

The correspondence between evidence and statements regarding the effectiveness of multi-component community-based prevention initiatives in ISDUP and EUPC

A foundation document

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The United Nations Office on Drugs and Crime (UNODC) published the International Standards of Drug Use Prevention (ISDUP) in 2013 and an updated version in collaboration with WHO in 2018. We refer to the first edition as ISDUP1, the second as ISDUP2, and both collectively as ISDUP. In 2019, The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA; now the European Union Drugs Agency, EUDA) published “European Prevention Curriculum: a handbook for decision-makers, opinion-makers and policymakers in science-based prevention of substance use” (EUPC). These documents (ISDUP1, ISDUP2, EUPC) are considered important guidelines for the prevention of substance use in government and non-government initiatives to reduce and prevent substance use.

The present document is a critical assessment of the correspondence between statements regarding the efficacy and effectiveness of multi-component community-based prevention initiatives in these documents and the evidence cited to support these statements. The present assessment concerns the category “community-based multi-component initiatives” in ISDUP1 and ISDUP2, and the category “community-based prevention” in EUPC, which both concern community interventions with multiple components. Consistent with the terminology in ISDUP, we refer to these types of interventions as community-based multi-component initiatives (CMCI).

ISDUP describes CMCI as follows:

“At the community level, mobilization efforts to create partnerships, task forces, coalitions, action groups, etc. bring together different actors in a community to address substance abuse. Some community partnerships are spontaneous. However, the existence of community partnerships on a large scale is normally the product of a special programme providing financial and technical support to communities to deliver and sustain evidence-based prevention interventions and policies over time. Community-based initiatives are normally multi-component, taking place in different settings (e.g. schools, families, media, enforcement).”

The programmes typically include components implemented in different settings such as school, family, media, nightlife, and may therefore overlap with other categories of interventions. They are delivered in communities (which could be units such as schools and organizations) or smaller geographical areas—in contrast to national programmes and individually tailored prevention measures. Note that according to the description of CMCI above, also community mobilization efforts are covered, which typically—but not by definition—will include components across levels or settings.

Efficacy and effectiveness

In prevention science, there is often a distinction made between efficacy and effectiveness. The former concerns whether a prevention measure works under controlled research conditions, and the latter concerns the impact in real world settings, that is, in the context of structures and systems in the society. This difference is explicitly acknowledged in EUPC (see p.73) and is stated as follows in ISDUP (ISDUP1, p. 3; ISDUP2, p.4):

“[...] most studies are ‘efficacy’ studies that examine the impact of interventions in well-resourced, small, controlled settings. There are very few studies that have investigated the effectiveness of interventions in a ‘real life’ setting.”

Nevertheless, the terms are used inconsistently in both ISDUP and EUCP. In the source publications used as evidence for ISDUP, as well as in the extracted evidence, the term effective is typically used in its colloquial meaning of whether an intervention has an effect or not, regardless of how controlled the setting is.

Community-based interventions typically rely on real life structures. Thus, it is difficult to make a clear distinction between studies of efficacy and effectiveness in this context. We have not made efforts to systematically distinguish between these terms. Typically, most statements about effectiveness or efficacy could have been replaced with the combination “efficacy and/or effectiveness” (a phrase frequently used in ISDUP2).

Statements regarding efficacy and effectiveness in ISDUP and EUPC

In ISDUP1 (p.9), Community-based multi-component initiatives (CMCI) received a three-star rating indicating “Good” efficacy.

In ISDUP 1 (p.26) and ISDUP 2 (p.32) it is stated that community-based multi-component initiatives *“can prevent the use of drugs, alcohol and tobacco.”*

Of more specific initiatives the following is emphasized (ISDUP 2, p.32):

“Mobilizing communities to prevent the selling of alcohol to, and consumption of alcohol by, underage drinkers, and to develop and support alcohol-free environments, especially for youth and other at-risk groups is one of the areas of action identified as effective by the WHO global strategy to reduce the harmful use of alcohol.”

In EUPC (p.57) CMCI were given a three-star rating of “good” efficacy. This score was derived from ISDUP (see EUPC, p.51). Chapter 9 of the EUPC handbook concerns community-based prevention measures. The chapter does not provide a formal summary of the evidence or provide statements of the overall effectiveness of community-based interventions. Instead, the main focus is on examples of promising evidence-based interventions. The presented examples of intervention that “have been found to have promising results” (EUPC, p.139) were Project Northland, STAD, CTC, and PROSPER.

EUPC states that CMCI are more likely to be effective than single component interventions and include statements that imply CMCI can be powerful and achieve high impact (bold font added to the quotes):

*“interventions or strategies that address multiple domains (individual and peer, family, school and community) of risk and protective factors **are more likely to be effective.**” (EUPC p.138)*

*“When [effective interventions] are combined to address various populations in multiple settings, they provide **a powerful tool** for prevention” (EUPC p.138).*

*“[...] an implementation system or infrastructure needs to be put in place to gain population support and to sustain the prevention effort and quality of implementation over time to **achieve optimal impact**”. (EUPC p.137)*

Below, we present an overview of our method, then we present the evidence base, and finally, we discuss how the statements above correspond to the evidence.

Method

The following methods were used to assess the conclusions in ISDUP. For each publication we identify the following information: a) the scope and type of publication (e.g. Cochrane review), b) how they defined categories relating to community-based multi-component interventions (CMCI), c) the relevant studies identified and/or a summary of results of individual studies, d) the evidence extracted in ISDUP with a focus on conclusion-like statements; e) the summary, conclusion, or conclusion-like statements regarding the relevant category of literature in the source document, f) our subjective assessment of whether the summary/conclusion is framed as cautious or favourable given the evidence, g) the nature of the evidence (e.g., selection of significant studies, meta-analysis, weaknesses).

The inclusion of information about the type of publication is included to help the reader in positioning the study and in keeping the different publications apart, the identification of the underlying studies helps the reader and the authors in identifying potential overlap in the original evidence of different reviews. The other points are more directly relevant for assessing the evidence.

References in italics are secondary references reported within the work we review and are not included in the reference list. We use a simplified citation style to match the citation format in ISDUP2.

The term “source publication” is used for publications cited in ISDUP and the term ISDUP Evidence for the evidence extracted from the source publications and presented in ISDUP Appendix II, Annex V. We used the following version of the Appendix: “prevention_standards_appendix_02_methodology_annex_05_data_2025_Update.pdf” available at <https://www.ISDUP.org/ISDUP/en/prevention/prevention-standards-first.html> (accessed December 12 2025).

The presentation of evidence for the efficacy/effectiveness of interventions in EUPC is largely based on ISDUP, whereas guidance on planning, selection, implementation and evaluation is also informed by the European Drug Prevention Quality Standards (EDPQS; see EUPC p. 13). However, for three of the intervention categories in EUPC, there are also sections identifying programmes with promising results. For two of these, the selection is based on ratings from EUDA’s Xchange registry (although both chapters also include exceptions that are based on the registry Blueprint). In the CMCI chapter, the basis for selecting the example programs is not stated, but some of the examples include assessments from Xchange. We searched for the evidence of EUPC’s ‘promising interventions’ in the registries Xchange and EUDA Best Practice Portal, which is also presented as an important resource in EUPC. These results are presented in a separate section after the below assessment of the ISDUP evidence.

ChatGPT (models 5.1, 5.2 and 5.4) was used as an aid to locate relevant pieces of information in the articles. It was also used for grammar and spelling checks, and for refinement of language in the present document. All interpretations and substantive judgments are the authors' own.

The reviews cited in ISDUP

As evidence, ISDUP1 (p.26) refers to 13 reviews, seven classified as “good reviews” and six as “acceptable”. ISDUP2 identifies no new reviews but cites the 13 reviews used in ISDUP1. These are presented in a footnote as “Bühler (2008), Carson (2011), Carson (2012), Foxcroft (2011), Gates (2006), Jackson (2012), Jones (2006), Müller-Riemenschneider (2008), Roe (2005), Schröer-Günther (2011), Skara (2003), Spoth (2008a) and Spoth (2008b)”. Below we present these source publications, the evidence extracted from the source publications and our assessment of whether the summaries/conclusions are framed cautiously or favourably considering the evidence. We also comment on the nature of the evidence (e.g., meta-analysis, weaknesses).

Bühler 2008

The publication Bühler 2008 is the report EMCDDA INSIGHTS 7: Prevention of substance abuse (translation of a corresponding *Bühler 2006* report in the German language). It is primarily a systematic review of reviews published after 1993, covering a broad range of interventions in the addiction field. The report has a focus on high quality systematic reviews and meta-analyses but allows for inclusion of unsystematic reviews and primary studies. ISDUP (Appendix II, Annex V) identified six relevant reviews in Bühler 2008. Five reviews were categorized under cross-system interventions: *Tobler 2000* was graded as A (highest conclusiveness) and reported results in favour of multicomponent interventions. *Tobler 2000* assessed efficacy of school-based prevention programs across 8 categories of interventions. One of these categories (based on 9 primary studies) includes both school-system interventions (components on different level within the school system) and school plus additional component interventions. In meta-analysis, a favourable effect on substance use (not specified) was reported for this category of multi-component school-based intervention. Bühler 2008 reports the following conclusion, according to *Tobler 2000*: “too few studies have been carried out to enable a comparative assessment of this approach.” The other reviews were graded from B and lower and reported to have inconclusive results. These are very briefly described in the following.

Sowden et al. 2004 (conclusiveness rating B): reviewed evaluations of multi-component community interventions on tobacco use (which components not described in Bühler 2008)

Foxcroft et al. 2003 (conclusiveness rating C): included evaluation of 3 community projects, all pertaining to alcohol-related outcomes. Bühler 2008 does not describe what these community project interventions were.

Loveland-Cherry 2000 (conclusiveness rating C): included evaluations of 3 community-based multi-component projects with family-based components.

Wandersman 2003 (conclusiveness rating D): included 6 cross-system projects (not further specified) focusing on substance use.

Stevenson 2003 (conclusiveness rating D) reviewed community-wide collaborative interventions.

The following is the most general part of the summary/conclusion extracted in ISDUP: “One review suggested that cross-system projects with numerous components (involving school, family, media etc.) have preventive effects on consumption behaviour, other reviews have been inconclusive.”

Bühler 2008 concludes: “Cross-system projects have preventive effects on consumption behaviour”. Similar summaries are provided for different substances, e.g., “Cross-system projects have demonstrable preventive effects on tobacco consumption”. Note that when commenting on the one review that reported favourable intervention effects, Bühler states that “too few studies have been carried out to enable a comparative assessment of this approach” (i.e., compared against other types of interventions).

While the summary in ISDUP appears conservative given the favourable conclusions in Bühler 2008, the statements in Bühler 2008 appears optimistic since they emphasize the results of one of six reviews (and/or the positive indications in the mixed evidence of the five inconclusive reviews). Yet, the statement regarding “too few studies” to assess the comparative advantage is more conservative than some of the statements in *Tobler 2000*: “[...] the first empirical demonstration of the comparative effectiveness of system-wide change programs”.

Regarding the nature of evidence, we comment on *Tobler 2000*, since this is the publication cited as the pro-intervention evidence in Bühler 2008. *Tobler 2000* was rated as having the highest research quality grade and included quantitative meta-analyses. This suggests that the evidence is solid, however, there is evidence of substantial heterogeneity in the relevant intervention category ($Q=32.6$, with $df=8$, which would correspond to an I^2 of approximately 75%). The analyses do not account for this heterogeneity and therefore overstate the precision of the results.

Carson 2011

Carson 2011 is a Cochrane review of multi-component community interventions for preventing smoking in young people. These interventions were defined as those targeting communities and larger areas and having more than one component (eg., school, media, public policy). The review included 25 controlled trials, all relevant according to ISDUP. The results from the studies were summarized as follows by Carson 2011:

“One programme provided statistically and clinically significant short-term benefits (<12 months) (*Winkleby 2004*) and nine provided longer-lasting effectiveness (*Pentz 1989*; *St Pierre 1992* (only in post hoc testing); *Perry 1994*; *Vartiainen 1998* (up until eight-year follow up); *Biglan 2000* (for 12- and 48-month follow ups only); *De Vries 2003* (at 30 months only); *Perry 2003* (for boys only in the D.A.R.E. Plus intervention; and when combining both D.A.R.E. and D.A.R.E. Plus groups together and comparing to control for the meta-analysis); *Perry 2008*; *Hawkins 2009*). Notably two trials reported effects in favour of the control group

(*Piper 2000; Hancock 2001*), whilst the remaining 13 studies demonstrated no significant benefit.”

Regarding assessment of quality of the included primary studies, Carson 2011 provide a detailed account of methodological quality items. The authors note in the Discussion section that “Despite methodological problems common to several of the studies which met the inclusion criteria for this review, they represent the most rigorous set of studies available evaluating the effectiveness of community interventions in influencing the smoking behaviour of young people.”

The most general statement in ISDUP Evidence regarding this publication was: “The authors conclude that there is some evidence to support the effectiveness of community interventions in reducing the uptake of smoking in young people, but the evidence is not strong and contains a number of methodological flaws.” This is almost identical to the conclusion in Carson 2011.

Due to the explicitly stated caveat about the evidence, we consider the summaries/conclusions neither conservative nor optimistic. Note that meta-analyses were performed. None gave statistically significant results for primary outcomes, but there was a tendency of lower odds for smoking in the intervention groups (wide CIs overlapping 1). As evident in the summary of the studies above, the results presented as promising were often conditional on analyses of specific waves, arms of the study, or subgroups. Most of the successful programs included a school component according to ISDUP.

Carson 2012

This Cochrane review was retracted in 2021 because “it does not include recent evidence and does not reflect up-to-date Cochrane methodological standards”. The review specifically concerned smoking interventions among indigenous youth. The multi-component community-based category required more than one component and a community/area level focus. The review included two published primary studies (*Gilchrist 1987; Schinke 1994*); and one ongoing study (*Glover 2009*), all employing an RCT or other controlled design. One study found a positive change that was not maintained a 6-month follow up, the other found no significant differences in terms of the community arm of the intervention. The ongoing study did not have final results, but preliminary analyses did not suggest a positive effect of the intervention. The extracted summary/conclusion in ISDUP was, as also stated in Carson 2012: “[...] there is not enough published research evaluating programmes aiming to prevent Indigenous youth from starting to use tobacco”.

Since there were few studies, the review only provided a narrative summary of the results. Given the results in the few studies reviewed, the summary/conclusion appears neither conservative nor optimistic.

Foxcroft 2011

This is a Cochrane review of universal multi-component prevention programs for alcohol misuse in young people. The study concerned interventions delivered in more than one

setting, that is: they were combined school, community or family interventions (no further specification of intervention content). The review included 20 randomized trials. 17 of the 20 studies were from the US. 13 of the studies showed at least one statistically significant reduction in alcohol use in the intervention compared to the control group (*Brown 2005; Eddy 2000; Hawkins 2009; Koning 2009; Perry 1996; Reddy 2002; Schinke 2004; Slater 2006; Werch 2000; Werch 2005a; Werch 2005b; Wu 2003, plus Spoth 2002 using one-tailed tests*). Seven trials reported no statistically significant effects. The additional benefit of multiple components over single component interventions was assessed in 7 trials, one of these showed a clear benefit. The authors concluded:

“There is some evidence that multi-component interventions for alcohol misuse prevention in young people can be effective. However, there is little evidence that interventions with multiple components are more effective than interventions with single components.”

Regarding quality of the evidence, the authors noted several important methodological limitations and reporting problems for some primary studies, in particular the failure of some studies to account for clustering effects in design or analysis. The authors also noted that 45 % of the included studies were deemed to be susceptible to confounding: “a worrying level in a review that included only RCTs”).

With no quantitative synthesis it is difficult to assess the evidence in this study. As in the Carson 2011 study, the count of studies in favour of the intervention appears to be based on the reporting of at least one statistically significant result for any arm in any wave. However, the count was not based on specific subgroups, since results at the subgroup level were mentioned separately (one additional study).

Gates 2006

Gates 2006 is a Cochrane review of drug use interventions targeting young people in non-school settings. The review included altogether 17 primary studies, all RCTs. In the category multi-component community interventions, the authors identified 5 primary studies. Four added various components (e.g. information meetings, neighbourhood action team, parent support program, media advocacy) to a school-based drug education programme (*Schinke 2000; Perry 2003; Flay 2004; Biglan 2000*) and one compared a community intervention with a no-intervention control (*Wu 2002*).

The *Wu 2002* study was described as “suspect”, with data that did not support the conclusions of the paper. Two of the studies (*Perry 2003; Flay 2004*) did not report statistically significant results of the additional component in primary analyses, although the results from *Flay 2004* indicated a tendency when combining boys and girls and not adjusting for clustering in a secondary analysis reported in Gates 2006. *Biglan 2000* reported a marginally statistically significant effect on cannabis use ($p=.043$). *Schinke 2000* reported no statistically significant results.

In ISDUP Evidence the following summary is extracted: “*There is a lack of evidence concerning the effectiveness of non-school based interventions in preventing or reducing drug use by young people. The studies of multi-component community interventions did not find any strong effects on drug use outcomes.*”

The first of these two sentences resembles the statement in Gates 2006. The second is close to the more nuanced conclusions in Gates 2006:

“There is little information from this review about the effectiveness of multi-component community interventions, as only five such studies were included. Several studies of community interventions were excluded from the review for various reasons. In four of the included studies the community component was an “add on” to a school-based programme, and the remaining study (Wu 2002) had significant methodological problems. Two of the studies suggested that the community intervention may have an effect on self-reported substance use or cannabis use (Biglan 2000; Flay 2004), but these results were of marginal statistical significance. The interventions evaluated in the five included trials were all different, and it is not possible to draw any general conclusions about the effectiveness of this type of intervention.” (our underlining)..

Given the Gates 2006 assessment of the evidence for CMCI efficacy, we consider the ISDUP summaries of this article neither too optimistic nor too cautious. “Absence of strong effects” might be suggestive of moderate or small effects, but there are no explicit statements regarding favourable effects.

Note that this review focused on the effect of non-school based components, which means that some analyses were compared with active controls such as an extensive school programme. This contrasts with much of the other evidence that compares CMCI to more passive controls. There was no meta-analysis.

Gates 2006 assessed risk of bias in the included studies and reported that many of the primary studies were affected by methodological problems, including losses to follow up and failure to account for clustering in the analysis. The latter may lead to substantial overestimation of the effect estimate. This was an overall assessment and did not specifically pertain to CMCI.

Jackson 2012

This is a systematic review published in the journal *Addiction*. It concerns a broad range of interventions that aim to prevent substance use and risky sexual behaviour among young people. The review included altogether 18 trials employing a controlled design. The six studies relevant for CMCI pertained to three categories of intervention (as described in Jackson 2012): – whole school or multi-setting programs (*Flay 2004, Bond 2003, Piper 2000, Hawkins 1999*), community-based intervention (*Berg 2009*) and school-based curriculum focused programmes plus additional component (*Wolfe 2009*). This is also noted in ISDUP Evidence.

The conclusion in ISDUP Evidence regarding the results in Jackson 2012 was: *“Of the six programmes included in the review, none provided clear evidence of effectiveness for programmes targeting substance use and sexual health”*. Then a summary of individual results from Jackson 2012 is provided with an emphasis on potential positive effects, but also with statements about null findings.

The conclusion in the Jackson 2012 review concerned the broader topic of sexual behaviour and substance use, and not only community-based multi-component studies: “There is some,

albeit limited, evidence that programmes to reduce multiple risk behaviours in school children can be effective [...]”.

The statement “*none provided clear evidence*” can be interpreted as either “some but not clear evidence” or simply lack of evidence. The above conclusion in combination with the mentioning of several promising results in the extracted evidence suggests that the evidence statements are not too cautious, nor too favourable. There was no meta-analysis and only a narrative review of study findings were reported.

Jackson 2012 stated in the abstract that “The most promising interventions addressed multiple domains (individual and peer, family, school and community) of risk and protective factors for risk behaviour. Programmes that addressed just one domain were generally less effective in preventing multiple risk behaviour.” This statement is also cited in ISDUP Evidence. However, the Jackson 2012 statement was not based on any formal analysis and pertained to interventions that impacted on both substance use and sexual risk behaviour. Thus, the relevance of Jackson 2012 for an overall assessment of the evidence of efficacy of CMCI on substance use is limited.

Jackson 2012 assessed quality of included studies, employing the Quality Assessment Tool for Quantitative Studies and the authors reported that 1 primary study met criteria for ‘strong quality’, 12 studies were rated as ‘moderate’ and the remaining 5 studies of weak quality were excluded from further discussion.

Jones 2006

Jones 2006 is a report commissioned by the UK Department of Health. The focus is on community-based interventions to reduce substance misuse in vulnerable and disadvantaged young people. The report includes reviews and primary studies and categorises community interventions into several groups, 2 of which are reflected in ISDUP Evidence and defined as following in Jones 2006.

Multi-component interventions: “*those interventions that comprised multiple components (e.g. case management, educational services and support) often delivered in more than one setting. For example, programmes including an intervention component delivered in school (e.g. drug education lessons) combined with community components (e.g. counselling service) were included in this category.*”

Community mobilisation programmes: “*programmes that consisted of a locally organised and planned, community wide intervention and included collaboration between individual stakeholders and relevant agencies such as the police, health services, drug agencies and local businesses.*”

Regarding community-based multi-component interventions, ISDUP states that there were 7 relevant studies in Jones 2006: 1 systematic review and 6 primary studies: 5 RCTs, and 1 before-and-after study (3 studies with follow-up of 12 months or more). This does not correspond fully to the studies listed under multi-component interventions in the source publication. Jones 2006 lists one systematic review (*Roe 2005* (which includes one multi-component RCT: *Harrell 1999*) and 7 primary studies, for which a study quality assessment was provided: three high quality RCTs (*Harmon 1995, Hostetler 1997, LoSciuto 1999*), three

lower quality RCTs (*Eddy 2000/2003, Wagner 2000, St. Pierre 1997/2001*) and two before-after studies (*Buncher 1996, Danoff 1997*). Among the multi-component interventions evaluated in RCTs, most (or all) appeared to include some kind of school-based prevention in addition to other components of various kinds.

In ISDUP Evidence this was extracted from the source publication: “*There was evidence from one review to suggest that multicomponent community-based approaches are more effective for high-risk youth at preventing, delaying, or reducing drug use than school and community projects alone.*”

This statement corresponds to the results reported for *Streke 2004* in Jones 2006 (a doctoral dissertation which was not included among community-based multi-component interventions but categorized under “interventions delivered in different settings”). Specifically, Jones 2006 stated with regard to *Streke 2004* that “*Examining high-risk participants in more detail, the overall effect size (d) was 0.06, whilst for those enrolled in community programmes it was $d = 0.04$; school and community $d = 0.06$; and comprehensive (i.e. multicomponent) $d = 0.42$.*”

The next piece of stated evidence in ISDUP extracted from Jones 2006 was: “*One RCT found that multicomponent interventions can be effective in reducing substance use in the short term, however there is inconsistent evidence from one review and two RCTs about their effectiveness in the long-term, with studies either indicating no change in substance use, or a reduction in patterns of alcohol use.*”

The statement is a direct quote from Jones 2006 and refers to the RCT by *LoSciuto 1999* showing favourable effect on prevalence of drug use and to the inconsistent evidence reported in the studies by *Roe & Becker, 2005, Harmon 1995* and *Eddy 2003*.

Regarding community mobilisation, Jones 2006 included one lower quality RCT, the *Cheadle 2001* RCT conducted in a Native American reservation. The study reported on outcomes such as cannabis use, cocaine or crack use, but only found evidence of reduction in the intervention group for the outcome smokeless tobacco (a result not mentioned in the evidence documents for ISDUP). In ISDUP Evidence, the extracted result from Jones 2006 is:

“*Findings from one RCT suggest that a community mobilisation and youth development programme had no effect on neighbourhood co-operation or pride, indicators of community mobilisation, or generic youth risk behaviours.*”

In Jones 2006, a similar statement is reported in the section on community mobilisation programmes.

In sum, the relevant statements regarding evidence of effectiveness of CMCIIs *for high risk youth* are a) multi-component comprehensive interventions are more effective than single system interventions, b) multi-component interventions *can be* effective short-term but with inconclusive evidence for long term effect, c) one study on a community mobilisation and youth development programme reported no effect.

The framing of the statements is neither consistently conservative nor consistently favourable. The statement about the comparative advantage of multi-level interventions among high-risk youth could have been framed more cautiously. This evidence comes from a dissertation (*Streke 2004*) by one of the authors of the *Tobler 2000* study (the main study in *Bühler 2008* above) and uses much of the same data and methodology as *Tobler 2000* (i.e., not accounting

for heterogeneity between studies and therefore underestimating the uncertainty of the results). Also note that there were only 4 comprehensive (i.e., CMCI) programmes in the high-risk category in *Streke 2004*.

The ISDUP statement regarding the *Cheadle 2001* study seems quite conservative because it states that the study showed “no effect” instead of stating that an effect was “not detected” and furthermore the favourable results for smokeless tobacco were not mentioned.

The evidence from Jones is not based on meta-analysis, but it refers to meta-analyses such as *Tobler 2000* (and earlier work by the same research group) and the dissertation by *Streke 2004*.

Müller-Riemenschneider 2008

This is a systematic review and meta-analysis of the long-term effectiveness of interventions to prevent cigarette use among children and youth (below 18), published in the peer reviewed journal *Tobacco Control*. The review included a total of 35 primary RCT studies and the main analyses were performed for studies assessed as having a small to moderate risk of bias. There were two relevant study categories. Community-based interventions (7 of 10 primary studies of good/high quality) were defined as “any intervention performed outside the school environment” and multi-sectorial interventions (6 of 11 primary studies of good/high quality) were defined as “consisting of a school and an out-of-school component.”

In terms of community-based interventions, four studies (*Hollis 2005*, *Jackson 2006*, *Fidler 2001*, and *Stanton 2004*) reported effects in favour of the intervention and two reported non-significant tendencies in favour of the control group (*Curry 2003* & *Stevens 2002*). For multi-sectorial interventions the studies *Ellickson 2003*, *Furr-Holden 2004*, *Reddy 2002*, and *Simons-Morten 2005* reported “strong evidence of long-term effectiveness”, *Perry 2003* and *Spoth 2002* reported positive effects for subgroups. None of the studies reported statistically significant reversed effects (lower smoking in control).

The interventions in the Community-based category included parent/family-based components, primary care components, digital components, mailed information, and school-based components. Multisectorial interventions included family and parent-child components, parental skills training, community-based activities, police officer led skills training, interactive skills training, family-school communication, improved teaching and support of disadvantaged children, information and interactive sessions, social skills training, among others.

The most general part of the evidence extracted in ISDUP was: “*The present work identified moderate evidence for the effectiveness of behavioural interventions to prevent smoking. There was evidence that community-based and multisectorial interventions were effective in reducing smoking rates, although the reductions observed in smoking rates were only modest*”

This is largely consistent with the conclusions in Müller-Riemenschneider 2008. The framing of the statements appears somewhat on the favourable side considering that Müller-Riemenschneider 2008 noted that publication bias was likely and that there were very few studies (e.g., only 1 to 3 studies in the main analyses of multi-sectorial interventions).

Further, in ISDUP Evidence, it is stated that “*Family based interventions were used in many community-based and multisectorial intervention strategies. Although it was difficult to identify their specific impact, there seems to be some evidence for the additional effectiveness of this approach.*” This statement is identical to that in the source publication. Moreover, Müller-Riemenschneider 2008 noted that “*The intervention effects reported for community-based and multisectorial strategies were not only more consistent than those observed for school-based strategies, they also resulted in a larger reduction in smoking rates. Indeed, whereas the greatest reduction in smoking rates among school-based strategies was only 3.6%, community-based and multisectorial interventions reported reductions of up to 10%.*”

The authors further noted that “However, even current and comprehensive behavioural smoking prevention programs are only associated with a moderate reduction in smoking prevalence and they should be complemented by appropriate environmental strategies to achieve sustainable reductions in smoking rates on a broad population basis.” This statement seems to reflect the limited scope of the included multi-component interventions.

Roe 2005

Roe 2005 is a systematic review of illegal drug-use prevention in vulnerable young people, published in the journal *Drugs: education, prevention and policy*. The review included a total of 16 primary studies employing a controlled design and representing a diverse range of prevention programs. Within the category “Interventions in the community” there were 5 studies. Interventions in the community was not explicitly defined but contrasted with school-based, residential, or family settings. The content of the interventions varied and included counselling, peer education, youth club, neighbourhood services, and Job Corps centres. Only results from one primary study in Roe 2005 (i.e. *Harrell 1999: Children at Risk programme, CAR*) is cited in the ISDUP Evidence document. This multi-component intervention program included a range of services like family support, after-school activities and mentoring and favourable effects on illicit drug use were reported. Other multi-component intervention studies were also mentioned by Roe 2005, such as *Godley 1998*, which reported increased marijuana use in the intervention group.

It is difficult to provide a statement about the conclusions regarding the overall evidence in Roe 2005; both Roe 2005 and ISDUP Evidence points to the success of a single study without any formal synthesis of the evidence.

Roe 2005 assessed the quality of primary studies employing the Maryland scale of scientific methods, and the review included only those studies with a Maryland ranking of 3 or above.

Schröder-Günther 2011

This is described as a “systematic review of randomized controlled trials” that aim to evaluate primary tobacco prevention programs in China. It is published in the journal *Asian Pacific Journal of Cancer Prevention*. The review included a total of 21 RCTs and all interventions were based on some kind of health education program. ISDUP identified 5 studies as relevant for the CMCI section (plausibly the studies *Jiang 2003, Xie 2005, Zheng 2007, Lin 2008 & Lin 2010*). Based on the brief description of interventions in Schröder-Günther 2011, these are

trials with “urban or local communities as settings” and 3 of these 5 interventions appear to have some kind of multi-component approach. The interventions were described as including education and information components, mass media, improvement of living environment, social cognitive theory group sessions, and team training programs. ISDUP summarized the evidence as follows:

“Four out of five studies found significant differences between intervention and control groups at post-intervention. However, follow-up data was only available from one study. That study found significant differences at post-intervention, but not at 12 months.”

The follow-up study was likely *Zheng 2007*, and the short-term null finding study was likely *Jiang 2003*.

The overall comment from ISDUP Evidence was: *“The evidence for the effectiveness of smoking prevention interventions in China is weak, partly due to methodological limitations of the studies. The available research suggests that community-based smoking prevention and cessation programmes can have a significant effect on adults in the very short-term.”*

This is consistent with conclusion-like statements in *Schröer-Günther 2011*: *“The documentation of smoking prevention interventions in China is not sufficient to develop effective and reliable action programs.”*

Schröer-Günther 2011 nevertheless provides some conclusion regarding effectiveness: *“[...] interventions applying health promotion techniques were more often successful than interventions that were only based on health education”*. This phrase is also included in ISDUP Evidence and is likely based on the finding that seven studies (three of them in the community-setting category) found positive short-term effects on all outcomes extracted for those trials in the review, and that five of these seven included an active behaviour-oriented or psychologically framed component in addition to, or instead of, simple information/education (e.g. leaflet and lectures). The conclusions were not based on meta-analysis.

The authors assessed quality of primary studies employing a set of criteria and categorised studies as having ‘high’ or ‘low’ risk of bias. Only 4 studies showed a low risk of bias, the other 17 studies had a high risk of bias. Only 1 of the studies identified as CMCI relevant (*Zheng et al., 2007*), had a low risk of bias.

Skara 2003

This is a review of long-term effects of tobacco and other drug use prevention programs among young people published in the journal *Preventive Medicine*. The review included 25 primary studies employing an experimental or quasi-experimental design. In all studies, at least one of the interventions or modalities evaluated was school- or community-based. There is no explicit CMCI category, but the review includes evaluations of interventions with multiple components. Note that all studies had a school component (except *St.Pierre 1992* which had a school-based curriculum in a youth organization), so CMCI in this publication is effectively school plus at least one additional component. ISDUP extracted 6 studies. These were likely *Flynn 1992*, *Pentz 1989*, *Perry 1994*, *Winkleby 1993*, *St.Pierre 1992*, and *Vartiainen 1990*.

On marihuana use, there were two studies examining this outcome (*Pentz 1989; St.Pierre 1992*) and “Both of these studies found sustained reductions in marijuana use among the intervention groups”

On alcohol use, there were two studies (*Flynn 1992, Pentz 1989*): “both studies found significant reductions in alcohol use at the initial follow-ups, but only one study still reported reduced alcohol use at the final follow-up (7 years).”

On tobacco use, four studies (*Flynn 1992, Pentz 1989, Perry 1994, Vartiainen 1990*), including the one with the longest follow up (15 years) “[...] consistently found significant reductions on a variety of smoking outcomes over multiple time points. [...] Two studies found no significant differences [...]”

The relevant conclusion by ISDUP was: “*school- and community-based programs were effective in preventing or reducing adolescent cigarette, alcohol, and marijuana use across follow-up periods ranging from 2 to 15 years.*”

Since the overall summary/conclusion above is nearly a direct quote from Skara 2003, we also consider it as the relevant summary/conclusion from the source publication. Note that it pertains to the overall evidence in the review, not only multiple-component interventions. Skara 2003 did not summarise findings for multi-component interventions specifically, and assessment of efficacy of these interventions must be extracted for the individual primary studies.

The extracted evidence appears consistent with the conclusion in the source publication. However, the source paper also states that the conclusion is “somewhat tenuous given the lack of significant program effects reported in several studies and the great variability that existed in the level of internal and external validity across all studies.” The evidence appears to be based on a count of having at least one significant positive effect instead of meta-analysis. It is difficult to assess the strength of evidence when it is quantified as 15 of 25 studies with at least one statistically significant effect. Due to the note that the conclusion is “tenuous” and the questionable method of identifying successful interventions, we consider the extracted conclusions as somewhat too favourable.

Skara 2003 assessed quality of primary studies with regard to analytic procedures (e.g. baseline group equivalence, confounders and attrition) and reported that “*across all of the studies, common weaknesses in research designs posed serious threats to internal validity. In particular, the majority of studies used the quasi-experimental design, selected school as the unit of assignment but analyzed data at the individual level, and showed great variability in the selection and use of substance use outcome measures.*”

Spoth 2008

There are two Spoth references (Spoth 2008a and Spoth 2008b) but they appear to refer to the same publication since the evidence is summarized separately for childhood and adolescence. Spoth 2008 is a review of a broad range of interventions for underage drinking (i.e. < 21 years) published in the journal *Pediatrics*. ISDUP reports that there are 11 relevant programmes in the childhood/early adolescence category (with results from 21 reports). Exemplified with the projects *Linking the Interests of Families and Teachers, Fast Track,*

Seattle Social Development Project, Raising Healthy Children, and Preventive Treatment Program.

The conclusion/summary extracted in ISDUP: “[...] most of the effective interventions in the younger age group used multidomain models (i.e., focusing on 2 or more different domains such as family, school, community)”

The adolescence/adulthood part (i.e., plausibly Spoth 2008b) included 2 programmes, *Communities Mobilizing for Change on Alcohol* and *Community Trials Intervention to Reduce High-Risk Drinking*.

The extracted summary/conclusion regarding these two was: “*the review authors found two relatively effective interventions that focused on decreasing sales to minors, increasing identification checks by vendors, or reducing community tolerance of underage purchasing and consumption of alcohol*” However, these results were classified as “mixed or emerging evidence” due to the types of outcome or the number of communities.

This corresponds directly with the relevant conclusions in the source publication. Using the term “effective” for findings that were also categorized as “mixed or emerging” might be interpreted as anti-conservative but since both of these statements are presented together we assess this conclusion as neither conservative nor anti-conservative. The statement referring to “most of the effective interventions” merely states a pattern in the data and we consider it as accurate given the nature of the study.

The review focused on finding the most promising interventions and used the classifications “most promising”, “mixed or emerging evidence”, and “insufficient or no evidence”. The first category included studies with measurable differences in statistical significance testing, and the second included studies with at least some positive effects.

The methodology of Spoth 2008 warrants further attention. The authors stated: “*Initially, the review led to the identification and screening of > 400 interventions, 127 of which seem to show at least some evidence concerning the desired outcomes. Among those, 41 met the criteria discussed below and thus are included in this report (18 for 10 years of age, 13 for 10–15 years of age, and 10 for 16 to 20 years of age).*”

It is unclear what is meant by ‘*some evidence concerning the desired outcome*’. There are at least two interpretations. One is that ‘desired outcome’ means relevant outcomes measures (i.e. alcohol use or related measures) and that for these programs/interventions there were publications with estimates of intervention effect on such study outcomes. The other is that ‘desired outcome’ means a favourable effect of the intervention and that for these programs/interventions there are one or several publications reporting at least one estimate of intervention effect in favour of the intervention. In the latter case, the reviewed literature is biased, favouring positive intervention effects. Furthermore, the authors selected 41 interventions among 127 based on 6 criteria, one of which was a statistically significant intervention effect on alcohol-related measures. Thus, irrespective of how the 127 interventions were selected, the evidence for the selected 41 clearly represents a biased sample of the literature and Spoth 2008 is not suitable to assess the overall body of evidence for the efficacy of CMCI.

Evidence for the EUCP examples of promising interventions

EUPC describes CMCI as follows:

“Multicomponent initiatives combine several evidence-based interventions and policies to affect community-wide populations. [] The important point here is to focus on those interventions and policies that have been shown to be effective.”

EUPC provides four examples of evidence-based programs, that is interventions “found to have promising results, according to several evaluations in the US and different European countries.” These examples are:

- Project Northland: main components include classroom curricula, peer leadership, youth-driven extra-curricular activities, parent involvement programs and community activism.
- STAD: includes community mobilisation, RBS training and enforcement and targets nightlife environments.
- CTC (Communities that Care): is a framework for how local communities can organise, develop and implement interventions.
- PROSPER: include recommended evidence-based family and school interventions.

We searched for evidence on efficacy/effectiveness of these four interventions in EUPC’s evidence data bases: Best Practice Portal and Xchange Registry. The searches yielded the following results.

Project Northland

No result was found in Best Practice Portal using the search terms ‘Project Northland’ or ‘Northland’, no other restrictions. In Xchange Registry, this intervention was noted and 6 references were given to published evaluations, 1 from Croatia the other 5 publications from the US. The intervention was first evaluated in rural communities in Minnesota among students in early adolescence, and favourable intervention effects were reported for alcohol use, but not for tobacco or cannabis use (Perry et al. 1996, Stiegler et al., 2006). In a Phase 2, the Minnesota cohort was 11th and 12th grade students, and the intervention comprised 5 components, including measures to reduce students’ access to alcohol from commercial sources. This intervention made a positive impact on alcohol use (Perry et al., 2000; 2002). When implemented in Chicago, Komro et al. (2008) reported that the intervention, compared with a control condition, was not effective in reducing alcohol use, drug use, or any hypothesized mediating variables. The study from Croatia (West et al., 2008) employed a controlled design and the outcome measure was an index capturing both intentions and actual use of alcohol and hence the study did not report possible effect on any measure of alcohol use.

Xchange rating: Possibly beneficial.

STAD

No result was found in Best Practice Portal using the search term ‘STAD’, no other restrictions. In Xchange Registry, this intervention was noted and 20 references were given to

published studies, and 11 of these reported on evaluations of the intervention regarding substance use related outcomes. In the earlier evaluation studies of STAD, a quasi-experimental design was employed, with an intervention area and a control area, both in the city centre of Stockholm, Sweden. Favourable effects of the intervention were reported for over-serving and violent crimes, but not for alcohol sales to minors (Wallin et al., 2002; 2003a,b; 2004; 2005; Norström & Trollidal, 2013). STAD was later disseminated to a large number of other Swedish municipalities and program effect on police-recorded assaults was evaluated. The program was not fully implemented in many municipalities, and the program was associated with a larger reduction in violence rates with increasing number of implemented components (Trollidal et al., 2013). Moreover, spatial spillover effects to adjacent municipalities added to the estimated intervention effect (Brännström et al., 2016).

The STAD intervention was adopted to sporting events and evaluated in a controlled study (Elgan et al., 2021). The authors reported that the intervention may have increased staff intervention toward obviously intoxicated spectators, whereas it was not clear whether this translated into a reduction in intoxication.

Finally, a version of STAD pertaining to illicit drugs was evaluated in two studies, employing a simple before-after comparison (Gripenberg et al., 2007; 2011), and hence the observed favourable trend in doormen intervention, cannot be interpreted as intervention effect.

Xchange rating was ‘Possibly beneficial’.

CTC (Communities That Care)

This is listed in Best Practice Portal, where it is stated that this approach (i.e. community coalitions that develop a common strategy and mobilise communities in prevention and health promotion initiatives) was found in a systematic review (EMCDDA 2017, studies = 5) to be effective in: reducing substance use and delinquency behaviours (USA trials). The review is possibly the following (identified by examining all EMCDDA publications in 2017):

[Communities That Care \(CTC\): a comprehensive prevention approach for communities | The European Union Drugs Agency \(EUDA\)](#). This report included 5 evaluation studies; 2 RCTs (1 from Australia and 1 from the US), 2 quasi-experimental studies and 1 before-after study, however, the review focused mainly on findings from the two RCTs. One RCT of the CTC system was the Community Youth Development Study (CYDS) from the US. The EMCDDA review does not describe the content/components of CYDS but reports findings from two analytic approaches. The review summarises these findings as follows: *“Although effect of CTC could be demonstrated using a longitudinal panel from the same community-randomised trial, the study did not find similar effects for problem behaviours using a repeated cross-sectional design. These differences may be the result of a reduced ability to detect effects because of potential cohort effects, accretion of those who were not exposed and attrition of those who were exposed to CTC programming in the repeated cross-sectional sample.”*

The other RCT evaluated effects of the Alcohol Action in Rural Communities (AARC) project in Australia. Again, the review does not describe the content/components of this intervention project. The EMCDDA review states that “There was insufficient evidence to conclude that the interventions were effective in the experimental, relative to the control, communities for alcohol-related crime, traffic incidents and hospital inpatient admissions, or for rates of risky

alcohol consumption and hazardous/harmful alcohol use.” Although lower alcohol consumption was reported by respondents in the experimental communities, “the low survey response rates (40 % and 24 % for the pre- and post-intervention surveys, respectively) mean that the results must be interpreted conservatively” (EMCDDA, 2017). The EMCDDA report further noted: “The authors concluded that the RCT provided little evidence that community action significantly reduces risky alcohol consumption and alcohol-related harms, although there were potential reductions in self-reported average weekly consumption and experience of alcohol-related verbal abuse. Complementary legislative action may be required to reduce alcohol harms more effectively.”

Searches in Xchange Registry (applying search terms ‘CTC’ or ‘Communities That Care’, no other restriction) yielded no result.

Rating in Evidence Portal is “Likely to be beneficial”.

PROSPER

Searches in Best Practice Portal and in Xchange registry (applying search term ‘PROSPER’, no other restriction) yielded no results.

Discussion

In the introduction, we presented statements regarding the effectiveness and/or efficacy of community-based multi-component initiatives (CMCIs) in ISDUP and EUPC. In the section above, we presented the source publications used in the evidence base of ISDUP, and we identified summaries and conclusion-like statements. An overview of these is presented in Table 1. The ISDUP evidence base also applies to EUPC since it uses the ISDUP rating. However, EUPC additionally included a narrative presentation of CMCIs and provided examples of the most promising programmes.

Below we first review the correspondence between the overall statements about effectiveness in ISDUP and the evidence, then we review the correspondence between how CMCIs are presented in EUCP and the evidence.

Correspondence between statements and evidence in ISDUP

In Table 1, we provide an overview of the summaries or conclusion-like evidence extracted from the ISDUP source publications. Our review of the source publications and the extracted evidence (ISDUP, Appendix II, Annex V) showed that there was a close correspondence between the conclusions of the source publications and the extracted evidence. Typically, the extracted evidence was near verbatim statements from the source publications. Accordingly, we do not further discuss the relation between the source documents and the extracted evidence but rather focus on the relation between the extracted evidence and the statements presented in the introduction.

Table 1. Summaries and conclusion-like statements in ISDUP, Appendix II, Annex V, and type of interventions covered in the source publications.

Study	Type of CMCI	Summary/conclusion
Various substance use		
Bühler 2008 ¹ (Tobler 2000)	System wide school interventions or school plus other component	One review suggested that cross-system projects with numerous components (involving school, family, media etc.) have preventive effects on consumption behaviour, other reviews have been inconclusive.
Jackson 2012	Mainly whole-school and multi-setting	“Of the six programmes included in the review, none provided clear evidence of effectiveness for programmes targeting substance use and sexual health”
Skara 2003	Mainly school plus other component	“school- and community-based programs were effective in preventing or reducing adolescent cigarette, alcohol, and marijuana use [...]”
Jones 2006	“micro-interventions or small-scale programmes delivered in community settings”	“There was evidence from one review to suggest that multicomponent community-based approaches are more effective for high-risk youth at preventing, delaying, or reducing drug use than school and community projects alone.” “One RCT found that multicomponent interventions can be effective [...] short term, however [...] inconsistent evidence from one review and two RCTs about their effectiveness in the long-term, with studies either indicating no change in substance use, or a reduction in patterns of alcohol use.”
Tobacco		
Carson (2011)	targeted at entire or parts of entire communities and more than one component	[...] some evidence to support the effectiveness of community interventions in reducing the uptake of smoking in young people, but the evidence is not strong and contains a number of methodological flaws
Carson (2012) [retracted]	community-based interventions with more than one component	[...]not enough published research evaluating programmes aiming to prevent Indigenous youth from starting to use tobacco.
Schröer-Günther 2011	Urban or local communities as settings	“The evidence for the effectiveness of smoking prevention interventions in China is weak, partly due to methodological limitations of the studies. [...] community-based smoking prevention and cessation programmes can have a significant effect on adults in the very short-term.”
Müller-Riemenschneider 2008	“intervention performed outside the school environment” and “a school and an out-of-school component”	“The present work identified moderate evidence for the effectiveness of behavioural interventions to prevent smoking. There was evidence that community-based and multisectorial interventions were effective in reducing smoking rates, although the reductions observed in smoking rates were only modest.”
Alcohol		
Foxcroft 2011	Universal interventions delivered in more than one setting	“The authors conclude that there is some evidence that multi-component interventions for alcohol misuse prevention in young people can be effective.” “no clear evidence to suggest that multi-component interventions are more effective than single-component”

Continued on next page.

Table 1 (continued)

Study	Type of CMCI	Summary/conclusion
Alcohol (continued)		
Spoth 2008a/b	Interventions with two or more domains or multiple community-level components	“most of the effective interventions in the younger age group used multidomain models” “With regard to community mobilization programmes, the review authors found two relatively effective interventions that focused on decreasing sales to minors[...]” “mixed or emerging evidence”
Cannabis and illicit drugs		
Roe 2005	Multi-component (not explicitly defined)	“In the community, an intensive multicomponent intervention (the Children at Risk program) was found to be the most effective in this review.”
Gates 2006	Multi-component community intervention (4 of 5 studies added community to school component).	“There is a lack of evidence concerning the effectiveness of non-school based interventions in preventing or reducing drug use by young people. The studies of multi-component community interventions did not find any strong effects on drug use outcomes”

¹The information pertains to the review by Tobler 2000 which was the only review identified as pro-intervention (Bühler 2008 considered the 5 other reviews as inconclusive or of very low quality).

What appears to be a main conclusion in ISDUP1 (p.26) and ISDUP2 (p.32) is that community-based multi-component initiatives “*can prevent the use of drugs, alcohol and tobacco.*” In statistical terms, this essentially states that the (extreme) lower part of the distribution of true effect sizes is negative (if negative effects indicate less substance use in the intervention group). That is, there exist interventions that can prevent substance use. The typical high level of heterogeneity in effect sizes suggest that some interventions can prevent the use of drugs, alcohol and tobacco.

It must be noted that the word “can” is typically used for outcomes that have low probabilities of occurring. However, this modal verb shows a marked asymmetry between the speaker and the listener. It is typically used for low probability outcomes, but listeners do not believe it indicates low probabilities (Teigen & Filkuková, 2013). That is, while “*can prevent the use of drugs, alcohol and tobacco*” is a cautious statement, its interpretation may be more favourable towards the effectiveness.

The three-star rating represents a less cautious statement. Three stars indicate “good” efficacy. Although it is difficult to assess what this means, since it is a subjective expert judgment based on both the quality of the evidence, the directionality of the evidence, and how achievable the outcome is (see ISDUP1, p.7), we assume it indicates that there is a high probability that CMCI to some extent are effective.

This is somewhat confusing given that the criteria for being included in ISDUP as an evidence-based intervention strategy was:

“At least two and a majority of primary studies should have reported positive effects in this respect, and no studies should have reported iatrogenic effects on important outcomes.” (ISDUP Appendix II, p.11)

This inclusion criterion appears to be stricter than the evidence required for “good” efficacy. The latter part of the criteria seems to be met since there are generally few iatrogenic effects for CMCI in the reported evidence (a few potential exceptions are noted in Carson 2011, Müller-Riemenschneider 2008, and Roe 2005). However, the first part of the statement requires the majority of primary studies to report positive effects on primary outcomes. A closer look at our summaries of reviews in this document suggest this criterion is unlikely met. The closest to a majority of positive findings are Foxcroft 2011, Müller-Riemenschneider 2008 and Schröder-Günther 2011. The other publications typically report more inconclusive than positive effects for the CMCI types of intervention.

Thus, the three star rating of ‘good’ is conflicting with the criterion for mere inclusion in ISDUP. Although a speculation, we wonder if the ‘good’ rating reflects a spillover from the assessment of evidence quality. That is, the translation of evidence quality (Table 1 in ISDUP, Appendix II) to evidence strength might have influenced the rating of the strength of directionality of the evidence.

Types of CMCI

In Table 1, the second column provides information about how the reviews implicitly or explicitly defined CMCI. CMCI appears to be a descriptor for interventions with vastly different overall structures. In some cases, CMCI appear to mean community mobilization efforts (Spoth 2008a/b, see also the description of CMCI in ISDUP1, p.26). In other cases, CMCI can be school interventions with an additional component (e.g., Skara 2003) and may even include school-level interventions at multiple levels (e.g., Bühler 2008/Tobler 2000, Jackson 2012). It may not be meaningful to provide an overall efficacy rating of such a broad and heterogenous category of interventions.

EUPC (p.138) states that CMCI are more likely to be effective than single component interventions. However, most of the reviews focus on documenting any efficacy of CMCI. Gates 2006 explicitly assesses the effect of an additional community component on top of another component, typically a school intervention, but concludes that there is lack of evidence for additional effects of non-school interventions. Foxcroft 2011 states that there is no clear evidence favouring multi-component over single-component interventions. This is an important point for the interpretation of efficacy. Although CMCI could have beneficial effects compared to no intervention, this does not necessarily mean that they have effects beyond single-component initiatives where more focus and resources may be devoted to the single component.

Most of the positive conclusions appear to come from studies where a school component is mentioned in our description of the type of CMCI in Table 1 (Bühler 2008/Tobler 2000, Skara 2003, Müller-Riemenschneider 2008), or from studies where we identified a more general description of CMCI, but the underlying studies mostly include interventions with school components (Jones 2006, Foxcroft 2011).

The above could suggest that it is more meaningful to identify the efficacy of more narrow categories of CMCI, however, within any category, the specific intervention content would be vastly different. Some of the CMCI are based on methods to facilitate cross-system collaboration that end up with different interventions. This means that a community-based

prevention program can be effective in establishing collaboration and structures but fail due to the lack of effective concrete interventions (see e.g., Steketee et al 2013). For this reason, it may be questionable to provide efficacy statements for a category of interventions defined by its target system or structure, rather than content or mechanism.

Type of substance

In our category of various substance use in Table 1 there seems to be no consistent patterns of more positive statements for one or the other substance.

Geographical context

The ISDUP Evidence document extracted information from the source reviews regarding the countries in which the interventions took place. Apart from the review of Chinese tobacco interventions (Schröder-Günther 2011), primary studies in the other reviews were implemented in the USA only (Carson 2012, Jones 2006, Roe 2005, Spoth 2008), or mainly in USA or Northern America (Foxcroft 2011, Gates 2006, Jackson 2012, Skara 2003, Spoth 2008). Bühler 2008 reported reviews originating from USA. In the evidence extracted from Müller-Riemenschneider 2008, 5 countries were listed, including USA and Canada.

The dominance of Northern American studies suggests that it is uncertain whether the evidence applies to other parts of the world. This is an important limitation that is particularly relevant for, and acknowledged in, the EUPC, which is meant as guidelines for European countries.

Nature of evidence

The nature of evidence was typically not meta-analyses. Some of the reviews appeared to count any positive effects selected among multiple outcomes (e.g., Carson 2011, Foxcroft 2011). The counting of studies with positive effects can provide both too conservative and too favourable results. On the one hand, meta-analyses may show effects even if no individual study is significant. On the other hand, counting significant results is a form of cherry-picking when there is more than one analysis.

Without good meta-analyses it is difficult to quantify the evidence of the efficacy of CMCI. Of the meta-analyses reported, the results were based on few primary studies, so there is no meaningful figure of the expected average effect size. The identification of the most successful interventions (e.g., like in Roe 2005) could be helpful if independently replicated with clear positive results, however, in the ISDUP evidence base there is not a single intervention that was consistently replicated with consistent results. If we consider the criteria for efficacy advocated by Flay et al. (2005), claims of efficacy must be based on replicated results. Overall, a three-star rating indicating “good” efficacy seems too favourable given the nature of the evidence in ISDUP.

The selection of literature on CMCI in ISDUP warrants attention and discussion. First, while there, as a general rule, can be good reasons to prefer systematic reviews in the evidence base,

most of the ISDUP reviews referenced for CMCI did not specifically review CMCI, but covered broader intervention areas (i.e. Bühler 2008; Gates 2006; Jackson 2012; Jones 2006; Müller-Riemenschneider 2008; Roe 2005; Schröder-Günther 2011, Skara 2003; Spoth 2008). In these reviews, CMCI were mainly some kinds of multi-component interventions, and typically not described in sufficient detail to understand the nature of the intervention. To do so, the reader would need to examine each of the relevant primary studies. The three reviews that specifically focussed on CMCI were Carson 2011; Carson 2012 and Foxcroft 2011, all addressed some kinds of multi-component intervention. In other words, all the referenced reviews either included some category of – or focussed entirely on – multi-component interventions of some kind, however, the reviews provided little information about intervention characteristics including content, components, delivery, and duration.

Moreover, none of the referenced reviews seem to clearly reflect the nature of CMCI in terms of community actor partnerships, as described in ISDUP: *“At the community level, mobilization efforts to create partnerships, task forces, coalitions, action groups, etc. bring together different actors in a community to address substance abuse. Some community partnerships are spontaneous. However, the existence of community partnerships on a large scale is normally the product of a special programme providing financial and technical support to communities to deliver and sustain evidence-based prevention interventions and policies over time.”* Notably, ISDUP further states that *“Community-based initiatives are normally multi-component and take action in different settings (e.g., schools, families, media, enforcement).”* This operationalisation may have led to an understanding of CMCI as any intervention with at least two components and implemented at the community level. In line with this, the focus of the relevant literature appeared to be on multi-component interventions, which – in most of the referenced reviews – included a school-based prevention program and some additional component.

Second, there is a literature on whole-of-community-based initiatives that fits well with the ISDUP description of CMCI and which is largely missing in the ISDUP evidence. A systematic review and meta-analysis of whole-of-community interventions (Stockings et al., 2018) identified 24 controlled trials from 63 publications. Eligible trials involved more than one community-based setting to reduce harms from alcohol and drug use. Almost all (23) trials included a community mobilization component prior to conducting the trial. Other types of strategies employed were demand reduction and skills-based strategies (school curriculum and parent training); harm detection and reduction strategies (e.g. law enforcement of alcohol sales to minors and roadside drug testing); and supply reduction strategies (e.g. responsible beverage training and enforcement of service to intoxicated customers). While Stocking et al.’s review (2018) to some extent mirrors the evidence presented in ISDUP, in the sense that most of the identified interventions (70 %) in Stocking 2018 focused on young people in school settings, only a fraction of primary studies examining alcohol or drug outcomes in ISDUP referenced reviews were identified in Stocking et al 2018 (specifically: 4 studies in Foxcroft 2011; 1 study in Gates 2006 and 1 study in Jones 2006). This may well suggest that much of the evidence referenced in ISDUP pertains to interventions that do not correspond well with ISDUP’s description of CMCI with regard to community mobilisation and community sector partnerships.

Third, the 2nd edition of ISDUP did not identify any additional literature to that referenced in 2013; that is, no new systematic reviews were identified. While the abovementioned Stocking et al. 2018 review was likely published after the literature searches made for the 2nd edition, it seems that other reviews and primary studies could have been included. For example, Giesbrecht et al. 2014 reviewed a large number of evaluated local interventions and policies to reduce alcohol consumption or related harms across several countries, including the USA, Canada, Australia, New Zealand, and Nordic countries, however, the review was not strictly systematic. Their focus was on publications with a clear community-based focus, locally oriented alcohol policy or prevention strategy, and with an evaluation component. This review shows that there are many examples of evaluated community prevention projects which have included a broader set of intervention components, including law enforcement, media advocacy, and training of staff in on- and off-premise alcohol outlets.

Correspondence between statements and evidence in EUPC

The three-star rating in EUPC is derived from ISDUP, so the comments above also apply to discussions of the EUPC. In addition, EUPC included examples of promising interventions and included a narrative description of CMCIIs.

Regarding the examples of promising interventions, the statements in EUPC are cautious, suggesting that these are promising and may be beneficial. This perspective is typically more cautious than the statements in the primary studies, which often included stronger claims about effects.

The use of a selection of examples, instead of systematically assessing the strength of such interventions, is problematic. Among a range of projects and publications, some interventions will look more promising than others due to chance. Furthermore, selection of examples increases the risk of relying on interventions that have been presented more favourably than there was evidence for.

Selective reporting can make it easier to publish results in high-quality journals. Additionally, authors may prefer to report the most promising parts of the results if they are involved in the project. We do not claim that this has been the case, but we observe that the authors of publications relating to one of the chosen examples (STAD project) list the project itself as their affiliation.

There was no reference to replication studies using the example interventions that has yielded clear successful results. Yet, the chapter leaves the impression that community-based interventions are “powerful tools” (EUPC p.138).

Practical relevance of the guidelines

The efficacy rating “good” and the statement “*can prevent*” gives uncertain expectations or predictions regarding the implementation of interventions. The statements have no defined quantified target of inference. For example, we do not know what the expected average standardized effect size is when implementing CMCIIs. We do not know the chances that a randomly chosen CMCI-intervention from past studies will show positive effects on substance

use in a similar context, or whether new implementations of the most successful interventions are more than 50% likely to be beneficial.

If we attempt to make guesses based on the current pattern of results, it appears unlikely that a random CMCI intervention will show positive effects on primary outcomes. Few of the reviews suggests that the majority of primary studies yielded positive effects on primary outcomes.

The evidence in ISDUP does not establish whether CMCI are more effective than single component interventions. Thus, a practitioner would not know whether it is generally best to concentrate resources on a single component or to implement a CMCI. The principal question seems valid: would an extra component typically increase effectiveness? However, it seems nearly impossible to test this and arrive at general conclusions since it will depend on the components that are added and compared.

Methodological issues and future directions

We have reviewed the evidence base as used by ISDUP without consulting more recent evidence. Thus, we are only considering the correspondence between the evidence and the evidence statements, not their true validity in real life. Notably, the referenced studies in ISDUP are reviews published 15 – 25 years ago and hence the primary studies date even further back in time. The relevance of these studies in the present context may therefore be questioned.

In terms of future work, it might be of practical relevance to make a systematic summary of replicated interventions, those that are successfully replicated, those that are not, and differences in implementation. Furthermore, new meta-analyses including more recent studies could better quantify the distribution of effect sizes, heterogeneity, and test potential predictors of success.

Conclusion

We have assessed the correspondence between the evidence and the evidence statements regarding community-based multi-component (CMCI) initiatives in ISDUP and EUPC-- two important guideline documents for the prevention of substance use. The three-star rating of “Good” efficacy in ISDUP and EUPC appears to be too favourable given the underlying evidence. The conclusion that multi-component initiatives “*can prevent the use of drugs, alcohol and tobacco*” appears justified as it merely implies that there exist interventions that can prevent substance use in certain contexts. We identify several fundamental challenges in assessing and recommending CMCI. First, several reviews emphasize favourable effects over null effects which means that the overall impression of the evidence is biased. Second, the category CMCI includes a range of different types of settings (family, school, primary care, community, etc.) and a range of different components. It does not appear theoretically meaningful to provide a statement regarding the efficacy/effectiveness of such a heterogenous category since there must be a multitude of underlying mechanisms. Third, and relating to the second point, there is no quantification of evidence in a form that can guide decision-makers

(what are the expected effects, what is the chance of success?). Thus, the potential benefits of implementing a previously documented and evaluated CMCI are highly uncertain.

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