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Transforming prevention systems in the United States and the Netherlands using Communities That Care Promising prevention in the eyes of Josine Junger-Tas

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Abstract

Josine Junger-Tas introduced the Communities That Care (CTC) prevention system to the Netherlands as a promising approach to address the growing youth violence and delinquency. Using data from a randomized trial of CTC in the United States and a quasi-experimental study of CTC in the Netherlands, this article describes the results of a comparison of the implementation of CTC in 12 U.S. communities and 5 Dutch neighborhoods. CTC communities in both countries achieved higher stages of a science-based approach to prevention than control communities, but full implementation of CTC in the Netherlands was hampered by the very small list of prevention programs tested and found effective in the Dutch context.

Keywords

Adolescent drug use; delinquency; risk and protective factors; cross-national comparison; prevention

Introduction

Josine Junger-Tas introduced the Communities That Care (CTC) prevention system in the Netherlands in the late 1990s. At that time, she worked as the director of the WODC, the research institute of the Dutch Ministry of Justice. She introduced the CTC prevention system as a promising approach to address the growing youth violence and delinquency observed in certain areas in the Netherlands during that time. Junger-Tas believed that it is very difficult to predict which youths and families will develop problems and to target appropriate individuals with interventions. Instead, she believed that prevention must be universal, applied in entire neighbourhoods and be available to all parents and adults in the community who are responsible for raising children and youngsters (Junger-Tas, 1997a, 1997b). CTC was a new prevention approach for the Dutch context, but one that fit very well with emerging efforts of Dutch local authorities to develop prevention strategies in closer collaboration with all local youth services, including youth welfare agencies, local schools, the youth protection service and the police (Jonkman, Junger-Tas, & van Dijk, 2005). The CTC prevention system, is a universal, community-oriented approach to prevention. It mobilizes, trains, and provides technical assistance to coalitions of diverse community stakeholders to collaborate in community assessment, planning, and action to implement and institutionalize science-based prevention services systems. The premise of CTC is that a reduction in the prevalence of adolescent problem behaviours in a community,

such as violence, delinquency and drug abuse, can be achieved by identifying elevated risk factors and depressed protective factors experienced by the community's youth population, and then selecting and implementing preventive interventions that have been shown in experimental or quasi-experimental studies to affect those specific risk and protective factors and, in turn, adolescent problem behaviours. CTC coalitions are trained to analyze risk and protective factors in their local community, assessed empirically with the use of survey data collected from the community's youth, and to prioritize which risk and protective factors to address through the implementation of tested and effective prevention programs.

CTC was developed in the 1980s in the United States by J. David Hawkins and Richard F. Catalano (Hawkins, Catalano, & Associates, 1992) to address a gap between advances in prevention science, which have produced a growing list of tested and effective programs and policies for preventing youth problem behaviours, and a lack of widespread dissemination and high-quality implementation of these effective programs and policies in communities. Methods for widespread dissemination of tested and effective prevention programs and ensuring high levels of implementation fidelity were needed (Farrington & Welsh, 2006; Spoth & Greenberg, 2005; Wandersman, 2003). Community coalitions have been advocated for mobilizing communities to engage in prevention and health promotion efforts because they can bring together diverse community stakeholders to achieve a shared goal (Butterfoss, Goodman, & Wandersman, 1993; Minkler, 1997)Wandersman, 2003 #4}. However, several studies have found that the funding and formation of community-based coalitions alone is not enough to improve health and behaviour outcomes of young people (Hallfors, Cho, Livert, & Kadushin, 2002; Kreuter, Lezin, & Young, 2000; Merzel & D'Afflitti, 2003; Roussos & Fawcett, 2000; Stevenson & Mitchell, 2003; Yin, Kaftarian, Yu, & Jansen, 1997). Coalitions also need to have clearly defined, focused, and manageable goals, with corresponding high-quality data sources to monitor progress; seek to use tested and effective programs, with careful attention to monitoring of implementation quality and fidelity; and evaluate program impacts on outcomes which are meaningful to the community (Hallfors et al., 2002). CTC is a coalition-based prevention system that responds to these needs.

The CTC approach is now being applied in communities across the United States. Results from a multi-site randomized trial of CTC in 7 U.S. states (Hawkins, Catalano et al., 2008; Hawkins et al., 2012), coupled with quasi-experimental results from CTC in the state of Pennsylvania (Mark E. Feinberg, Greenberg, Osgood, Sartorius, & Bontempo, 2007; M. E. Feinberg, Jones, Greenberg, Osgood, & Bontempo, 2010), suggest that CTC can contribute to long-term, community-wide improvements in public health. Positive effects of CTC on community prevention system characteristics have been found, including greater adoption of a science-based prevention approach, more support for prevention among community key leaders, and implementation of a greater number of tested and effective interventions and with greater fidelity compared to control communities (Arthur et al., 2010; Brown, Hawkins, Arthur, Abbott, & Van Horn, 2008; Brown, Hawkins, Arthur, Briney, & Abbott, 2007; Brown, Hawkins, Arthur, Briney, & Fagan, 2011; Fagan, Hanson, Hawkins, & Arthur, 2008a, 2008b, 2009; Quinby et al., 2008). CTC has also been shown to slow developmentally normative increases in targeted risk factors across adolescence and the initiation and prevalence of youth problem behaviours, including smoking, alcohol use, delinquency, and violence (Hawkins, Brown et al., 2008; Hawkins et al., 2009; Hawkins et al., 2012). Many of these changes have been sustained after support for the implementation of CTC in the 5-year randomized trial ended (Gloppen, Arthur, Hawkins, & Shapiro, in press; Hawkins et al., 2012; Rhew, Brown, Hawkins, & Briney, in press). Cost-benefit analyses have shown that CTC is a cost-beneficial system for preventing adolescent tobacco use and delinquency initiation (Kuklinski, Briney, Hawkins, & Catalano, 2012).

Fifteen years after Josine Junger-Tas first introduced CTC in the Netherlands, CTC has been implemented in more than 25 communities across the country. CTC has become an important management tool for local preventive youth policy by introducing a common language for prevention workers and community stakeholders and providing evidence for the importance of tested and effective preventive interventions. Scientists in the Netherlands and the United States are now studying the efficacy of CTC and engage in international research to compare the implementation, adaptation, and sustainability of CTC in different cultural and policy contexts, topics which interested Josine Junger-Tas.

Because local and cultural conditions may require adaptations, it is important to identify core elements of CTC that are necessary to achieve results. For instance in the Netherlands, people involved in CTC are more likely to be human service professionals who participate in the CTC coalition as part of their job. While in the US the coalition board members are typically community volunteers. We expected that several of these contextual factors would impact the delivery of CTC in the US and the Netherlands. A previous comparison of the implementation of CTC in the Netherlands and the United States suggested that four core elements are essential for successful implementation of CTC (Jonkman et al., 2008): (1) mobilization of stakeholders, (2) use of epidemiological data, (3) use of tested and effective programs, and (4) ongoing evaluation of results and revision of community action plans. This comparison of communities participating in the randomized trial of CTC in the United States and communities participating in an earlier pilot study of CTC in the Netherlands found that communities in both countries achieved the first two core elements of CTC implementation, but Dutch communities were less likely than U.S. communities to implement evidence based programs and complete ongoing evaluations and revise their prevention plans (Jonkman et al., 2008; Steketee & Huygen, 2006). The prior comparison also showed that Dutch coalitions were more challenged in implementing CTC than U.S. coalitions, but many of the same implementation barriers were identified in both countries, including recruitment, retention, and activation of key leaders and the adoption and implementation of tested, effective programs (Jonkman et al., 2008). Dutch coalitions found it particularly challenging to select and implement a comprehensive set of programs to target prioritized risk factors, in part, due to the paucity of tested, effective programs in the Netherlands at that time.

CTC Theory

The theory of the CTC prevention system is that by providing training, tools, and technical assistance for the implementation of CTC, the CTC system is expected to lead to the creation of a well functioning local board or coalition with capacity to influence the larger community. By moving through the five phases of CTC (described below), the coalition is expected to produce community-level changes in the prevention service delivery system, including greater adoption of science-based prevention, increased collaboration among community stakeholders, greater support for prevention in the community, greater community norms against adolescent drug use and other behaviour problems, and the adoption of the social development strategy (see Figure 1).

These changes in the prevention system are expected to increase the use and quality of implementation of tested and effective prevention programs that address risk and protective factors prioritized by the community and to produce reductions in the risk factors and increases in protective factors targeted by the prevention programs chosen by the community. These reductions in risk factors and increases in protective factors are expected, in turn, to reduce delinquent and other problem behaviours among young people in the community. The CTC theory suggests that it takes 2 to 5 years of implementing tested, effective programs to achieve community-level impact on risk and protective factors and 4 to 10 years to achieve community-level impact on adolescent problem behaviors.

One of the key mechanisms in CTC's theory is the adoption of a science-based approach to prevention, characterized by awareness and use of prevention science concepts (e.g., risk and protective factors), use of epidemiologic data to measure levels of risk and protection in communities, use of tested and effective preventive interventions to address elevated risks and depressed protective factors in communities, and ongoing monitoring of intervention implementation and outcomes (Arthur, Glaser, & Hawkins, 2005). Using a series of six trainings, the CTC system guides community coalitions through five phases to adopt a science-based prevention approach. The logic of this progression is based on Roger's (1995) stages of innovation diffusion. The five phases of the CTC system are: (1) assessing community readiness to undertake collaborative prevention efforts; (2) forming a diverse and representative prevention coalition; (3) using community-level epidemiologic data to assess prevention needs; (4) choosing evidence-based prevention policies, practices, and programs to implement, based on the epidemiologic data; and (5) implementing the new interventions with fidelity, in a manner congruent with the programs' theory, content, and methods of delivery. Following the steps of CTC is assumed to lead to the adoption of progressively higher stages of a science-based prevention approach, summarized in Table 1.

Results from the randomized trial of CTC in the United States have shown support for CTC's theory. Analyses have shown that CTC communities compared to control communities were progressing significantly faster along the stages of adoption of a science-based prevention approach and were at higher stages of adoption and higher levels of community collaboration 1.5 years after introducing CTC in intervention communities (Brown et al., 2007). Four and a half years after initial implementation of CTC, community leaders in CTC communities still reported higher levels of adoption of a science-based approach to prevention and greater willingness to contribute funds to prevention than leaders in control communities (Brown et al., 2011). These differences were maintained six and half years after initial implementation of CTC, which was one and a half years after study support for the implementation of CTC in the 5-year randomized trial ended (Rhew et al., in press).

Tested and effective programs

One of the core elements of the CTC prevention system is the selection and use of tested and effective programs to target risk and protective factors prioritized by the community. To facilitate this step, CTC in the United States provides a menu of 56 tested and effected programs, policies, and practices (the "CTC Prevention Strategies Guide" available at: www.communitiesthatcare.net) that met the following criteria: (a) each has shown positive effects in reducing risk factors and substance use and/or antisocial behaviour in an adequately controlled experimental or quasi-experimental study and (b) training, technical assistance, and manuals are available to guide the implementation of the policy or program (Hawkins & Catalano, 2004). To identify prevention programs that have been found to be effective since the CTC Prevention Strategies Guide was published in 2005, CTC communities are also referred to the list of model and promising programs maintained by the "Blueprints for Healthy Youth Development" at the Center for the Study and Prevention of Violence at the University of Colorado (www.colorado.edu/cspv/blueprints/). Blueprints model programs must meet three criteria: evidence of effect with a strong research design (e.g., experimental designs with random assignment or quasi-experimental designs with matched control groups in which plausible threats to internal validity are ruled out), sustained effect at least one year beyond treatment, and at least one high-quality replication. Promising programs must meet at least the first criterion. Decisions about program effectiveness are based upon an initial review by Blueprints staff and a final review and decision by a distinguished Advisory Board, comprised of experts in the field.

When Josine Junger-Tas first brought CTC to the Netherlands, evaluation research of preventive interventions and treatment programs was still in its infancy in the Netherlands, as in the rest of Europe. Consequently, a menu of programs tested and effective in the Dutch context did not exist from which Dutch communities using CTC could choose. Junger-Tas was instrumental in the initial development of a guide of promising and effective programs in the Netherlands (Ince, Beumer, Jonkman, & Vergeer, 2005). The Dutch Youth Institute (NJI) subsequently expanded and formalized this menu in a database of promising and effective programs (<http://www.youthpolicy.nl/yp/Youth-Policy/Youth-Policy-subjects/Netherlands-Youth-Institute-Effective-youth-interventions/Database-of-Effective-Youth-Interventions>). Josine Junger-Tas played a crucial role in this process as she was the long-time chair of the commission that assessed and accredited the programs to be included in the database. Unfortunately, the database still only contains a few prevention programs that have been tested in controlled studies and proven to be effective.

Programs are evaluated based on their theoretical foundation, soundness of methodology, practical implementations, and the availability of empirical research supporting their effectiveness. The Dutch accreditation system uses a three-tiered system of effectiveness (<http://www.youthpolicy.nl/yp/Youth-Policy/Youth-Policy-subjects/Netherlands-Youth-Institute-Effective-youth-interventions/Database-of-Effective-Youth-Interventions/Assessment-and-accreditation/Accreditation-criteria>): (1) *effective programs* have been shown to be effective in at least two Dutch studies, or one Dutch and several foreign studies, with strong or very strong experimental or quasi-experimental evidence and at least a 6-month follow-up; (2) *promising programs* have moderate to strong evidence for effectiveness from several (Dutch or otherwise) high quality studies, and (3) *theoretically sound programs* have little or no empirical evidence for effectiveness but clearly specify the hypothesized mechanisms (e.g., risk and protective factors) and link them to the target populations, target outcomes, delivery and implementation methods, and make available tools for implementation and monitoring (e.g., manuals). This accreditation system is based on a developmental model of effectiveness, which assumes that the development of an intervention takes place in phases and needs time to achieve the highest level of effectiveness (Veerman & van Yperen, 2007). For this reason, initial accreditation is granted for up to 5 years with a standard re-assessment after 5 years. Programs that did not meet the criteria for effectiveness before can be re-submitted by the developers to the accreditation commission and be re-classified at a higher level of effectiveness if new evidence warrants this.

Although an increasing amount of research has been devoted to testing the effectiveness of programs in the Netherlands since the introduction of the database about ten years ago, there are currently only five programs that meet the standards of an effective program (Incredible Years, Good Behavior Game, De Dappere Kat [The Brave Cat], Pelsser Nutrition and Behavior [PVG] diet, and Video-feedback Intervention to Promote Positive Parenting and Sensitive Discipline [VIPP-SD]). Most of these programs are treatment rather than prevention programs (e.g., De Dappere Kat uses individual cognitive behavioural therapy for children with an anxiety disorder; the PVG diet aims to reduce symptoms of ADHD). Currently, eight programs are designated as promising programs (three are preventive programs, the rest are treatment-focused) and 158 programs in the databank are deemed to be theoretically sound.

Dutch coalitions using CTC during the early pilot study of CTC implementation found it particularly challenging to develop a comprehensive plan of programs to target prioritized risk factors, in part, due to the paucity of tested, effective programs in the Netherlands at that time. Given that a database of promising and effective programs is now available in the Netherlands, the present paper examined to what extent CTC communities in the current

Dutch quasi-experimental study were more likely than control communities to implement programs from the NJI database of promising and effective programs. This paper also compared the extent to which coalitions in the Netherlands and in the United States selected and implemented promising and effective programs.

The present paper builds on a comparative study utilizing data from a quasi-experimental study of CTC in the Netherlands. Because of the earlier U.S.-Dutch research collaboration, the quasi-experimental study of CTC in the Netherlands has been closely modeled after the U.S. study, using the same instruments and collecting many of the same measures. The parallel design of the two studies presents an opportunity to study how an intervention developed in the United States was implemented, adapted, and sustained in a different cultural and policy context. The aim of this article is to describe the results of this bi-national comparative work to understand similarities and differences in the implementation of CTC in two experimental studies of CTC in the Netherlands and the United States. The paper examined to what extent communities in the current Dutch quasi-experimental study had experiences with the implementation of CTC that are similar to those in the U.S. This comparative analysis of implementation of CTC in the Netherlands and the United States will help identify the degree to which implementation of the hypothesized core elements of CTC were achieved in the Netherlands.

Methods

Data for this comparative study come from an experimental study of CTC in the United States and a quasi-experimental study of CTC in the Netherlands. The U.S. randomized trial tests CTC in 24 communities (12 intervention and 12 control communities) in 7 U.S. states (Colorado, Illinois, Kansas, Maine, Oregon, Utah, and Washington). The U.S. study communities are incorporated towns with an average population of 14,646 (range = 1,578 to 40,787) according to the 2000 census, and clear community names and boundaries. They are not suburbs of larger cities. The Dutch quasi-experimental study tests the effectiveness of CTC in 10 neighborhoods (5 intervention and 5 control neighborhoods) located in 5 cities in the provinces of Zuid-Holland and Zeeland. These cities have an average population of about 65,500 (ranging between 45,000 and 75,000). Study sites in both countries were matched in pairs (in the United States within state; in the Netherlands within city) on population size, racial and ethnic diversity, economic indicators, and rates of crime and other problem behaviour.

One community in each of the 12 pairs in the United States was randomized to either the CTC intervention or the control condition in 2003. The quasi-experimental study of CTC in the Netherlands was originally modeled after the randomized trial in the United States. However, only three of the five selected cities agreed to random assignment of neighborhoods to either the CTC or control condition at the beginning of the study in 2008 despite their original agreement during the recruitment phase of the study.

Study Participants

Coalition Members

A structured phone interview was used to collect information from CTC coalition members about their role in CTC and characteristics of the coalition (Shapiro, Oesterle, Abbott, Arthur, & Hawkins, in press). The Dutch study used the same survey instrument as the U.S. study, translated into Dutch. Interviews took, on average, 40–45 minutes to complete in both countries. The survey was conducted in 2007 in the United States and in 2011 in the Netherlands. In the United States, 10 survey participants per community were randomly selected from active coalition member rosters provided by community coordinators in CTC communities. In the Netherlands, all coalition members were eligible to participate in the

coalition survey. The samples consist of a total of 111 coalition members across the 12 CTC coalitions in the United States (93% response rate) and 47 coalition members across the 5 CTC coalitions in the Netherlands (87% response rate). In both countries, 10 coalition members per coalition, on average, completed the survey.

Community Key Informants

Data on the adoption of a science-based approach to prevention were collected from community key informants using the same survey instrument in both countries (translated from English into Dutch in the Netherlands). In the U.S. study, community key informants are community leaders who control resources and influence public opinion (e.g., mayors, police chiefs, school superintendents, business leaders, heads of social service agencies, religious leaders, leaders of civic organizations, youth recreation, or the media) and other persons identified by these leaders as knowledgeable about prevention efforts in the community. Ten positional leaders were selected from multiple sectors of the community, including community coalitions, human service agencies, schools, health agencies, businesses, civic, youth recreation, law enforcement, juvenile justice, media, and religious organizations. This sample was augmented by the five people most frequently nominated by these positional leaders as knowledgeable about prevention services in the community.

A snowball procedure was used in the Netherlands. Five key leaders working in the field of prevention in the study neighborhoods (and who were not members of the CTC coalition in experimental sites) were approached and asked if they knew two or three other key leaders in the neighborhood. Because the study was conducted in neighborhoods within the same city, only key leaders who worked at the neighborhood level were selected, such as school principals, police officers, or health care workers. In contrast to the U.S. study, key leaders in the Netherlands did not include city-level key leaders such as the mayor, chief of police, or other authorities. Another difference is that a neighborhood in the Netherlands is much smaller than the community in the US, so the number of key leaders working within one community is also much smaller. Therefore the number of key leaders that were interviewed per sample is lower than in the US.

In both countries, interviews were conducted by telephone with key community leaders in both the intervention and control communities. Trained interviewers administered the survey using a computer-assisted interview lasting, on average, about one hour.

Across the 24 communities in the U.S. study, a total of 336 community leaders were interviewed in 2007 (4.5 years after initiation of CTC), with similar response rates in CTC (96%) and control communities (91%). In the Netherlands, a total of 79 key leaders were interviewed across the 10 study neighborhoods in 2011 (3 years after initiation of CTC). On average, the samples consist of 14 key leaders per community in the United States and 7 to 8 key leaders per community in the Netherlands.

Measures

Involvement of Community Sectors in CTC

Data on the extent to which different sectors of the community are involved in the CTC process come from the CTC coalition survey. Coalition members were asked to rate how involved 12 different sectors in the community are in the CTC process (1 = “not at all involved” to 4 = “very involved”). For each of 12 sectors, we compared the percentage of coalition members in both countries who reported that the sector was “somewhat involved” or “very involved” in CTC. The coalition survey in the Netherlands included additional sectors relevant in the Dutch context that were not included in the U.S. survey (see results section).

Adoption of a science-based approach to prevention

Community key informants' perceptions of the degree to which the community had adopted a science-based approach to prevention were measured by responses to 19 questions. Questions did not refer to CTC directly and were generic in their wording in order to be applicable to both CTC and control communities. Sample questions used in the adoption measure include: "Which factor would you say is more important for preventing adolescent problem behaviors? Opportunities for active involvement in the classroom or information on the effects of drugs" [Stage 1]; "Does your community use a risk and protective focused framework to prevent adolescent problem behaviors?" [Stage 2]; "Has your community conducted youth or student surveys to assess prevention needs?" [Stage 3]; "Did your community prioritize risk and protective factors that you wanted to address with prevention activities?" [Stage 4]; and "Has your community made funding decisions based on program evaluations?" [Stage 5]. Stage of adoption was coded into 1 of 6 discrete levels from 0 to 5 (see Table 1), with 0 indicating little or no awareness of prevention science concepts. Each higher stage incorporated the elements of the lower stages (e.g., a respondent coded as Stage 5 also met the criteria for Stages 1 to 4).

Tested and effective programs

Data on the numbers and types of tested, effective prevention programs, including school and community policies, school-wide prevention initiatives, classroom curricula, tutoring and mentoring programs, and family interventions, implemented in all communities were collected in both countries. In the United States, these data were collected using telephone interviews with coalition leaders and directors of agencies providing prevention services; mail surveys of school principals and local policy leaders; and a web survey of teachers in both control and CTC communities. Respondents were asked to nominate only programs that focused on the prevention of problem behaviours, rather than treatment of those with pre-existing problems. Respondents were presented with a list of tested and effective programs that were included in the CTC Prevention Strategies Guide (Hawkins & Catalano, 2004) to verify which tested and effective programs were implemented in the community.

In the Netherlands, this information was solicited from project coordinators in CTC neighbourhoods in 2009 and 2011. Coordinators were asked to indicate which programs were already present before the start of CTC implementation and which programs had been implemented since or were planned to be implemented according to the coalition's prevention plan. In control neighborhoods, key leaders were asked to indicate which programs were used in their neighborhood. Based on this information, the research team compiled a list with the reported programs and intended target groups, which was then reviewed for accuracy by the project coordinator in CTC neighborhoods and by key leaders in the control neighborhoods.

Results

Involvement of Community Sectors in CTC

Figure 2 shows that the extent to which school teachers and staff, school district administrators, law enforcement, and elected officials were involved in the CTC process (as reported by CTC coalition members) did not differ greatly in the Netherlands and the United States. More than 70% of coalition members reported that these sectors were somewhat or very involved in CTC. However, there were substantial between-country differences in the involvement of 8 of the 12 community sectors. Lower percentages of Dutch than U.S. coalition members reported that business leaders (51% fewer), community volunteers (44% fewer), religious leaders (43% fewer), parents (36% fewer), youth (36% fewer), and media representatives (21% fewer) were somewhat or very involved in the CTC process. On the

other hand, a greater percentage of coalition members in the Netherlands than the United States reported involvement in CTC by social service providers (16% more) and youth recreation organizations (31% more). In fact, 98% of Dutch coalition members reported that social service providers were involved in CTC compared to 82% of coalition members in the United States. Several additional community sectors were important participants in the CTC process in the Netherlands: public health officials, municipal officials, public housing authorities, and neighborhood associations (see Figure 2). These sectors were not included in the U.S. coalition member survey.

This comparison reveals that in both countries, social service providers and schools were among the sectors most involved in the CTC process, but there were important differences. In the United States, individual citizens, such as business leaders, community volunteers, parents, and youth, were more involved in the CTC process than in the Netherlands, reflecting a history of community mobilization and activation and individual responsibility in addressing social problems. The Netherlands, on the other hand, is a context where citizens rely on the state to intervene and address social problems and, consequently, professional service delivery is more common, as reflected in the high rate of participation in CTC of officials from public health, municipal offices, and public housing.

Adoption of a science-based approach to prevention

In both countries, key leaders in CTC communities reported the level of a science-based approach to prevention, on average, at a higher stage than key leaders in control communities; however, this difference was only statistically significant in the United States when tested in a multi-level model that takes the nesting of key leaders in communities into account; it was marginally significant in the Netherlands (see Table 2).

Figure 3 shows the percentage of key leaders in each country reporting the highest stage of science-based prevention reached in their community or neighborhood. The majority of key leaders in control communities saw their communities at stages 0 or 1 (75% in the US and 63% in the Netherlands compared to 44% and 38% of key leaders in CTC communities, respectively). Results from multi-level models show that this difference in the proportion of key leaders in control compared to CTC communities reporting the highest stage of a science-based approach to prevention to be 0 or 1 was statistically significant in the United States ($t[22df] = -5.34, p = .000$) and marginally significant in the Netherlands ($t[8df] = -2.24, p = .055$). However, it is notable that more U.S. than Dutch key leaders in control communities indicated that their communities were at stage 0 (51% compared to 19%, respectively), while more Dutch (44%) than U.S. (24%) key leaders in control communities indicated that their community had reached stage 1 of adoption of a science-based approach to prevention. This finding suggests that more control communities in the Netherlands than the United States were at least seeking to address risk and protective factors in their prevention work, though without collecting epidemiologic data to guide the selection of prevention activities in the community or the use of tested and effective preventive interventions. In the United States, many key leaders in control communities reported little awareness of prevention science concepts.

In both countries, key leaders in CTC communities were more likely than key leaders in control communities to report their communities had reached stages 4 or 5 of adopting a science-based approach to prevention. However, this difference was more pronounced in the United States than in the Netherlands. In the United States, 42% of key leaders in CTC communities saw their community at stages 4 or 5 compared to 20% of key leaders in control communities (a difference of 22 percentage points). In the Netherlands, 28% of key leaders in CTC communities reported the community to be at stage 4 or 5 compared to 11% of key leaders in control communities (a difference of 17 percentage points). Using multi-

level regression analysis, this difference in the percent of key leaders in CTC and control communities reporting that their community had reached stages 4 or 5 was statistically significant in the United States ($t[22df] = 3.82, p = .001$), but not statistically significant in the Netherlands ($t[8df] = 1.22, p = .258$). Although, overall, the three-year implementation of CTC in the Dutch study appears to have moved CTC neighborhoods toward higher levels of a science-based approach to prevention, this shift was not significantly greater than in control neighborhoods, especially at the highest stages that involve the selection and use of tested and effective interventions to address prioritized risk and protective factors and the collection of process and outcome data to adjust programs if necessary.

Tested and effective programs

Analyses of data collected in the U.S. study have shown that four years after initiation the CTC process in 2007, CTC communities were implementing significantly more tested and effective preventive programs than control communities and with greater fidelity (Arthur et al., 2010; Fagan, Arthur, Hanson, Briney, & Hawkins, 2011). As reported in Fagan et al. (2011), CTC communities reported the adoption of 44 tested and effective programs compared to 19 reported in control communities (see Table 3 below). All these programs met the CTC criteria for tested and effective preventive interventions. The programs can be categorized into four types: (a) Parent training uses curricula to teach parents skills for effective parenting; (b) School programs use curricula to teach emotional, social and behavioural skills; (c) Tutoring programs link children with trained tutors (older children or adults) to improve academic skills or performance; and (d) Mentoring programs match adults or older teens with children in a supervised one-on-one relationship for at least one school year. As shown in Table 3, parent training programs had the highest rates of adoption of the four types in intervention communities, while school programs were the most frequently adopted in control communities. Mentoring programs were adopted less often than other types.

Table 4 shows that, three years after initiation of CTC in the Netherlands, CTC neighborhoods were implementing a total of 54 programs included in the NJI databank compared to 43 programs in control neighborhoods; however none of them were effective programs and only one was a promising program as rated in the NJI system. In the Dutch study, CTC neighborhoods were not instructed to limit their programming to interventions for youth aged 10 to 14 and their families, as CTC communities were in the U.S. study. Both school and parenting programs implemented in the Netherlands included programs focused on preschool and primary school children and their families. In both CTC and control neighborhoods in the Netherlands, the majority of implemented programs were parent training. Neighborhoods in both conditions also implemented similar numbers of school and individual-focused programs. Individually-oriented programs included programs aimed at supporting children of divorced parents or of parents with a psychiatric problem. Consistent with the earlier reported finding of no significant difference by condition in key leader reports of having reached stages 4 or 5 of a science-based approach to prevention in the Netherlands, the comparison of the number and types of effective and promising programs implemented in Dutch CTC and control neighborhoods also showed little difference by condition.

Discussion

Josine Junger-Tas introduced the CTC prevention system in the Netherlands as a promising approach to address the growing youth violence and delinquency observed in certain areas in the Netherlands at the time. CTC now has been implemented in more than 25 communities across the country and has become an important management tool for local preventive youth policy. However, despite this progress, it is still unclear to what extent CTC, a prevention

system developed in the United States, can be installed in the Netherlands and achieve desired results. This article describes the results of a bi-national comparative study to understand similarities and differences in the implementation of CTC in the Netherlands and the United States and discuss the possible implications for achieving results as demonstrated in the efficacy trial of CTC in the United States.

Comparison of coalition members' reports on what community sectors are the most involved in the CTC process found that in both countries social service providers and schools are among the sectors most involved in the CTC process. However, an important difference between the two countries is that community volunteers are involved to a greater degree in CTC in the United States than in the Netherlands. In the Netherlands, community or neighborhood residents appear much less involved. This may decrease the voice of potential recipients or consumers of prevention services in the CTC process of selecting, planning and implementing preventive interventions in Netherlands neighborhoods.

An encouraging result of the bi-national comparison is that it found that in both countries, key leaders in CTC communities perceived their communities to have achieved higher stages of a science-based approach to prevention than key leaders in control communities. Overall, the three-year implementation of CTC in the Dutch study moved CTC neighborhoods toward higher levels of a science-based approach to prevention; however, this shift was not significantly greater than in control neighborhoods, especially at the highest stages that involve the selection and use of tested and effective interventions to address prioritized risk and protective factors and the collection of process and outcome data to adjust programs if necessary. This is in contrast to the findings from the United States where CTC communities were significantly more likely to be at these high stages of implementation of a science based approach to prevention than were controls. Interestingly, more key leaders in Dutch than U.S. control communities were at least aware of the concepts of risk and protective factors (stage 1), while more U.S. key leaders in control communities indicated little awareness of these prevention concepts (stage 0). Although men can argue that this awareness within the control group is due to the contamination between the two neighborhoods we think it may be a testament to Josine Junger-Tas's success in spreading and creating acceptance of the risk and protective factor framework generally in the Netherlands. The same broad spread of this framework does not seem to have occurred in the United States. However, despite Junger-Tas's important contribution to developing a database of tested and effective programs applicable to the Dutch context, the lack of a broad menu of prevention programs tested and found effective in the Dutch context still remains one of the major challenges to successful implementation of CTC in the Netherlands. The comparison of adoption scores and the number of tested and effective preventive interventions implemented in the Netherlands revealed no significant difference between control and CTC neighborhoods as there was in the United States. Without a menu of tested and effective interventions available for implementation in communities, the remainder of the CTC system is not likely to produce effects on youth outcomes.

Data not presented here, suggest that the CTC system was implemented with high fidelity in both countries (Quinby et al., 2008; Steketee et al., 2012). In the United States, all phases were realized with high fidelity. In the Netherlands, CTC was successfully implemented through the first four phases and all five CTC neighborhoods had started Phase 5 implementation of the community action plan. However, full implementation of CTC in the Netherlands was hampered by the very small list of tested and effective preventive interventions available in the Netherlands from which CTC communities could choose prevention programs to fill gaps identified through their risk and resource assessments.

Because control and CTC neighbourhoods were situated in the same city in the Netherlands, a number of human service and youth workers who participated in CTC coalitions also worked in the control neighborhood. Realizing that the same problems and risk factors were present in the control area, some coalition members working in both neighborhoods implemented the programs also in this control area. In 3 of the 5 experimental cities, there is evidence that both experimental and control neighborhoods were provided the same or nearly the same preventive interventions. This overlap creates the possibility of “contamination” of the control neighborhoods and may contribute to the small differences observed in programs between control and experimental neighborhoods in the Dutch study. The possibility of contamination is an important limitation of this bi-national comparison because it is a threat to the validity of the comparison of CTC and control neighborhoods in the Netherlands data. Contamination concerns in the United States led to the choice of using independent free standing towns in the randomized trial. A disadvantage of this choice is that they were small cities of less than 50,000 residents. An advantage was that these towns were far enough from each other geographically and administratively that there was little danger of contamination of control communities.

Another limitation of the present comparison is that, despite original intentions by the researchers and due to unexpected circumstances in some Dutch cities, the study design in the Netherlands ended up as a quasi-experimental effectiveness trial of CTC, which is being compared to data from an efficacy trial of CTC in the United States using a randomized design. Further, in the U.S. efficacy trial, the researchers retained ultimate financial control of resources allocated to CTC communities for implementing new programs. There was, therefore, a strong incentive for program implementers to implement new programs with fidelity and to document their degree of implementation through program checklists that were turned in to the local community CTC board but analyzed by the research team. In contrast, in the Netherlands effectiveness trial, the research team and the CTC training team were in separate organizations. The research team had little leverage to ensure the adoption of evidence based programs by CTC neighborhoods, to monitor the degree of implementation of new programs, and to control additional financial resources for effective programs.

One of the main lessons of this bi-national comparison of the implementation of CTC in the Netherlands and the United States is that CTC appears to encourage the adoption of a science-based approach to prevention in non-U.S. contexts when core elements of the system are adhered to. However, the challenge for the prevention field is to continue developing and testing preventive interventions in the Dutch context. The creation of a broader menu of tested and effective prevention programs in the Netherlands likely requires cooperation with other European countries. For example, Germany, Croatia, and Sweden also have started to implement CTC and are confronted with the same problem of a limited menu of tested and effective programs. Cooperation on a European level to create a databank of tested and effective programs, which has shown to be sustainable and transferable to other countries, could be a viable solution. Without a menu of tested and effective interventions available for implementation in Dutch and other European communities, the remainder of the CTC system is not likely to produce effects on youth outcomes, and the promise of CTC to prevent youth problem behaviors community-wide will not be realized. Working on that is a good way of remembering the legacy of Josine Junger-Tas.

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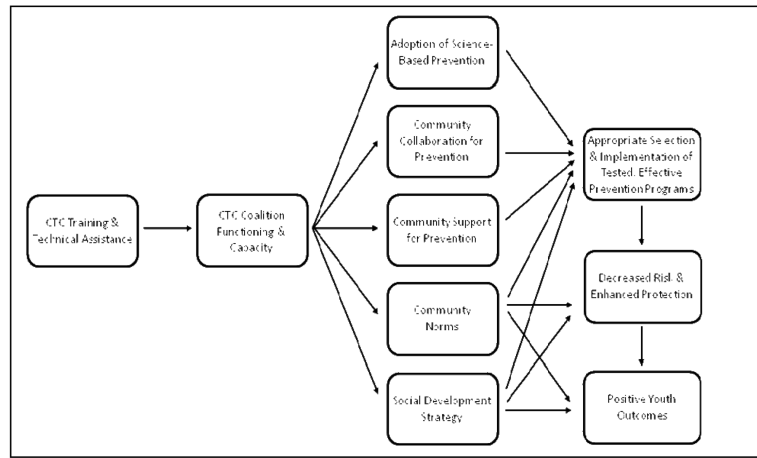


Figure 1.
CTC Theory

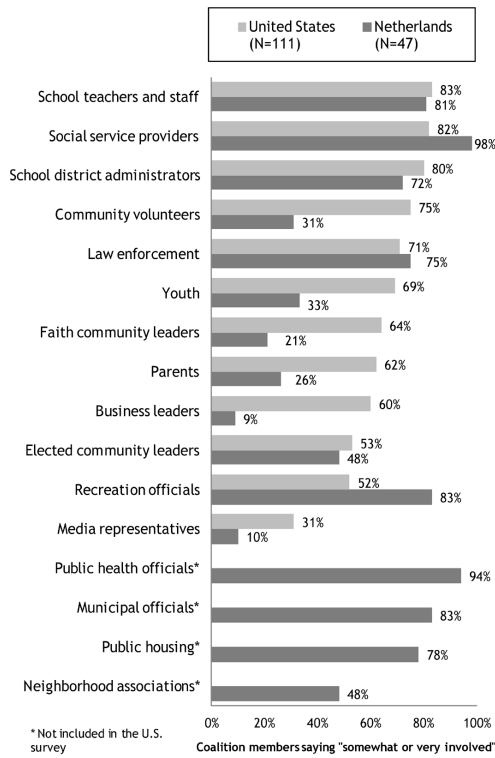


Figure 2. Coalition members reporting involvement of different community sectors in CTC (sorted from highest to lowest prevalence in the United States)

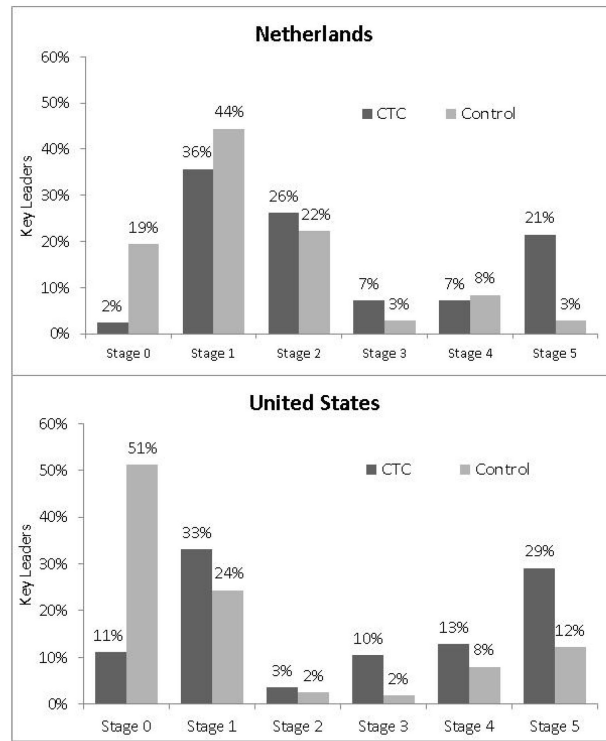


Figure 3. Highest stage of a science-based approach to prevention reached in the Netherlands and the United States as reported by key leaders in communities

Table 1

Stages of adoption of a science-based approach to prevention

| Stage | Description |
|-------|--|
| 1 | Awareness of prevention science terminology and concepts, including risk and protective factors, but no use of these concepts to guide prevention programming. |
| 2 | Use of a risk and protection-focused prevention approach as a planning strategy, but no collection of epidemiologic data to guide the selection of prevention activities in the community or the use of tested and effective preventive interventions. |
| 3 | Collection of epidemiologic risk and protective factor data but no use of tested and effective preventive interventions. |
| 4 | Development of an action plan using tested and effective interventions to address prioritized risk and protective factors based on epidemiologic data collected in the community. |
| 5 | Implementation of the action plan and collection and feedback of program process and outcome data and adjustment of interventions based on data. |

Table 2

Mean stage of adoption of a science-based approach to prevention

| Key leaders in... | CTC | | | Control | | | Test of mean difference* | |
|---------------------------------------|-----|------|------|---------|------|------|--------------------------|---------|
| | N | Mean | SD | N | Mean | SD | T-ratio | p-value |
| Netherlands (10 neighborhoods) | 42 | 2.45 | 1.61 | 36 | 1.44 | 1.25 | 2.10 (8 df) | .068 |
| United States (24 communities) | 172 | 2.68 | 1.89 | 164 | 1.27 | 1.79 | 6.41 (22 df) | .000 |

Note:

* Estimated using a 2-level hierarchical linear model.

Table 3

Number of Tested and Effective Programs Implemented in the U.S. Study

| | CTC Communities (N=12) | | Control Communities (n=12) | |
|--------------------------|------------------------|------|----------------------------|------|
| | N | % | N | % |
| Total number of programs | 44* | 100% | 19 | 100% |
| Parent training | 15 | 34% | 4 | 21% |
| School programs | 13 | 30% | 6 | 32% |
| Tutoring | 10 | 23% | 5 | 26% |
| Mentoring | 6 | 14% | 4 | 21% |

Note:

* Difference between CTC and control communities in total number of programs is statistically significant ($p < .05$) based on two-tailed Wilcoxon Signed Ranks Test. Differences in the number programs of each subtype were not tested due to small numbers.

Table 4

Number of Programs Implemented in the Dutch Study

| | CTC Neighborhoods (n=5) | | Control Neighborhoods (n=5) | |
|--------------------------|-------------------------|------|-----------------------------|------|
| | N | % | N | % |
| Effective | 0 | 0% | 0 | 0% |
| Promising | 1 | 2% | 1 | 2% |
| Theoretically sound | 53 | 98% | 42 | 98% |
| Total number of programs | 54 | 100% | 43 | 100% |
| Parent training | 28 | 52% | 17 | 40% |
| School programs | 14 | 26% | 13 | 30% |
| Individually-focused* | 12 | 22% | 13 | 30% |

Note:

* includes mentoring and tutoring programs, but also other individually-targeted programs