). To cope with the problem of a potentially small retrieval, we chose broad and lenient eligibility criteria. This resulted in very heterogeneous programs with regard to goals, tools, and structure. While this reflects the embeddedness of radicalization in a complex social and cultural context (Cherney & Belton, 2019; Lösel et al., 2018), it is difficult to ascertain which programs or aspects of measures are most successful in preventing radicalization.

Lack of replicated evaluation is a problem that was also noted in other areas of crime prevention (Lösel, 2012, 2018). For example, in a recent meta-analysis assessing the effectiveness of widely used sports programs to prevent crime, the rates of relevant evaluations were similarly small as in this study (Jugl et al., 2018). This limits the conclusions that can be drawn from the available studies. The small number of eligible studies in our review did also not allow analyses and conclusions on the effects for different types of extremism.

Implications for Future Research and Policies

Methodologically sound evaluations are necessary to gather insights into which program components work in what way and in which specific context. Furthermore, it will help to determine problematic aspects of the programs that challenge their success, which will in turn give guidance on how to optimize the projects (Gansewig, 2018; Kober, 2017). This will be achieved through evaluation, since it enables to determine which factors contribute to a positive development that does not end in maladaptive behavior (Lösel, 2012), such as violent extremist attitudes and behavior. In his review of German measures to prevent Islamist extremism, Kober (2017) also points out that high quality measurements are very important to decrease safety concerns, especially when working with high-risk individuals. Despite the small number of studies we retrieved in our review, we found some promising results. Overall, prevention programs seem to be useful measures to counter extremism and radicalization. There are many relevant aspects targeted in programs that have been linked to a decrease of radicalization, such as, for example, basic attachment into society or good educational level (Lösel et al., 2018). However, programs will benefit from more stringent theoretical considerations. This can be achieved by an increase of primary research on protective factors preventing radicalization to integrate them into prevention programs. On top of that, program designs could profit from the knowledge that has already been gained from systematically evaluated prevention measures against crime and delinquency in general.

Conclusion

To our knowledge, this meta-analysis is the first that examined the effects of psychosocial prevention programs against radicalization and extremism. Our results showed positive effects of existing programs promoting prevention of and disengagement from violent extremism. However, the small number and rather low quality of controlled evaluations in this field limits the generalizability of our results. The presented findings are promising, but researchers should strengthen their efforts to provide more sound evidence that can guide practitioners and policy makers in allocating resources and implementing effective approaches in the future.

Conflict of Interest

The authors of this article declare no conflict of interest.

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*References marked with an asterisk indicate studies included in the meta-analysis.

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