Interventions to reduce public stigma of mental illness and suicide – are they effective?

A systematic review of reviews

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About this publication

In the summer of 2018, the Public Health Agency of Sweden was assigned by the government to prepare an information and knowledge-enhancing effort in the area of mental ill-health and suicide prevention. The purpose of such an effort is to reduce the stigma of mental ill-health and suicide in the population. In November of the same year, the Public Health Agency of Sweden reported a plan for how the intervention could be designed and implemented. This systematic review of reviews was part of the work on the report.

The purpose of this systematic review of reviews is to increase knowledge of interventions targeted to reduce public stigma of mental health problems, mental illness and suicide in the general public and to explore the effectiveness of these interventions.

The report can be used as a knowledge base on how interventions against stigma can be designed by stakeholders at local and regional level who work with efforts to promote mental health.

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Public Health Agency of Sweden, May 2019

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Abbreviations

AMSTAR	A Measurement Tool to Assess Systematic Reviews
BSDS	Bogardus Social Distance Scale
CAMI	Community Attitudes Towards the Mentally Ill
EPHPP	Effective Public Health Practice Project
MAKS	Mental Health Knowledge Schedule
MHFA	Mental Health First Aid
OECD	Organization for Economic Cooperation and Development
OMI	Opinions about Mental Illness Scale
PICO	Population, Intervention, Comparison, Outcome
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RIBS	Reported and Intended Behaviours-scale

Glossary

Education refers to intervention strategies using dissemination of information and education about mental illness to reduced stigmatisation of that group (1).

Mental health problem is used to describe those conditions which are less severe (compared to mental illnesses), such as sadness or symptoms of less severe anxiety.

Mental ill health is a broad term that includes both mental illness and mental health problems.

Mental illness refers to all diagnosable mental disorders (e.g. depression, anxiety disorders, schizophrenia).

Narrative synthesis refers to an approach to systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarize and explain the findings of the synthesis.

Primary study is a scientific publication that reports on an empirical research study conducted by the authors.

Protest refers to intervention strategies using opposition to public depictions stigmatising mental illness and taking action against discrimination (1).

Public stigma refers to the prejudice and discrimination endorsed by the general population that affects a person (2).

Self-stigma refers to the harm that occurs when the person internalises the prejudice (2).

Social contact refers to intervention strategies based on contact with a person from a marginalised group to reduce stigmatisation of that group (1).

Stigma exists when elements of labelling, stereotyping, separation, status loss, and discrimination occur together in a power situation that allows them to occur (3).

Suicidal behaviour include completed suicides, suicide attempts and suicidal thoughts.

Systematic review is a type of literature review that uses systematic methods to identify, select and critically appraise research in order to answer a clearly formulated question.

Universal intervention refers to interventions that target a whole population, as opposed to targeted interventions aimed at a limited group of individuals.

Summary

People with mental health problems often experience stigmatization that can have serious consequences for their lives, such as difficulties in accessing housing, employment, education and healthcare. Fear of discrimination and stigmatisation can become a barrier against seeking health care, which can have a negative effect on the physical and mental health of persons experiencing mental health problems.

This literature review aims to increase knowledge about interventions to reduce stigma related to mental health problems, mental illness and suicide among the public and to explore the effectiveness of the interventions. We screened the literature through structured searches in scientific databases and screening of reference sections. Out of the 1,945 identified publications, we found seven reviews that were relevant in this review of reviews. The main focus of all of the included studies was stigma related to mental illness and suicide, whereas not much attention was given to less severe forms of mental health problems. We used narrative synthesis to analyse the data.

The results indicated that anti-stigma interventions that included social contact, education and information, as well as interventions using several strategies simultaneously seemed to be the most effective to reduce mental illness and suicide-related stigma. The results also suggested that the interventions appear to improve the *knowledge* and *attitude* components of stigma rather than the *behavioural* component. In addition, the investigated anti-stigma interventions of mental illness and suicide appeared to be effective with small to moderate effect sizes.

Our systematic review of reviews indicates that some interventions to reduce stigma related to mental illness and suicide appear to be effective in improving knowledge and attitudes in the general population, at least in the short term. Yet, due to methodological limitations expressed by several authors of the identified studies, the results should be interpreted with some caution. There is also a lack of knowledge about the effects of anti-stigma interventions on public knowledge, attitudes and behaviors associated with less severe forms of mental health problems.

Sammanfattning

Människor med psykiska hälsoproblem upplever ofta stigmatisering som kan få allvarliga följder för deras liv, till exempel svårigheter att få tillgång till bostäder, sysselsättning, utbildning och hälso- och sjukvård. Rädsla för diskriminering och stigmatisering kan också bli ett hinder för att söka vård, vilket kan påverka både den somatiska och psykiska hälsan negativt.

Denna litteraturöversikt syftar till att öka kunskapen om insatser för att minska stigma bland allmänheten relaterad till psykiska problem, psykisk sjukdom och självmord, och effektiviteten av insatserna. Vi identifierade litteratur genom strukturerade sökningar i vetenskapliga databaser och genom screening av referenslistor. Av 1 945 identifierade vetenskapliga artiklar inkluderade vi sju litteraturöversikter som bedömdes vara relevanta. Huvudfokus i samtliga av dessa var stigma relaterat till psykisk sjukdom och suicid och nästan ingen information gällde mindre allvarliga former av psykisk ohälsa. Vi använde narrativ syntes för att analysera data.

Resultaten indikerar att anti-stigmainsatser som innehåller social kontakt, utbildning och information samt insatser som använder flera strategier samtidigt tycks vara effektiva för att minska stigma relaterad till psykisk sjukdom och suicid. Resultaten tyder även på att insatserna verkar förbättra kunskaper och attityder snarare än beteenden. De studier som redovisar effektstorlekar indikerar att de dokumenterade effekterna är små till medelstora.

Denna systematiska översikt av översikter tyder på att vissa insatser för att minska stigma relaterad till psykisk sjukdom och självmord verkar vara effektiva för att förbättra kunskapen och attityderna i den allmänna befolkningen, åtminstone på kort sikt. Men på grund av metodologiska begränsningar som uttrycks av flera författare till de identifierade studierna, bör resultaten tolkas med viss försiktighet. Det verkar även saknas kunskap om anti-stigmainsatsers effekter när det gäller allmänhetens kunskaper, attityder och beteenden kopplade till personer med mindre allvarliga former av psykiska problem.

Background

Mental health problems and mental illness are not the same thing, yet the two phenomena share some common symptoms, with differing severity. Mental illness refers to diagnosable mental disorders (e.g. depression, anxiety disorders, schizophrenia) whereas mental health problems may not meet the necessary criteria for a diagnosed mental illness. From our preunderstanding of the subject of stigma, as it relates to mental health, most knowledge is concentrated on mental illness, and not so much on common mental health problems e.g. feeling anxious and feeling sad and low. Although the initial intention of this review was to apply a broad conceptualisation of mental health problems, the lack of information relating to stigma of less severe expressions of mental ill-health resulted in a clear emphasis on stigma of mental illness. We include the stigmatisation of suicide as there is a known association between mental illness and suicide, and more importantly indications of an association between stigma of mental illness and suicide (5, 6).

Individuals who suffer from mental illness are often subject to misunderstandings from the society they live in. Existing modern stereotypes might portray people with a mental illness as blameworthy, unpredictable, violent, incompetent, or unable to recover fully (4).

One frequently used definition of stigma around mental illness by Link and Phelan defines it as the co-occurrence of labelling, stereotyping, separation, status loss, and discrimination where power is exercised (3). There are several other definitions of stigma used in different disciplines, but common for most conceptualisations are three main sub-components – knowledge (stereotypes), attitudes (prejudice), and behaviour (discrimination) (3). Stigmatisation of mental illness can also take place on different levels of society. Structural stigma is that which occurs within public and private institutions in the form of laws, regulations and policies (7). Public stigma is the stigma upheld by individuals and groups in the general population, while self-stigma occurs when a person of a stigmatised group internalises the negative stereotypes against the group (7). Further, within public stigma two types of stigma can be distinguished – public personal stigma (which is the personal thoughts and beliefs about mental illness of an individual from the general population) and public perceived stigma (which is an individual's perception of how other people think and feel) (8). This review focuses on public personal stigma around mental illness and suicide.

Consequences of stigma

Stigmatization of people with mental illness can have serious consequences in their lives, such as disadvantages in access to housing, employment, education, and health care (9). For example, people with a mental illness often experience unequal treatment for physical health conditions (10), and stigma can act as a barrier for health-care seeking among people with a mental illness (11). Stigma can also lead to social exclusion (3). In addition, there are studies linking stigmatisation of

mental illness and suicide, but this association needs to be further researched (12). Overall, there is a scientific consensus concerning the harmfulness of stigma relating to mental illness for the health and quality of life of individuals with mental illness.

Measuring stigma of mental illness

All conceptualizations of stigma are complex and consist of several sub-components, and this is reflected in the tools used to operationalize stigma (13). The most commonly used are self-report tools focusing on the specific sub-components of stigma: knowledge, attitudes, or behaviour. These tools to measure stigma are used either on their own or in combination for a more comprehensive measure of stigma. Therefore, an overall reduction in the scores with any tool is considered to mean that an intervention has an effect on reducing stigma. Measures of stigma related to suicide specifically, such as attitudes, knowledge, and awareness of suicide, are also considered to be measures of stigma of mental illness.

To measure knowledge of mental illness, the Mental Health Knowledge Schedule (MAKS) is commonly used, and to measure attitudes toward mental illness there is the Community Attitudes Towards the Mentally Ill (CAMI) and the Opinions About Mental Illness (OMI) scales (14). Since measuring actual behaviour is difficult when using self-report tools, the concept of social distance is often used. Social distance is a person's intentions and willingness to interact with a person of a stigmatised group (13). It is frequently measured using the Bogardus Social Distance scale (BSDS) or the Reported and Intended Behaviours Scale (RIBS) (13). It is important to recognise that the RIBS measures intended behaviours, not actual behaviours, even though it is often described as a measure of mental health-related behaviour (14). Instead, RIBS and BSDS are both used as proxy measure of the behavioural sub-component of stigma (15).

Strategies to reduce stigma

Three commonly used strategies aimed at reducing stigma related to persons with mental illness are protest, education, and social contact (3). Protest involve opposition to stigmatising public depictions of mental illness and taking action against discrimination. These can involve informing people about stigmatising messages in media and organising a joint protest or response (3). Education strategies often entail dissemination of information and brief education on mental illness and seek to contradict false beliefs and unjustified fear of individuals with mental illness. Social contact strategies are based on research showing that contact with a person from a marginalised group can lead to reduced stigmatisation of that group (3).

Aim

The aim is to increase knowledge of interventions targeted to reduce public stigma of mental health problems, mental illness and suicide in the general population and to explore the effectiveness of these interventions.

Method

This systematic review was conducted according to the guidelines for literature reviews of The Public Health Agency of Sweden (16) and the PRISMA guidelines for systematic reviews and meta-analyses (17). Initially, we searched for both primary studies and systematic literature reviews that met the inclusion criteria, but eventually, only systematic reviews remained to be included in our review. Thus, during the course of our work, the format of this study evolved into a systematic review of reviews.

PICO question

We formulated the following PICO question to guide the literature search and selection of studies.

Does the level of stigma change (O) in populations (P) that are exposed to interventions that aim to reduce public stigma around mental health problems, mental illness and suicide in the general population (I) compared to those who have not been exposed to such an intervention or before they have received the intervention (C)?

Search strategy

We searched four electronic databases (The PubMed, Web of Science, PsycINFO, and Google Scholar) for articles published between 2008 and 2018 by using pre-defined search strings. Search terms such as “stigma”, “attitudes”, “awareness”, “prejudice”, “mass media”, health literacy”, “public information”, “campaign” “mental health”, “mental disorders”, “mental ill-health”, mental illness”, “suicide” were used in different combinations. We limited our search to articles published in English and available in full-text. Full details of the search strategy for each database are provided in the appendix 1. We also hand-screened the reference lists of identified articles in order to find further relevant studies.

Inclusion and exclusion criteria

We included articles if they evaluated universal interventions that aimed to reduce public stigma regarding mental health problems, mental illness and/or suicide in the general population, reported outcomes that related on the effect on stigma and had a comparison group. We included both primary studies and systematic literature reviews that presented a transparent methods section (see Table 1 for inclusion and exclusion criteria).

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
The article included an evaluation of a universal intervention aimed at the general population	The intervention under study was not aimed at the general population, but at a specific target group (such as health care staff, students, people with a mental illness, or other specific target groups)
The aim of the intervention was to reduce public stigma regarding mental health problems, mental illness, and/or suicide	The aim of the intervention under study was not to reduce public stigma but was focused on, for example, self-stigma or reducing symptoms of mental illness
The outcome of the evaluation was the effect on stigma	No quantitative measure of the effect of the intervention on stigmatisation was given
A comparison group for comparing the effect of the intervention was present	The effect of the intervention was not compared with a control group or pre- and post-intervention
A transparent methods section was present	Methods were not described in a transparent way (for example, the selection process of the studies was not described)
Articles reporting primary studies or systematic literature reviews	The effect of the intervention was not tested in a real-life setting but instead, for example, in a lab experiment or in a feasibility study
	Not available in full-text in English

Study selection and evaluation

We screened all articles from PubMed, Web of Science, and PsycINFO and the first 20 hits of Google Scholar. The first reviewer (VB) screened the articles based on their title and abstract to determine if they were eligible to answer the research questions and if they were performed within the Organization for Economic Cooperation and Development (OECD) (see Appendix 2 for a list of OECD countries). After this, a second reviewer (EA) screened 10% of the titles and abstracts sample-wise. Eventual uncertainty was resolved through discussions between the two reviewers and reached a consensus-based decision. Finally, the first reviewer reviewed the full text of these articles to determine whether they met our inclusion and exclusion criteria.

Quality assessment

We used the Effective Public Health Practice Project (EPHPP) quality assessment tool to check the methodological quality of the primary studies (18). We excluded studies that we considered to be of poor quality. In order to assess the methodological quality of systematic literature reviews we used the Measurement Tool to Assess Systematic Reviews (AMSTAR) (19). We excluded studies if they scored negative on more than three of the first eight questions of the AMSTAR.

Data extraction and synthesis of results

We extracted information on the following study characteristics for the included studies: author(s), title of study, year of publication, aim of the study, type of study literature search methods, search results, conclusions, and notes of the reviewer.

We only extracted the information related to the evaluations of interventions targeting the general public. The conclusions are those of the authors of the studies. The synthesis of results is based on a narrative analysis and is presented in different themes, as this was most appropriate given the quality and heterogeneity of the included studies.

Result

Figure 1 shows the flow chart of the search strategy. We retrieved 2,268 records from the four databases. After removing duplicates and excluding records based on information in title/abstract, there were 155 records left to be read in full text and screened for eligibility. We excluded 132 of these because they were not accessible in full text; the interventions examined were not aimed at general population; no quantitative measure of effect were presented; they had no comparison group nor was presented in a real life setting or the methods are not presented at a transparent way. Thus, 23 records were left for quality assessment. We also checked manually the reference lists of these articles for additional sources but without adding any further study. Based on the quality assessment we excluded eleven primary studies and one review. We also decided to exclude four remaining primary studies since they are parts of systematic reviews that are included. This left us with seven studies in total that are all systematic literature reviews.

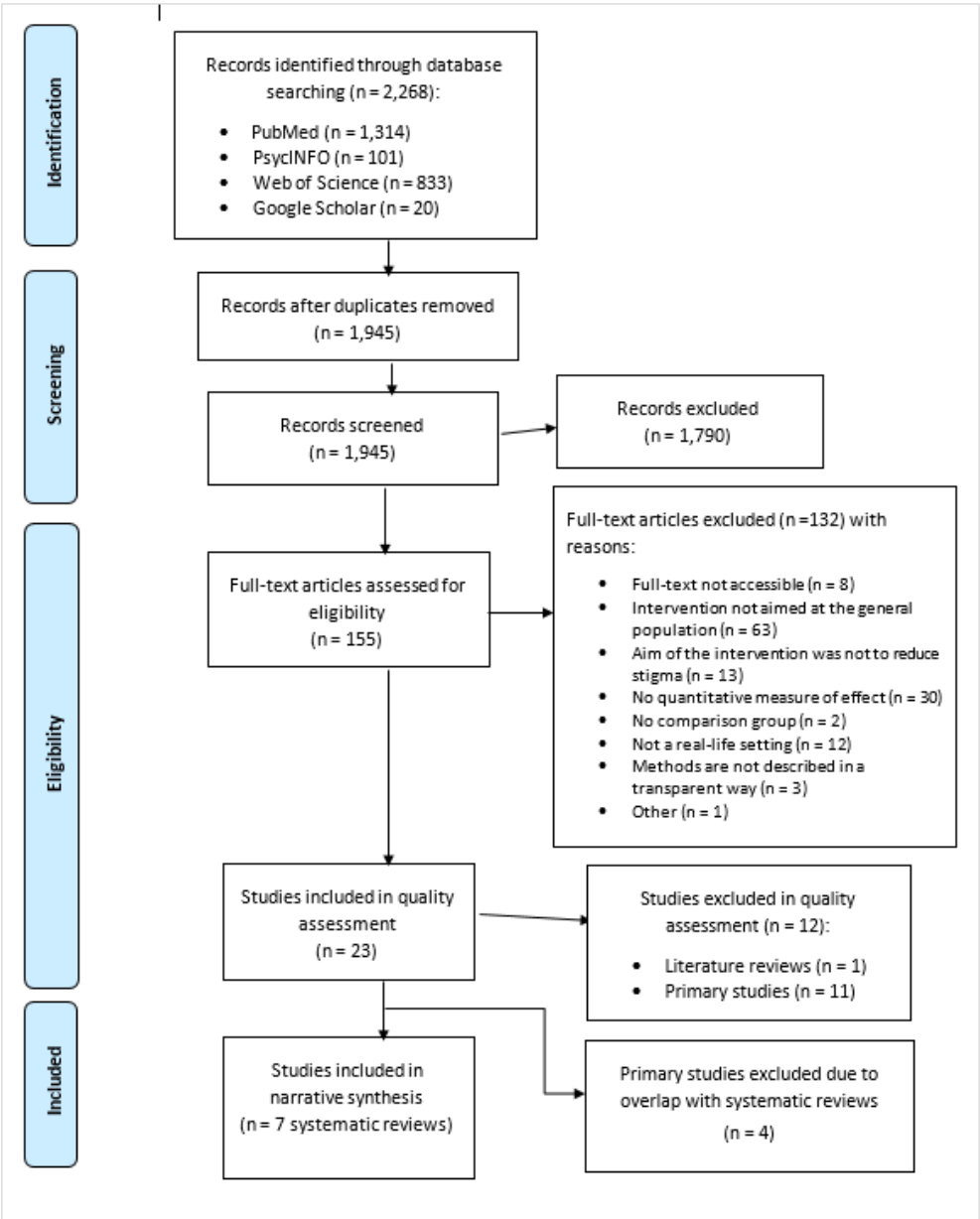
Overview of included studies

The quality assessment for the seven included studies is summarized in Table 2 and their study characteristics and general finding are summarized in Table 3 and Table 4, respectively. One study has a broad focus and contain studies of both population-based interventions to reduce stigma, and targeted interventions directed at certain risk groups (12). This study summarizes results from systematic reviews as well as primary studies narratively. Three of the included literature reviews use meta-analysis to synthesize the results (2, 20, 21) and in the remaining three, the result is described in narrative terms (22-24).

Three main intervention types are represented in the included studies - these are strategies of mental health education, efforts to inform the public (e.g. mass media campaigns) and activities of social contact between people with and without mental illness.

When it comes to outcomes, four reviews focus on stigma around mental illness in general. Also, some information on stigma considering wider definitions on common mental health problems are embedded in some of these studies. Three of the reviews include stigmatization outcomes related to suicide specifically.

Figure 1. PRISMA flow chart of study selection



Anti-stigma interventions

Interventions that include social contact and education

Two reviews found that interventions with *social contact* (i.e. contact with persons with mental illness) are effective in improving stigma-related knowledge and attitudes in the short term (2, 12), specifically face-to-face contact (2) or first-person narratives (12). Such interventions could for example be organized around ambassadors with their own experience of mental illness that meet and talk to people and tell their story. *Educational* strategies were also found to be effective (2, 12). A study by Hadlaczky et al (2014) showed that the *Mental Health First Aid* training and research program (MHFA) increases participants knowledge regarding

mental illness, decreases their negative attitudes, and increases supportive behaviours toward individuals with mental health problems (20). Contact strategies appeared to be more effective among adults, while *educational* strategies were more effective among youths (2). No evidence was found that *protest* (i.e. using opposition to public depictions stigmatising mental illness and taking action against discrimination) lead to change in mental health related stigma (2). In a similar way, there was a lack of evidence for the effectiveness of interventions using *psycho-education*, *psychotherapy, entertainment* or *art* to reduce stigma (12). Notably, one review found that biological and genetic messages might do harm by increasing stigma (12).

Information (i.e. mass media /public awareness interventions)

Four reviews focused on the effects of media campaigns on public stigma on mental ill-health and two of them in the aspect of suicide prevention specifically. The four reviews that assessed *media campaigns* found significant reductions in mental health related stigma, even though the quality of the evidence was limited (21-24). One of the reviews showed that media interventions without face-to-face contact (e.g. newspapers, billboards, pamphlets, DVDs, television, radio, cinema and internet) can reduce prejudice (stigmatising attitudes) but there is insufficient evidence to determine the effects regarding discrimination (being treated unfairly) (21). The review by Pirkins et al (2017) that investigated media campaigns specifically in suicide prevention found effects on improved knowledge and beliefs about suicide, and to a lesser extent attitudes towards it. The study showed that it appears easier to modify attitudes than to influence behaviour (e.g. help-seeking, negative behaviour, and self-harm). Similarly, the review by Torok et al (2016) found a strong evidence linking mass media campaigns with significant, but modest, increases in suicide knowledge. In total, 7 out of 12 included studies, showed positive effects on at least one measure of suicide literacy (knowledge) whereas 2 out of 4 included studies that measured stigma (attitudes and/or beliefs) as an outcome, found positive intervention effects. The study also concluded that mass media campaigns seem to be most effective in changing behavioural outcomes when they are part of a multicomponent prevention strategy. However, campaigns that "stand alone" are somewhat effective in increasing knowledge (suicide literacy).

Also, the review by Dumesnil and Verger (2009) (23) suggested that public awareness interventions (i.e. short media campaigns, gatekeeper training, long national programmes and long local or community programmes) about suicide or depression improve knowledge and awareness of mental illness in the population in the short term and contribute to social acceptance of persons with mental illness.

Multi-component interventions

Three reviews found that interventions that combine several different strategies and components appear to have greater chance to lead to reductions in stigma related to mental illness (12, 22, 24). One of the reviews that investigated suicide prevention

campaigns found that they are most likely to succeed when delivered as part of a larger, multi-level approach (24). The two other reviews found that simultaneous application of several strategies is successful for reducing mental health related stigma, such as both media campaigns and educational intervention components (22) or both educational and social contact strategies (12).

Local engagement and intervention exposure

Two of the included reviews synthesised information on other factors than pure intervention components associated with the outcome of stigma, e.g. the role of local engagement and intervention exposure. It seems that local organisation and community engagement was important for the effectiveness of the interventions, since positive outcomes on stigma reduction were associated with organising programmes locally with a targeted approach to a homogenous group (22), and applying some form of community engagement (24). Both of the reviews also found that higher level of exposure or repeated exposure to the intervention was essential for an effect to occur (22, 24).

Table 2a. Quality assessment of the included studies

Author & year	Was an "a priori" design provided?	Was there duplicate study selection and data extraction?	Was a comprehensive literature search performed?	Was the status of publication used as an inclusion criterion?	Was a list of studies (included and excluded) provided?	Were the characteristics of the included studies provided?
Thornicroft et al.(2016)	Yes	No	Yes	Yes	Yes	Yes
Corrigan et al. (2012)	Yes	Yes	Yes	Yes	Yes	Yes
Hadlaczky et al (2014)	Yes	No	Yes	Yes	Yes	Yes
Clement et al. (2013)	Yes	Yes	Yes	Yes	Yes	Yes
Dumesnil & Verger (2009)	Yes	No	Yes	Yes	Yes	Yes
Pirkis et al. (2017)	Yes	No	Yes	Yes	Yes	Yes
Torok et al. (2016)	Yes	Yes	Yes	Yes	Yes	Yes

Table 2b. Quality assessment of the included studies

Author & year	Was the scientific quality of the included studies assessed and documented ?	Was the scientific quality of the included studies used appropriately in formulating conclusions?	Were the methods used to combine the findings of studies appropriate?	Was the likelihood of publication bias assessed?	Was the conflict of interest stated?
Thornicroft et al.(2016)	No	Yes	Not applicable	No	Yes
Corrigan et al. (2012)	Yes	Yes	Yes	No	Yes
Hadlaczky et al (2014)	Yes	Yes	Yes	Yes	Yes
Clement et al. (2013)	Yes	Yes	Yes	Yes	Yes
Dumesnil & Verger (2009)	No	Yes	Not applicable	No	Yes
Pirkis et al. (2017)	No	Yes	Not applicable	No	Yes
Torok et al. (2016)	No	No	Not applicable	No	No

Table 3. Summary of study characteristics in included studies

Author (year)	**Titel**	**Intervention (number of included studies and type of synthesis)**	**Overall effect on stigma**
Thornicroft et al.(2016)	Evidence for effective interventions to reduce mental health-related stigma and discrimination	Social contact, education or information, A large amount of literature is summarized of which the following is of interest for this review of reviews: (1 systematic review, 11 primary studies, and 1 report of grey literature, narrative synthesis)	An overall pattern of positive short-term effects of interventions on attitudes, but slightly weaker evidence for knowledge improvement. Effect sizes were generally small to moderate.
Corrigan et al. (2012)	Challenging the public stigma of mental illness: a meta-analysis of outcome studies	Education of the public, contact with persons with mental illness and protest or social activism. (72 studies, meta analysis)	An overall positive effect on reducing stigma was found for both education and contact interventions. Effect sizes were generally small.
Hadlaczky et al (2014)	Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: a meta-analysis	Education (Mental Health First Aid) (15 studies, meta-analysis)	MHFA interventions have significant intervention effects on knowledge, attitudes, and behaviours regarding mental illness. A moderately high mean (combined) effect size was found for knowledge outcomes. The mean effect size for both attitude and behavioural outcomes was also moderate.
Clement et al. (2013)	Mass media interventions for reducing mental health-related stigma	Mass media interventions (22 studies, meta-analysis)	Mass media interventions may reduce prejudice (attitudes). Effect sizes are small to medium.
Dumesnil & Verger (2009)	Public awareness campaigns about depression and suicide: a review	Public awareness campaigns (43 studies that described 15 programs, narrative synthesis)	Public awareness campaigns improve knowledge and attitudes about suicide and depression at least moderately. The effects of campaigns on behavioural outcomes are uncertain.
Pirkis et al. (2017)	Suicide prevention media campaigns: A systematic literature review	Media campaigns (21 articles that described in 20 separate studies, narrative synthesis)	Media campaign exposure can lead to improved knowledge and awareness of suicide
Torok et al. (2016)	A systematic review of mass media campaigns for suicide prevention: understanding their efficacy and the mechanisms needed for successful behavioural and literacy change	Mass media campaigns (13 articles that described 12 unique trails, narrative synthesis)	Overall, mass media campaigns are effective for increasing suicide knowledge. Less evidence was found for improved attitudes, and none for behaviour.

Table 4. Summary of findings in included studies

Author (year)	Key findings
Thornicroft et al.(2016)	Interventions with social contact (i.e. contact between people with and without mental illness) or first-person narratives are more effective than other strategies. Social contact is the most effective intervention for adults in short-term outcome studies but no evidence was found for long-term effects. Using a combination of education/information and direct/indirect contact also works well, as do interventions using only direct contact. Some medium and long-term effects were found for knowledge and attitudes, but not behaviour. Mental health education or information interventions seem to be most effective with regards to 4 weeks or longer follow-up. There is insufficient evidence for behavioural outcomes or for interventions based on psycho-education, psychotherapy, entertainment, or arts to reduce stigma in the medium to long term. Interventions using a biological or genetic explanation for the cause of mental illness have the potential to produce harm and should be further investigated.
Corrigan et al. (2012)	Contact with people with a mental illness leads to a greater improvement compared to educational strategies on overall stigma. Face-to-face contact has the greatest effect on overall stigma when comparing this with videotaped contact. Protest strategies do not lead to stigma change.
Hadlaczky et al (2014)	Mental Health First Aid interventions increase knowledge, decrease negative attitudes, and increase supportive behaviours towards people with mental illness. The homogenous results and absence of systematic bias suggest that the intervention is effective for reducing stigma.
Clement et al. (2013)	Mass media interventions without face-to-face contact (e.g. newspapers, billboards, pamphlets, DVDs, television, radio, cinema and internet) can reduce prejudice (stigmatising attitudes) but there is insufficient evidence to determine the effects on regarding discrimination (being treated unfairly). The quality of evidence is low for both prejudice and discrimination outcomes.
Dumesnil & Verger (2009)	Public awareness campaigns (i.e. short media campaigns, gatekeeper training, long national programmes and long local or community programmes) about suicide or depression improve knowledge and awareness of mental illness in the population in the short term and contribute to social acceptance of persons with mental illness.
Pirkis et al. (2017)	There is a strong suggestion for the effectiveness of media campaigns in reducing some measures of suicide-related stigma, but evidence is still amassing. This review mainly found effects on improved knowledge and beliefs about suicide, and to a lesser extent attitudes towards it. It appears easier to modify attitudes than to influence behaviour (e.g. help-seeking, negative behaviour, and self-harm). Some studies found that media campaigns also boost help-seeking, while others suggest that they make no difference or only have an impact when particular sources of help or types of help-seeking are considered. Few studies had sufficient power to examine the influence of media campaigns on the number of suicides, but the studies that had significant power showed a significant reduction.
Torok et al. (2016)	There is strong evidence linking mass media campaigns with significant, but modest, increases in suicide knowledge. Overall, there is a need for better quality evidence. 7 out of 12 included studies, showed positive effects on at least one measure of suicide literacy (knowledge). 2 out of 4 included studies that measured stigma (attitudes and/or beliefs) as an outcome, found positive intervention effects. The literacy gains do not correspond to behavioural change and are not maintained over time. Mass media campaigns seem most effective in changing behavioural outcomes when they are part of a multicomponent prevention strategy. However, campaigns that "stand alone" are somewhat effective in increasing knowledge (suicide literacy). Level of exposure, repeated exposure, and community engagement seem to be fundamental both to the short- and long-term success of campaigns.

Discussion

This systematic review of reviews synthesise knowledge of interventions that aimed to reduce public stigma related to mental health problems, mental illness and suicide and explore the effectiveness of these interventions in the general population.

Our initial intention of this review was to apply a broad conceptualisation of mental problems, so we performed a broad literature search for interventions covering stigma around people with common mental health problems and mental illness but most of the identified studies were focused primarily on stigma of mental illness. Since this is a review of reviews, it was difficult to identify which forms of mental ill-health were focused on in the primary studies reported in the systematic reviews that were included. Also, in common language and even in academic publications, there can be some confusion when it comes to describing different forms and definitions of mental health problems versus mental illness.

Our results indicate that interventions that include components of social contact and education as well as interventions that spread information about mental illness and suicide appear to be effective in helping to reduce the public's stigma in this area. In addition, complex interventions combining several strategies simultaneously seem effective in reducing stigma of mental illness. Our findings are largely supported by Corrigan (25) who has formulated five principles for best practice to reduce public stigma around mental illness in collaboration with the National Consortium on Stigma and Empowerment. These are

- social contact with individuals with mental ill-health are fundamental for reducing stigma,
- targeted (contact) interventions for key groups are the most effective,
- local influence on (contact) interventions is the most effective,
- credibility of the contact is paramount, and
- continuity of contact with multiple contacts of different kinds over time is important.

Most of the studies in this systematic review differentiated between intervention effects on the sub-components of stigma (i.e. knowledge, attitudes, and behaviour). These are often measured using different scales in self-report tools such as surveys and questionnaires. Most common was the finding that anti-sigma interventions improve knowledge of mental illness. We found that five of the seven reviews measuring knowledge-related outcomes found small to medium effect size, In addition, four out of six reviews found significant improvements in attitudes, on small to medium effects. However, only two out of six reviews found significant improvements in (self-reported) behavioural outcomes following an intervention, with modest effect sizes. This is in line with an understanding of discriminating behaviours as a behavioural consequence of a lack of understanding (knowledge) and negative attitudes towards a minority group (such as persons with mental

illness) (3). The ultimate goal of these interventions is to achieve large-scale behavioural change and reduce discrimination against individuals with mental illness on a population level, but this appears more difficult to achieve than outcomes related to knowledge or attitudes. The small to medium effect sizes that are found in this review of reviews however, are to be expected, and their relevance should not be neglected. Population-based studies seldom report effect sizes of larger magnitudes, and small effect sizes may have great impact from a public health perspective.

Another notable finding concerns the maintenance of the results. We found that many of the included studies found positive short-term effects of the interventions, but few evaluated long-term effects and only some of them reported any significant long-term effects on stigma. One review found a consistent pattern of short-term effects on stigma and indications of medium and long-term effects on knowledge and attitudes but not behaviour, for educational interventions (12). Another review also found positive short-term effects on stigma, but found too few evaluations of durability (22). To summarise, there are some indications of long-term effects of these interventions, but since the long-term evaluations of the durability of intervention effects on stigma are lacking, this review only found support for short-term effects with small to moderate effect sizes. The findings that high level of exposure and repeated exposure of interventions promote effects on stigma reduction indicates that long-term effects may depend on such factors.

An additional noteworthy finding is about the content of the messages used in information-based interventions. One included review found that campaigns that use biological and genetic messages might cause harm by actually increasing stigma. However, the association is under-researched and needs to be further investigated (12). Biological and genetic messages are those that convey the message that mental illness is like any other physical illness and that such illness can have a biological or genetic basis. One study based on expert interviews (and not included in this systematic review) suggests that these aetiological explanations of mental illness can be problematic because they increase the sense of "otherness" and a division between "us" and "them" (26). These messages might be scientifically correct, but they might not be effective in interventions to reduce stigma aimed at the general population. This review however, did not intend to examine the effectiveness of specific messages in relation to anti-stigma interventions, since this is a separate field of knowledge that needs to be further studied to be summarized.

Methodological limitations

This systematic review of reviews and narrative analysis has some limitations, which can largely be attributed to challenges associated with conducting a review of other literature reviews. For example, when examining the reviews, it is difficult to control or assess the quality of each of the primary studies included in the reviews. There is also some overlapping of the primary studies included in the reviews. In addition, since we have not studied the analyses of each of the primary

studies included, the conclusions we draw in our review are based on the authors of the included reviews, not those of the primary studies.

The study selection, with broad inclusion and exclusion criteria, led to a large heterogeneity of included studies (involving many different types of interventions, and effects on stigmatization of both suicide and mental illness). This made the data synthesis somewhat challenging. Nevertheless, the broad inclusion criteria were necessary due to the lack of high-quality scientific evaluations of the topic. As several authors of the included reviews expressed, the results should be interpreted with some caution as they are often based on limited evidence, where there are apparent difficulties in establishing that changes in stigma are attributable to a specific intervention and not to other societal factors. Keeping this in mind, evaluations of these types of public health interventions generally do not allow for random allocation of individuals in high-quality experimental settings and instead consist mostly of observational studies of varying methodological quality.

Conclusion

Stigmatization of persons with mental illness can have serious consequences for their lives. Anti-stigma efforts should thus be an essential part of mental health promotion and suicide prevention. This systematic review of reviews indicates that some interventions to reduce stigma related to mental illness and suicide appear to be effective in improving knowledge and attitudes in the general population, at least in the short term. Yet, due to methodological limitations expressed by several authors of the included studies, the results should be interpreted with some caution. There is also a lack of knowledge about the effects of anti-stigma interventions on public knowledge, attitudes and behaviors associated with less severe forms of mental health problems.

Contributing authors

Eija Airaksinen, Lina Wiklander, Jenny Telander and Regina Winzer, all analysists and Johanna Ahnquist, head of the Unit for Mental Health, Children and Youth as well as Emma Funegård, information specialist at the Public Health Agency of Sweden has contributed to finalizing this systematic review of reviews.

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Appendix 1

Table 5. Search strategy for PubMed (July 16th 2018)

Search	Keywords	Limitations	Number of hits
#1	"social stigma"[MeSH Terms] OR stigma[Title/Abstract] OR stigmas[Title/Abstract]		20,618
#2	attitude[Title/Abstract] OR attitudes[Title/Abstract]		13,2047
#3	awareness[Title/Abstract]		123,209
#4	prejudice[Title/Abstract]		3,992
#5	#1 OR #2 OR 3 OR #4		264,936
#6	"mass media"[Title/Abstract] OR mass-media[Title/Abstract]		5,236
#7	"Health Education"[MeSH Terms] OR campaign[Title/Abstract] OR "mass communication"[Title/Abstract] OR "Health Communication"[MeSH Terms] OR "public information"[Title/Abstract] OR "public education"[Title/Abstract]		247,858
#8	"social media"[MeSH Terms] OR "social media"[Title/Abstract]		8,668
#9	#6 OR #7 OR #8		258,390
#10	"mental health"[MeSH Terms] OR "mental disorders"[MeSH Terms] OR "mental health"[Title/Abstract] OR "mental ill-health"[Title/Abstract] OR "mental disorder"[Title/Abstract] OR "mental disorders"[Title/Abstract] OR "mental illness"[Title/Abstract]		1,216,742
#11	suicide[MeSH Terms]] OR suicide[Title/Abstract] NOT assisted suicide[MeSH Terms]		73,933
#12	#10 OR #11		1,262,518
#13	#5 AND #9 AND #12		2,789
#14	#13	Full text	2,242
#15	#14	English language	2,142
#16	#15	Publication date: 2008-2018	1,314

Table 6. Search strategy for PsycINFO (July 16th 2018)

Search	Keywords	Limitations	Number of hits
#1	"stigma"[Subject Headings] OR stigma[Title] OR stigmas[Title]	Full text, English language	3834
#2	attitude[Title] OR attitudes[Title]	Full text, English language	13463
#3	awareness[Title]	Full text, English language	3539
#4	prejudice[Title]	Full text, English language	722
#5	#1 OR #2 OR 3 OR #4	Full text, English language	21077
#6	"mass media"[Title] OR mass-media[Title]	Full text, English language	244
#7	"Health Education"[Subject Headings"] OR "Health Knowledge" [Subject Headings] OR "Health Literacy" [Subject Headings] OR campaign [Title] OR "mass communication"[Title] OR "health communication"[Title] OR "public information"[Title] OR "public education"[Title]	Full text, English language	10741
#8	"social media"[Subject Headings] OR "social media"[Title]	Full text, English language	4455
#9	#6 OR #7 OR #8	Full text, English language	15254
#10	"mental health"[Subject Headings] OR "mental disorders"[Subject Headings] OR "mental health"[Title] OR "mental ill-health"[Title] OR "mental disorder"[Title] OR "mental disorders"[Title] OR "mental illness"[Title]	Full text, English language	220020
#11	suicide[Subject Headings] OR suicide[Title]	Full text, English language	10605
#12	#10 OR #11	Full text, English language	227231
#13	#5 AND #9 AND #12	Full text, English language	145
#14	#13	Publication date: 2008-2018	101

Table 7. Search strategy for Web of Science (July 17th 2018)

Search	Keywords	Limitations	Number of hits
#1	TS = (stigma* OR attitude* OR awareness OR prejudice*)	Full text, English language	333002
#2	TS = ("mass media" OR mass-media OR "social media" OR "health education" OR campaign* OR "mass communication" OR "health communication" OR "public information" OR "public education")	Full text, English language	114803
#3	TS = (suicide* OR "mental health" OR "mental ill-health" OR "mental illness" OR "mental disorder*"	Full text, English language	170455
#4	#1 AND 2 AND #3	Publication date: 2008-2018	833

Table 8. Search strategy for Google Scholar (July 17th 2018)

Search	Keywords	Limitations	Number of hits
#1	Stigma[title] AND ("mental health"[title] OR "mental ill-health"[title] OR "mental illness"[title] OR "mental disorder*"[title] OR suicide[title])	Publication date: 2008-2018	2370
#2	#1	First 20 hits	20

Appendix 2

Table 8. List of OECD countries.

Australia	Korea
Austria	Latvia
Belgium	Lithuania
Canada	Luxembourg
Chile	Mexico
Czech Republic	The Netherlands
Denmark	New Zealand
Estonia	Norway
Finland	Poland
France	Portugal
Germany	Slovak Republic
Greece	Slovenia
Hungary	Spain
Iceland	Sweden
Ireland	Switzerland
Israel	Turkey
Italy	United Kingdom
Japan	United States

This report concerns interventions to reduce stigma of mental illness and suicide in the public. It presents and discusses scientific evidence for the effectiveness of these interventions, and the types of interventions that appear most successful for reducing stigma in the general population.

The report is intended as a method statement and reference report for other publications of the Public Health Agency of Sweden. The report is aimed at persons with an interest in the scientific methods used to evaluate the effectiveness of interventions to reduce stigma but can be used as a knowledge base for persons involved in planning public health interventions to promote mental health and prevent mental illness.

The Public Health Agency of Sweden is an expert authority with responsibility for public health issues at a national level. The Agency develops and supports activities to promote health, prevent illness and improve preparedness for health threats. Our vision statement: a public health that strengthens the positive development of society.

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