



A systematic review of the impact of media reports of severe mental illness on stigma and discrimination, and interventions that aim to mitigate any adverse impact

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Abstract

Purpose This review aims to summarise the evidence on the impact of news media and social media reports of severe mental illness (SMI) on stigma, and interventions that aim to mitigate any adverse impact.

Methods A systematic search of electronic databases was conducted in December 2017 to identify studies that report on the impact of media coverage or media interventions on stigma related to schizophrenia, psychosis, bipolar disorder, or mental illness in general. Data were synthesised narratively.

Results 12 studies met inclusion criteria; seven explored the impact of news media on stigma towards SMI or general mental illness, two explored the impact of social media, while three evaluated interventions that aimed to mitigate this impact. These studies showed that positive news reports and social media posts are likely to lead to reductions in stigmatizing attitudes and negative reports and social media posts are likely to increase stigmatizing attitudes. There were a limited number of interventions aiming to mitigate the negative impact of news reports of mental illness on stigma; however, these were ineffective. Interventions with media professionals appear to be successful at reducing their stigmatizing attitudes, but can also act to increase both positive and negative reports in the media.

Conclusions Given the limited research evidence on the impact of news and social media on stigma towards SMI, and on the effectiveness of interventions aiming to mitigate this impact, further studies of higher quality are needed in this area. Due to mixed findings, interventions with media professionals are also an area of research priority.

Keywords Stigma · Severe mental illness · Schizophrenia · Media intervention · News media · Social media · Journalism

Introduction

Mental illness stigma is a multi-dimensional concept that encompasses negative attitudes, discrimination, and desire for social distance from people with a mental illness [1]. Stigma is highest towards those with severe mental illness (SMI) [2–4]; lower prevalence disorders with typically more severe symptoms, such as schizophrenia, psychosis and bipolar disorders. While SMIs can be disabling and have a negative impact on quality of life, stigma further adversely impacts people with SMI diagnoses. Findings from a large

Australian survey of people with SMI revealed that 37.9% had experienced stigma or discrimination in the past year as a result of their SMI [5]. Both fear of discrimination and the experience of stigma itself stopped one in five participants doing things they had wanted to do, further contributing to social isolation. Stigma is known to contribute to discrimination, with a US survey showing over half of participants with an SMI diagnosis reporting experiences of discrimination, most often from employers, landlords and law enforcement [6]. The experience of stigma can also reduce life satisfaction, impair self-esteem, and negatively impact help-seeking behaviors, treatment adherence, and overall recovery [2, 7–10].

The public rely on the media as a key source of information about mental illness, with television and newspapers/magazines being the most common sources [11]. Given the negative impact of stigma and the media's potential to influence attitudes, there are concerns that media portrayals play

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a substantial role in perpetuating stigma towards people with SMI. Reporting in the news media also tends to focus on the negative aspects of mental illness, over-representing negative portrayals of people with a mental illness [12–14]. Dangerousness to others and violence are the most common negative depictions, reported in up to 61.3% of media reports on mental illness [13, 15, 16]. Positive depictions, which include stories of recovery and treatment, may challenge stigma, but appear much less commonly in the news media, comprising 18–27% of reports reported in recent studies [13, 16]. While violence and mental illness are commonly linked in news media reports [17], there is only a weak and unclear association between violence and schizophrenia [18]. Comorbid substance use, a history of violence, ethnicity and gender have instead been found to be stronger predictors of violence [19–21] and people with schizophrenia are more likely to be victims of violence rather than perpetrators [20, 22].

Despite the overrepresentation of negative portrayals of SMI in the news media, there is limited research investigating how much influence these portrayals have on stigma. Additionally, much available evidence relates to print newspapers. With the trend towards online news and sharing through social media sites that can incorporate interactivity—through liking, commenting and sharing, as well as through the ability to view videos and additional images—exploration of the impact of this type of news reporting on mental illness stigma is necessary.

In addition to the potential for negative impact, the media can play a valuable role in challenging public stigma and stereotypes [23, 24]. With involvement of journalists and their professional associations, there is scope for more realistic, accurate, informative and balanced reporting of mental health issues and provision of ‘stigma-challenging’ rather than stigmatizing content [16]. Suicide reporting is an example of an effective collaboration between mental health and the media, with extensive efforts made internationally to improve reporting of suicide in the media [25]. Media reporting guidelines have been developed collaboratively by the World Health Organisation and the International Association of Suicide Prevention, and by Everymind to encourage reporting that reduces potential harm and improves public understanding of suicide and mental illness [26, 27]. Currently, there is no specific guidance for reporting on SMI, and there is a need for further work to improve standards of media reporting.

A recent review of effectiveness of anti-stigma interventions aimed at reducing stigma towards mental illness in mass media professionals identified only four interventions; two aimed at educating journalists, and an additional two aimed at educating journalism students [28]. These education interventions were found to have some effect on the reporting style of journalists and journalism students,

resulting in more balanced portrayal of people with a mental illness [28]. However, only two of these studies included stigma outcome measures, therefore, limiting understanding of their effectiveness in reducing stigma. Furthermore, it is unclear whether these effects would apply to SMIs specifically, which are more stigmatized and are generally less well understood [2, 3]. The aim of this study was to conduct a systematic review of studies investigating the impact of the non-fiction media and social media on stigmatizing public attitudes towards SMI, and studies that evaluate interventions with media professionals that aim to mitigate this impact.

Method

A systematic search was carried out according to the PRISMA preferred reporting guidelines [29] and was based on the eligibility criteria outlined below.

Study eligibility criteria

Studies were selected if they either (1) reported the impact of non-fiction news reports or social media posts (including systematically manipulated posts) related to schizophrenia, psychosis, bipolar disorder or mental illness in general on stigmatizing attitudes of media consumers towards SMI; or (2) evaluated interventions with media professionals that aimed to mitigate the adverse impact of news reports about schizophrenia, psychosis, bipolar disorder or mental illness in general on stigma.

Impact evaluation studies were included if the study design involved cross-sectional or longitudinal surveys. Intervention studies were included if they evaluated an intervention in a controlled or uncontrolled trial, and collected data at pre-and-post or post-only. Qualitative studies were also included.

Outcomes included measures of stigma related to mental illnesses, including personal/public stigma, desire for social distance and experiences of discrimination. If studies included measures of stigmatizing attitudes to SMIs and less severe mental disorders (e.g., depression, anxiety) separately, only the results relating to SMIs were reported.

Studies were excluded if they reported on the links between stigma and media reports of less severe mental disorders (depression or anxiety), suicide, eating disorders, dementia, intellectual disability, PTSD, OCD, substance misuse or dual diagnoses, or borderline personality disorder. Studies were also excluded if they reported on fictional TV and film depictions of mental illness, or reported on the characteristics of news reports where mental illness is the focus or is mentioned (content analyses). Only studies reported in English were included.

Identification and selection of studies

A systematic search of the literature was conducted for studies published between 2000 and 14th December 2017. PubMed, PsycINFO (OVID interface), and the Cochrane Database of Systematic Reviews were searched.

Specific search strategies were developed for each database, using a combination of both key words and MeSH/Map terms to include the following: ‘stigma’, ‘discrimination’, ‘attitudes’, ‘mental illness’, ‘mental disorder’, ‘schizophrenia’, ‘psychosis’, ‘bipolar disorder’, ‘communications media’, ‘news’, ‘journalism’, ‘social media’, ‘Facebook’, ‘Twitter’ (see Appendix A for search terms used). Reference lists and citations of included studies were also checked for additional relevant articles.

A grey literature search was conducted through Google searches, using similar search terms that were adapted as necessary. In addition, manual searches of government websites and NGOs were conducted, including SANE Australia, Mindframe National Media Initiative (Australia), Mental Health Commission (Canada), Opening Minds (Canada), Time to Change (UK), The Hunter Institute of Mental Health Australia (everymind.org.au), National Alliance on Mental Illness (USA), and Black Dog Institute (Australia).

Study records and data extraction

Literature search results were imported into Covidence software and duplicates removed. One author (AR) screened the titles and abstracts against the inclusion criteria. Those articles that met the inclusion criteria or for which there was uncertainty were imported into Endnote reference management software. The full report for each article was obtained for all these titles and abstracts. The full-text articles were screened for eligibility by one author (AR). Studies were excluded based on the following reasons, according to a pre-determined hierarchy:

- Not an evaluation of impact of news media reports or social media posts on stigma, or an intervention to reduce stigma in the media, as defined above;
- Not targeted towards severe mental disorders, or not targeted towards mental illness in general with a measurement of stigma towards SMI;
- No assessment of stigma;
- Could not obtain full-text.

The following data were extracted for each study by one author (AR): study type (impact evaluation/media intervention), country, intervention duration, disorders targeted, experimental design, study sample (size and population), measures, findings related to knowledge and attitudes, findings related to social distance, findings for

other stigma outcomes, and any comments (including study limitations). Effect size measures were converted to ORs (dichotomous variables) or Cohen’s *d* (continuous variables). Data were synthesised narratively.

Assessment of study quality

Studies that assessed an intervention using quantitative methods were assessed for quality using a standardized tool [30, 31]. Each study was assessed on selection bias, study design, confounding variables, blinding, data collection method, withdrawals and dropouts, with each area rated as weak, moderate or strong quality. These ratings then resulted in an overall rating of methodological and reporting quality for each study. All studies were assessed by two authors (AR and AM), with discrepancies resolved by consensus.

Results

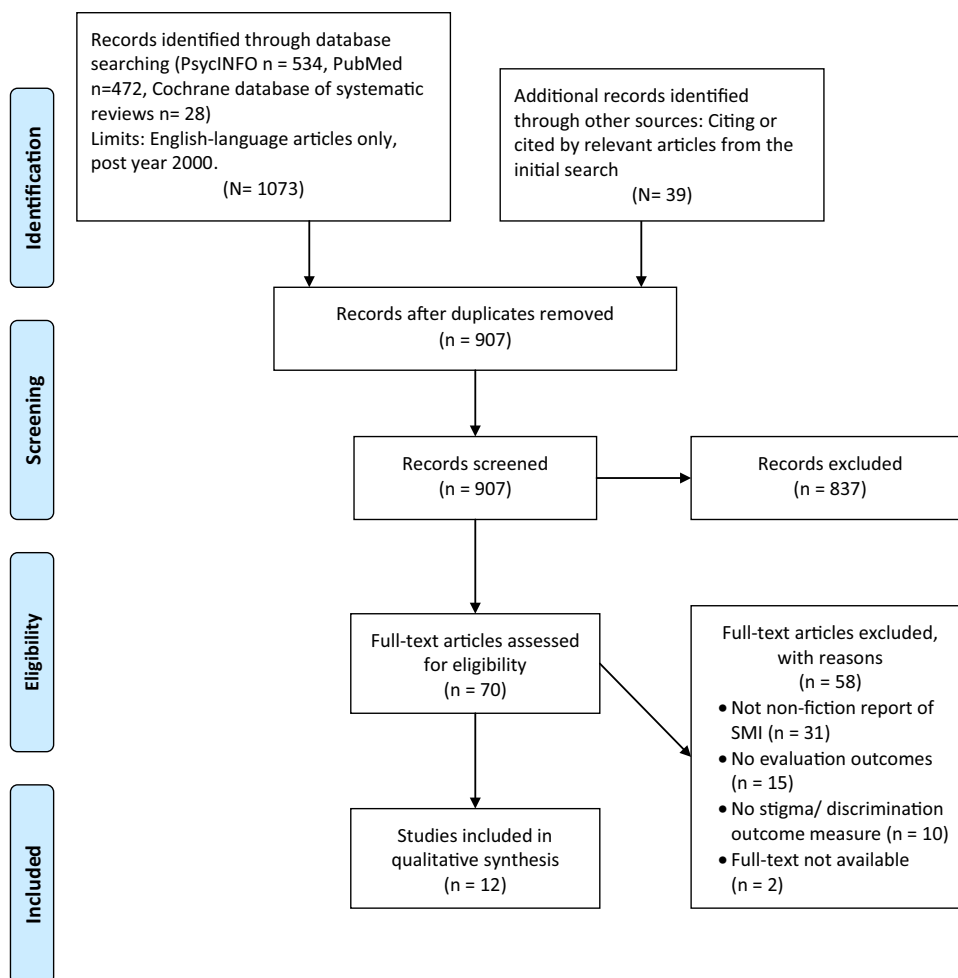
A summary of the screening of studies is presented in Fig. 1.

The systematic search returned 12 studies that met inclusion criteria. Seven of these explored the impact of news, two explored the impact of social media, while three evaluated interventions that aimed to mitigate this impact. The majority of participants in the impact evaluation studies were members of the general public, with two studies involving only adolescents. Participants in the media intervention studies were journalists or journalism students. A summary of the studies eligible for inclusion in the review, as well as the quality ratings assigned to each intervention study using quantitative methods, can be found in Table 1 (media impact evaluations and interventions) and Table 2 (social media impact evaluations).

Impact of news reports on stigma

Of the seven studies investigating the impact of news media, three investigated the impact of positive vs negative portrayals in news reports [24, 32, 33], two explored the influence of news reports of shootings carried out by a person with a mental illness [34, 35], and two investigated the impact of retrospectively recalled news reports on mental illness [36, 37]. Of the three experimental studies [24, 32, 35], two were assessed as having strong methodological quality, while the other was assessed as being weak in quality. Study design was a strength across all three, however, selection bias, confounders, blinding and reporting of withdrawals were all assessed as weaker in the Corrigan et al. [24] study.

Fig. 1 PRISMA 2009 flow diagram. From [29]



Impact of positive vs negative media portrayals of SMI

To assess the impact of positive vs negative portrayals in news reports, an RCT conducted by Corrigan et al. [24] involving members of the American public ($n = 151$) compared a report about a Nobel laureate's recovery from severe mental illness, a neutral report about dental hygiene, and a negative report about a prisoner who suicided in his cell, let down by dysfunctional public health systems. Reading the positive 'recovery' report was found to reduce stigma towards schizophrenia while reading the negative report increased stigma, [$F(1,87) = 4.36, p < 0.05, d = 0.45$], positive vs neutral $t(98) = 0.99, p = 0.323, d = 0.37$, negative vs neutral $t(98) = 1.37, p = 0.172, d = 0.35$. Reading the positive report also increased affirming attitudes about recovery [$t(48) = 1.92, p < 0.05, d = 0.27$], empowerment ($t(48) = 2.09, p < 0.05, d = 0.30$), and self-determination ($t(49) = 2.99, p < 0.01, d = 0.43$) immediately after reading the report, while the negative article increased stigma and decreased affirming attitudes in comparison. There was no effect observed on dangerousness and blame attributions across the different news report groups.

A pre-post study by Dietrich [32] involved 206 German high school students and investigated the impact of an informative and positive report (that provided corrections for common misperceptions about schizophrenia), compared to a negative report (about violent and dangerous behaviors from people with a mental illness). A significant interaction between article and time revealed that reading the positive 'informative' news report led to a decrease in stereotypical descriptions of a mentally ill person as 'violent' and 'dangerous' (26–13%), and an increase in these stereotyped attitudes after reading the negative story (32–54.7%), $OR = 11.61 [3.19–42.30], p < 0.001$. However, no significant differences were found in social distance between news report groups when controlling for demographic variables, $\beta = 1.64 [-1.01 \text{ to } 4.23], NS$.

The third study was conducted by Gwarkanski [33] in the USA and categorized a random sample of 558 online news reports about schizophrenia as either "stigma challenging" or "stigmatizing" and explored the impact of this media framing on reader comments on these news reports. "Stigma challenging" news reports attracted a greater proportion of tone-consistent stigma-challenging comments, 29% vs 12%,

Table 1 Summary of news media impact evaluation ($n = 7$) and media intervention studies ($n = 3$)

Author/date (country)	Study type	Objective	Intervention/evaluation description	Intervention duration	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Corrigan (2013) [25] (USA)	Impact evaluation	To evaluate the impact of reading a positive, neutral or negative published newspaper story on attitudes and stigma towards people with a mental illness	Reading 1 of 3 articles: A positive (titled <i>Beautiful Minds Can Be Recovered</i> combined the success story of Nobel laureate John Nash with research findings on recovery), neutral (Control story titled <i>Maintaining Good Dental Care Habits</i> about dental hygiene) or negative (titled <i>Sometimes the State's Dead Must Teach</i> , the story of a convict with mental illness who killed himself in prison, highlighting a dysfunctional public mental health system) journal article that discusses mental illness	N/A	Mental illness	RCT	Members of the public; $N = 151$	Attribution questionnaire & stigma through knowledge test	Positive article reduced stigma and increased affirming attitudes; negative article increased stigma and decreased affirming attitudes; No significant change in dangerousness or blame	N/A	N/A	Weak	Exposure limited to one news article from one news medium, thereby limiting external validity. News articles in study represent two extreme ends of the positive–negative spectrum, but news articles may not represent either extreme in non-experimental settings

Table 1 (continued)

Author/ date (country)	Study type	Objective	Intervention/ evaluation/ description	Interven- tion dura- tion	Disorders targeted	Experimen- tal design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Dietrich (2006) [33] (Ger- many)	Impact evalu- ation	To examine the impact of a newspa- per article linking mentally ill per- sons with violent crime and the impact of an article providing factual informa- tion about schizo- phrenia on attitudes toward people with schizo- phrenia	Reading 1 of 2 articles; an informa- tive article discussing misconcep- tions about mental illness and correct information, includ- ing facts regarding the development and course of schizo- phrenia; or a negative arti- cle containing information from two newspaper clippings that link a person with a mental illness with violent, dangerous, unpre- dictable, aggressive and irrational behavior	N/A	Schizo- phrenia	Pre/3 weeks post	High school students; N=206	Stereotype attitudes towards schizo- phrenia Schulze (2003) & social distance scale	Descrip- tions of a mentally ill person as 'violent' and 'dan- gerous' decreased after read- ing the informative article and increased in the negative article group	Mean social distance increased in the negative article group and decreased in the informa- tive arti- cle group (NS)	N/A	Strong	Small but non- significant change in social distance. Exposure limited to one news article from one news medium, thereby limit- ing external validity

Table 1 (continued)

Author/date (country)	Study type	Objective	Intervention/evaluation description	Intervention duration	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Gwartzanski (2017) [34] (USA)	Impact evaluation	To examine the relationship between media framing of schizophrenia and reader commentary	Evaluation of the impact of media framing of schizophrenia (stigmatizing frames vs stigma challenging) in news publications on reader commentary (stigma-challenging comments vs stigmatizing comments)	N/A	Schizophrenia	Inter-active content analysis	N/A	Reader comments accompanying online news articles about schizophrenia	N/A	N/A	Stigma challenging articles were accompanied by a greater proportion of stigmatizing comments when they contained stereotype associating mental illness and violent behavior; articles quoting people with mental illness stood greater likelihood of being accompanied by stigmatizing statements from readers. Limitations: Individual attitudes not directly measured; possible selective exposure to those reading and commenting on online news reports; attitudes demonstrated in comments from select few readers of online news reports	N/A	Other findings: stories were accompanied by a greater proportion of stigmatizing comments when they contained stereotype associating mental illness and violent behavior; articles quoting people with mental illness stood greater likelihood of being accompanied by stigmatizing statements from readers. Limitations: Individual attitudes not directly measured; possible selective exposure to those reading and commenting on online news reports; attitudes demonstrated in comments from select few readers of online news reports

Table 1 (continued)

Author/date (country)	Study type	Objective	Intervention/evaluation description	Intervention duration	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Hoffner (2017) [35] (USA)	Impact evaluation	To examine the influence of news coverage of the Virginia Tech shootings on attitudes about mental illness. A shooting student at the school shot fellow students and professors, killing 32 and injuring 15 before fatally shooting himself. A psychiatric diagnosis was not publicly revealed, but his prior hospitalization for mental illness and accounts of his behaviors prior to the shooting were covered in the media	Impact of the news coverage of the Virginia Tech shootings on attitudes about mental illness. A student at the school shot fellow students and professors, killing 32 and injuring 15 before fatally shooting himself. A psychiatric diagnosis was not publicly revealed, but his prior hospitalization for mental illness and accounts of his behaviors prior to the shooting were covered in the media	N/A	Mental illness	Cross-sectional	Members of the public; N=198	News exposure related to incident; perceived media influence of news coverage of incident on attitudes towards people with a mental illness; Mental Illness Stereotypes	Perceived news influence on self was positively correlated with mental illness stereotypes	N/A	Perceived news influence on self was negatively correlated with willingness to disclose mental health treatment; willingness to seek treatment was unrelated to news influence (, NS)	N/A	Most numerical data is reported as a function of experience with mental illness (not as a function of new exposure related to incident). Data are correlational only and do not allow causal links to be inferred

Table 1 (continued)

Author/date (country)	Study type	Objective	Intervention/evaluation description	Intervention duration	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
McGinty (2013) [36] (USA)	Impact evaluation	To test the effects of news stories about mass shootings on public attitudes toward persons with serious mental illness and support for gun control policies, and whether news coverage of proposals to prevent persons with serious mental illness from having guns exacerbates negative attitudes	Reading 1 of 3 news articles, or a no exposure control, that described: (1) a mass shooting by a person with serious mental illness who used a gun with a large capacity magazine; (2) the same mass shooting event and a proposal for gun restrictions for persons with serious mental illness; or (3) the same mass shooting event and a proposal to ban large capacity magazines	N/A	Serious mental illness (SMI)	RCT	Members of the public; N=1979	Social distance (willingness to work closely with and willingness to live near a person with SMI); perceived dangerousness	All three stories heightened perceived dangerousness towards person with SMI	Compared with the control group, respondents in all other groups reported less willingness to work closely with or live near a person with SMI	N/A	Strong	Other findings: including information about proposed gun restrictions for persons with serious mental illness or a ban on large capacity magazines in a news story describing a mass shooting did not affect attitudes compared with a story describing a shooting without mentioning a policy response. Limitations: exposure limited to one news article from one news medium, thereby limiting external validity. Effects of accompanying photographs and images not assessed

Table 1 (continued)

Author/ date (country)	Study type	Objective	Intervention/ evaluation description	Interven- tion dura- tion	Disorders targeted	Experimen- tal design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Morgan (2009) [37] (Aus- tralia)	Impact evalu- ation	To investi- gate what news sto- ries about mental illness are recalled by youth and whether these are associ- ated with stigma and help- seeking beliefs	Impact of recalling news stories about mental illness on stigma towards persons with a mental illness. Recalled news stories were cat- egorized as prominent disclosure, crime or violence, health system failure, and 'any news recall' vs 'no news recall'	N/A	Mental illness	Cross- sectional design with random sample	Youth (12- 25years); N= 1154	Personal & perceived stigma; Social distance; Willing- ness to seek help for mental illness	Recall of a disclo- sure by a prominent individual was associ- ated with beliefs that people with men- tal illness are sick rather than weak	Recall of news sto- ries did not sig- nificantly predict social distance	Recall of a story involving crime or violence was associ- ated with greater reluctance to tell any- one about a mental health problem; no news stories predicted willing- ness to seek help	N/A	Other findings: Only a minor- ity of youth could recall a news story about mental illness. The most com- mon stories recalled were those involv- ing crime or violence; mental health system failures; or disclosures of mental illness by prominent individuals. Limitations: exposure to media reports of violence and mental health problems was measured retrospec- tively, with participants experiencing difficulties recalling details of news stories

Table 1 (continued)

Author/ date (country)	Study type	Objective	Intervention/ evaluation description	Intervent- ion dura- tion	Disorders targeted	Experimen- tal design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Reavley (2016) [38] (Aus- tralia)	Impact evalu- ation	To assess the asso- ciations between beliefs about the dang- er- ous- ness of people with mental health problems and exposure to media reports of vio- lence or personal experi- ences of fear, threat or harm	Via telephone interview, participants heard a vignette of a person with depression or early schizo- phrenia, both describing a 24yo male experiencing symptoms of each disorder including paranoia for the early schizophrenia vignette. Par- ticipants were then asked whether they believed him to be dang- erous. Other questions covered past 12-month recall of media reports of violence and mental health prob- lems, contact with and experiences of fear, threat or harm by people with mental health problems	N/A	Mental illness	Cross- sectional design with random sample	Members of the public (aged 18+); N=5220	Agreement that per- son with mental illness described in vignette is dang- erous; exposure to media reports of violence and men- tal health problems	Recall of media reports of violence and mental health problems was associ- ated with agreeing that 'John' is dang- erous for the early schizophre- nia vignette only.. No significant asso- ciations between types of media exposure and beliefs in dang- erousness	N/A	N/A	Other findings: Just over 60% of respond- ents recalled media reports of some- one being physically harmed by a person with a mental health problem in the previous 12 months. Limitations: Low response rate of 37% may limit the generalisabil- ity of results. Exposure to media reports of violence and mental health problems was measured ret- rospectively	

Table 1 (continued)

Author/date (country)	Study type	Objective	Intervention/evaluation description	Intervention duration	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Stuart (2003) [43] (Canada)	Media intervention	To evaluate a media intervention designed to improve a newspaper's portrayal of mental illnesses, specifically, schizophrenia	A local program titled 'Open the Doors', involving events where mental health service providers provided newspaper reporters with more accurate background information and helped them develop more positive story lines, aiming to increase the number of positive news stories about schizophrenia and mental illness and their word count	N/A	Schizophrenia	Pre/post	News-paper reporters working at a local news-paper; N/A	News story content and length over 24 months (8 months pre and 16 months post)	N/A	N/A	Positive mental health stories increased, and their length also increased. Stories about schizophrenia increased, however their length reduced. Number and length of negative stories increased. The number of stigmatizing stories about schizophrenia increased, and their length increased substantially	Weak	Limitations: Limited description of intervention and no inferential statistics provided. Attitudes of reporters not measured. Other findings: Negative news reports about schizophrenia sufferers—the target group for the anti-stigma program—increased by 46% and at a faster pace than positive news reports. It also rivalled the column space dedicated to positive stories of people with schizophrenia

Table 1 (continued)

Author/ date (country)	Study type	Objective	Intervention/ evaluation description	Interven- tion dura- tion	Disorders targeted	Experimen- tal design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Stuart (2011) [41] (Canada)	Media inter- ven- tion	To evaluate a contact- based educa- tional sym- posium designed to reduce stigma towards people with a mental illness in journal- ism students	A 2-h sym- posium that gave journalism students an opportunity to have direct personal contact with three people who had personal or carer experi- ences with mental ill- nesses. Media experts also helped to link the speak- ers' personal experiences of stigma to journalism practices	2 h	Mental illness	Pre/post	Journalism students; N=89	Stigma evalu- ation survey (20 items meas- uring attitudes, social responsi- bility and social distance)	Significant reduction in stigma scale scores between pre and post test, average 5% drop in score	Improve- ment on 7/8 social distance items (5–16% decrease in social distance across scales)	81% disa- greed that people with a mental illness are violent and unpre- dictable at post compared to 55% at pre-test (26% increase); reduction of 14% for 'I would go to the doctor if I thought I had a mental illness'	Weak	Results only presented as descriptive statistics; significance in differences between pre and post tests not provided. Overall scale pre-post mean difference only provided. 40% attrition between pre & post test, students not matched on pre & post tests. Social desirability or intervention expectations are possible competing explanations for findings

Table 1 (continued)

Author/ date (country)	Study type	Objective	Intervention/ evaluation/ description	Interven- tion dura- tion	Disorders targeted	Experimen- tal design	Study sample	Measures	Knowledge and attitudes	Social distance	Other stigma outcome	Study quality rating	Comments
Campbell (2009) [42] (USA)	Media inter- ven- tion	To increase awareness of mental illness and its stigma in journal- ism students, and also to increase the confi- dence of psychi- atric residents to talk to media reporters	Educational intervention including a workshop for undergradu- ate journal- ism students to provide an overview of schizo- phrenia, depression and ADHD; a lecture address- ing fears of giving public interviews for psychiatric residents; and collaboration between these disciplines in developing an anti-stigma campaign	3 h journal- ism work- shop/1 lecture for psy- chiatric residents	Mental illness	Pre/post control- led trial	Journalism & psy- chiatric residents; N=35	10 question attitu- dinal survey	Percentage of journal- ism stu- dents who strongly agreed that 'A major prob- lem for mentally ill patients is stigma' increased; Increase in journalism students recogni- tion of psychiatric disorders as 'ill- nesses just like heart disease'	N/A	N/A	Weak	No statisti- cal analyses conducted/ inferential statistics pre- sented. Small sample sizes

Table 2 Summary of social media impact evaluation studies (*n* = 2)

Author/ date(country)	Objective	Intervention/ evaluation description	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social dis- tance	Other stigma outcome	Study quality rating	Comments
Miles (2016) [39] (USA)	Investigate the impact of social media message characteristics on stigmatising attitudes towards persons with a mental illness	Participants were asked to read a social media post about mental illness (bipolar or depression), with instructions about relationship to poster (someone they are close to or a distant acquaintance), endorsements (positive or negative comment accompanying post), cognitive elaboration (taking the perspective of the writer or objective view point), with different quality arguments presented in post (high or low)	Bipolar disorder	Pre/post (experiment 2)	Adults who use social media recruited online via mechanical Turk; <i>N</i> = 1622	Attributional Questionnaire (AQ; Corrigan, 2012—Blame & Danger sub-scales); social distance scale (SDS; Boyd, 2010)	Perceived higher quality argument in post predicted less stigmatizing attitudes; blame Perceived positive endorsements associated with less blaming attitudes	Perceived higher quality argument in social media post predicted less social distance relationship with elaboration	N/A	Moderate	Distractor variables included in pre/post questionnaires; Blame only attitude change tested in some hypotheses as other attitudes were not consistently predicted in analyses. social media messages possibly biased towards reducing blame

Table 2 (continued)

Author/ date(country)	Objective	Intervention/ evaluation description	Disorders targeted	Experimental design	Study sample	Measures	Knowledge and attitudes	Social dis- tance	Other stigma outcome	Study quality rating	Comments
Shigeta (2017) [40] (Canada)	Examine comments on online newspaper reports containing the keyword 'schizophre- nia', and the frequency of social media shar- ing of these articles	Schizophrenia news reports in the Top 10 English online newspapers in Canada were classi- fied accord- ing to their content. Comments on these reports were classified into three categories: positive, neutral & negative. Sharing of these articles on different social media platforms was also recorded	Schizo- phrenia	Interactive content analysis	N/A	Number of shares on social media; reader comments accompany- ing online news arti- cles about schizophre- nia	N/A	N/A	39% of the readers' comments on news articles about crime and vio- lence were negative. Positive comments and expres- sions of sympa- thy were the most common comments on articles about suffering from stigma reports detailing medical explana- tions were the most commonly shared posi- tive news stories	N/A	News of crime and violence by people with schizo- phrenia was most common type of news report, and second most shared on social media ($n = 10,132$ shares). Comments on opinion articles that tackle stigma were only 24% positive, with 36% of comments classified as negative. Limitations: individual attitudes not directly meas- ured; pos- sible selective exposure to those reading and comment- ing on online news reports; attitudes demonstrated in comments from select few readers of online news reports

$\chi^2(1, n=281) = 11.7, p=0.001, OR=2.90 [1.55–5.41]$, and greater proportions of personal disclosures of experiences of mental illness, 24% vs 7%, $\chi^2(1, n=281) = 15.4, p < 0.001, OR=4.05 [1.94–8.44]$, when compared to “stigmatizing” news reports, which received a greater proportion of stigmatizing comments, 45% vs 24%, $\chi^2(1, n=281) = 11.6, p=0.001, OR=2.45 [1.45–4.13]$.

Impact of media reports on mass shootings by people with SMI

Two American studies examined the impact of media coverage of mass shootings carried out by people reported to have a mental illness. McGinty [35] randomly assigned 1979 members of the public to read one of three news reports describing a mass shooting event, with one of three variations of gun control policies included in each story (no restrictions in Report One, restrict gun use by people with mental illness in Report Two, and state-wide ban of high-capacity magazine guns in Report Three), or to a no-exposure control group. Immediately after reading, all three news reports depicting a mass shooting by a person with a mental illness were found to heighten negative attitudes towards people with SMI. Compared to the control group, participants who read Report One (describing the mass shooting event only without mention of proposed gun restrictions) reported significantly increased perceived dangerousness [$OR=1.79 (1.28–2.50), p < 0.01$], and reported less willingness to work closely with or live near a person with SMI [Report One: $OR=1.70 (1.21–2.39), p < 0.01, OR=1.59 (1.11–2.27), p < 0.05$; Report Two: $OR=1.46 [1.03–2.06], p < 0.05, OR=1.84 (1.28–2.63), p < 0.01$; Report Three: $OR=1.67 (1.19–2.35), p < 0.01, OR=1.75 (1.23–2.50), p < 0.01$]. Including information about proposed gun restrictions did not significantly affect attitudes.

In a cross-sectional study conducted in the USA, Hoffner et al. [34] asked 198 members of the public about their exposure to news reports about the 2007 Virginia Tech shootings 3 weeks after they occurred, and their perceived influence of these reports on attitudes and stereotypes towards people with a mental illness. Findings showed that perceived media influence was positively correlated with mental illness stereotypes [$r=0.51(0.33–0.66), p < 0.001, d=1.19$], and negatively correlated with willingness to disclose mental health treatment ($r=-0.40 (-0.57 \text{ to } -0.20), p < 0.001, d=-0.87$) in participants who had no personal experience with mental illness ($n=79$), but did not influence willingness to seek treatment.

Retrospective recall of news reports on mental illness

Two Australian cross-sectional studies used retrospective recall of media reports on mental illness to assess impact on stigma. With a random sample of 1154 young people aged 12–25 years, Morgan and Jorm [36] investigated the

association of recalling news reports about mental illness with stigma and willingness to seek help for a mental health problem. Recalling a disclosure about mental illness by a prominent person was associated with beliefs that people with a mental illness are sick rather than weak [$OR=0.23 (0.07–0.78), p < 0.01$], while recall of a report involving crime or violence was associated with greater reluctance to tell anyone about a mental health problem [$OR=1.79 (1.03–3.10), p < 0.01$]. Recall of news reports about mental illness was not associated with social distance or willingness to seek help ($OR=1.08 (0.88–1.34), NS, OR=1.02 (0.79–1.33), NS$).

Reavley et al. [37] reported on a study that involved telephone interviews with 5220 members of the Australian public. Participants received a vignette either describing a 24-year-old male experiencing symptoms of early schizophrenia or symptoms of depression, and were asked whether they believed him to be dangerous. Recall of media reports that link violence and mental illness was found to be associated with agreeing that the person described with early schizophrenia in a vignette is dangerous [$OR=1.38 (1.03–1.84), p < 0.05$], but not for the vignette describing a person with depression.

Social media impact reports

Two studies explored the impact of social media posts on stigmatizing attitudes. Miles [38] investigated the impact of social media message characteristics on social distance, blame and danger attitudes in a large sample of American adult social media users ($N=1622$) in response to a sample Facebook post depicting personal experience of stigma related to bipolar disorder. Characteristics of the post that were manipulated included argument quality (perceived persuasiveness and believability), writing quality (grammatical correctness and writing clarity) and endorsement (post accompanied by a positive or negative comment). When controlling for demographic variables, media (both social and news) and internet use, the post with higher argument quality significantly predicted less stigmatizing attitudes about danger ($\beta=0.09, p < 0.05, d=0.12$) and less social distance ($\beta=0.10, p < 0.01, d=0.11$) immediately after reading. Higher argument quality did not significantly predict attitudes about blame ($\beta=0.07, p=0.073, d=0.10$), and higher writing quality was not a significant predictor in any of the stigma models (blame, $\beta=0.02, d=0.03$; danger, $\beta=0.01, d=0.01$; social distance, $\beta=-0.01, d=-0.01$). Posts accompanied by a positive endorsement were associated with less blaming attitudes, compared to those that did not receive positive endorsement, $t(133)=3.39, p < .001, d=0.58$. The overall quality of this study was assessed as moderate, being strong in study design, blinding, data collection and reporting of withdrawals and dropouts, but weak in selection bias.

Shigeta [39] examined comments on online Canadian newspaper reports that contained the keyword ‘schizophrenia’,

classifying these news articles according to their content and recording how frequently they were shared on social media. Shigeta found that news reports describing crime or violence conducted by a person with schizophrenia received the highest frequency of negative comments (39%). Positive comments and expressions of sympathy were the most common (49%) on articles about suffering from stigma. Reports detailing medical explanations were the most commonly shared positive news reports (shared 16,077 times amongst social media users, equating to 40% of total news shares). While news of crime or violence was the most common type of news report, it was the second most shared on social media ($n=10,132$, 25% of total news shares).

Intervention studies

The three studies that evaluated interventions that aim to mitigate the influence of media on stigma towards people with SMI all contained an education component; two studies targeted journalism students, while the other involved local news reporters. All three studies were assessed as weak in overall quality.

Interventions with journalism students

Stuart [40] conducted a 2-h contact and education intervention with 89 journalism students in Canada, providing direct personal contact with people who had experiences of mental illness, and media experts who provided education on stigma in journalism practices. Following the intervention, students reported a significant 5% reduction in stigma scale scores [*Mean Difference* = -4.1, $R^2=0.18$ ($n=119$), $F(6,112)=4.13$, $p<0.001$, $d=0.94$], a decrease in social distance (5–16% decrease on 7 out of 8 scales), a 26% decrease in beliefs of violence and unpredictability, as well as a 14% increase in willingness to see a doctor for a mental illness.

Similarly, Campbell [41] conducted a 3-h journalism workshop and a 1-h lecture for psychiatry interns, providing an overview of schizophrenia, depression and ADHD to 5 journalism students, and addressing fears of giving public interviews with 14 psychiatry interns in the USA. Collaboration between both professions took place through the task of developing an anti-stigma campaign together. Students who attended the workshop showed a decrease in stigmatizing attitudes. Recognition that the experience of stigma is a major problem for people with a mental illness increased from 60% pre-test to 100% post-test [$OR=1.75$ (0.56–5.48)], while recognition of psychiatric disorders as ‘illnesses just like heart disease’ increased from 80 to 100% [$OR=1.27$ (0.43–3.76)].

Interventions with news journalists

Stuart [42] used mental health professionals to provide education about mental illnesses (including schizophrenia) to

reporters from a Canadian newspaper and assist them to develop more positive story lines, comparing news report content pre-and-post intervention over 2 years. While newspaper reporters’ attitudes were not directly measured, this intervention increased the frequency and length of positive reports about mental health and schizophrenia. Following the intervention, analysis of newspaper reports showed a 33% increase in the number of positive mental health news reports and a 25% increase in their length following the intervention, as well as a 33% increase in reports specifically about schizophrenia, but with a 10% reduction in length. On the other hand, negative news reports also increased by 25%, with their length increasing by 100%, while the number of stigmatizing reports about schizophrenia increased by 46%.

Discussion

The current review revealed a limited number of studies on the impact of news reports and social media posts on stigma and discrimination towards people with SMI, and interventions that aim to mitigate any adverse impacts. Most common were studies exploring the impact of news reports on attitudes towards people with SMI. Studies exploring the impact of social media posts on stigma were limited, with only two studies found. Studies that specifically aimed to mitigate the adverse impact on stigma of news reports about people with SMI were also rare, with only three studies carried out in this area.

Impact of news reports on stigma

Results of the three studies comparing the impact of reading positive, neutral or negative published news reports consistently showed that positive reports that challenged stigma, were informative and focused on recovery, were likely to lead to reductions in stigmatizing attitudes, while negative reports that included stereotypes of violence and dangerousness increased stigmatizing attitudes [24, 32, 33]. Furthermore, in an analysis of comments on online news reports, reports that communicated positive information about mental illness were more likely to attract comments of support and stigma-challenging comments from readers, while reports that associated mental illness with violent behavior and quoted people with a mental illness were accompanied by a greater proportion of stigmatizing comments [33].

Recall of positive media portrayals of mental illness (e.g., disclosures about mental illness by prominent individuals) was found to be associated with a decrease in some aspects of stigma, and recall of negative portrayals (e.g., reports involving crime or violence) was associated with an increase in stigmatizing attitudes [36, 37]. Media portrayals of mass shootings carried out by people reported to have a mental illness were found to negatively impact attitudes, increasing perceived

dangerousness, social distance and strengthening stereotypes [34, 35], which is consistent with the previous findings of media portrayals of violence and dangerousness [13, 15, 16].

Findings from studies assessing the comments on online news reports are consistent across both social media studies included in this review, suggesting that comments made by readers are mostly consistent with the tone of the article [33, 39], with positive endorsements by the person sharing the post also associated with less stigmatizing attitudes [38]. Surprisingly, positive portrayals received the highest number of ‘shares’ on social media in one study [39] which suggests that there is a willingness to share these portrayals amongst social media networks. These findings also reveal the potential role of both interactive and social media in helping to reduce stigma.

Media intervention studies to decrease stigma

Overall, the three studies evaluating interventions involving journalists and journalism students were found to significantly improve their attitudes towards mental illness [40], increase their awareness of mental illness stigma [41], and increase both negative and positive reports on mental health and schizophrenia [42]. Workshop lengths ranged from 2 to 3 h and used education or mixed education/contact. Nevertheless, none of these studies included a control group. All three studies were included in the previous review of media interventions to reduce stigma towards general mental illness, conducted in March 2017 [28]. No new studies evaluating the impact of media interventions on stigma towards SMI were identified by this updated review.

Limitations

These findings are based on a limited number of studies which were low in methodological quality. The main areas of weakness related to selection bias, where small convenience samples were used, and blinding of participants to experimental groups. Studies investigating the impact of different news articles on stigma using an experimental design were assessed as highest in quality overall, while studies evaluating stigma interventions with media professionals were the weakest. Furthermore, these studies were all conducted in high-income western countries and there is a need for research into the impact of the media on stigma towards people with SMI in other settings. A final limitation is that study selection and data extraction were conducted by one author, which may introduce bias.

Recommendations for future research

Findings show the potential role of news media in helping to reduce stigma through increased presence of positive and informative portrayals, and of careful and balanced reporting of violence in efforts to reduce negative impacts on stigma.

However, it should also be noted that broadly classifying media portrayals of people with SMI as ‘positive’ or ‘negative’ can be somewhat of an oversimplification, as such classifications do not necessarily result in a consistent impact on stigma. For instance, news reports that would be classified as ‘positive’, such as those describing biogenetic causes of schizophrenia or acting to arouse sympathy, are not always associated with a decrease across all elements of stigma, instead acting to increase desire for social distance [43]. More research into the specific elements of a media report that act to uniformly decrease different aspects of stigma is needed.

Future research should aim to address research limitations and evidence gaps using high-quality research methodology to better understand the impact of media on stigma. Such studies should use a variety of real articles from a range of news media to further investigate their impact on stigma and help determine the specific content that acts to reduce any adverse impact on stigma. This information can then inform guidelines to advise journalists on responsible portrayals of mental illness, particularly when reporting violence. These guidelines should be developed collaboratively with journalists and representative bodies, with the ultimate aim of improving reporting of SMI and reducing stigma towards people with SMI, just as the Mindframe guidelines for the responsible reporting of suicide were found to improve the quality of news reports and decrease copy-cat behavior [44–47]. The guidelines also need to consider the practical realities and professional values that can constrain media reporting, especially in relation to public interest and newsworthiness of stories. With the links between mental illness-related content on interactive media (including social media) and stigma also under-studied [48], future research should aim to identify how these elements may contribute to stigma by experimentally examining their individual impacts. With the increasing growth of digital media, investigation of interactive media, including forums, images, and video, also requires further research attention. Further research is also required to determine which elements of media interventions are most effective while minimising iatrogenic effects (such as simultaneously increasing stigmatizing reports), as well as incorporating longer term follow-up to determine lasting effects. Findings have also revealed that attitudes are predominantly used to assess stigma, and future research should include behavioral measures.

Conclusions

Collectively, the studies compiled in this review suggest that coverage of SMI in both news media and social media does influence stigmatizing attitudes, at least in the short term. The limited evidence suggests that negative media

portrayals of SMI negatively impact stigma, while positive portrayals act to reduce stigma, with higher quality research required to build the evidence base. Future research should assess the impact of content from a variety of news media. In an increasingly digital media environment, research into images, videos and interactive media, including social media, is likely to be particularly critical. Interventions with media professionals appear to be successful at reducing stigmatizing attitudes, but can also act to increase both positive and negative reports in the media, making this is an area of research priority. Further work in this area, ideally in cooperation with schools of journalism and professional bodies, is likely to be needed to change practice.

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Compliance with ethical standards

Conflict of interest Three of the authors were authors on two studies included in this review. All authors declare that there is no further conflict of interest.

Appendix A: Systematic search strategy

	PubMed	PsycINFO
1	stigma[TIAB] OR stigmatization[TIAB] OR anti-stigma[TIAB] OR “Social Stigma”[Mesh] OR “Social Discrimination”[Mesh] OR “Attitude of Health Personnel”[Mesh] OR “Prejudice”[Mesh] OR “Social Distance”[Mesh] OR Stereotyping[Mesh] OR Social Perception[Mesh] OR “Rejection (Psychology)”[Mesh] OR Shame[Mesh]	(discrimination or stigma\$ or “social distance”).mp. or stigma/ or “Attitude Change”/ or Prejudice/ or “Social Discrimination”/ or “Social Approval”/ or “Social Acceptance”/ or Labeling/ or exp “Social Perception”/ or Attitudes/ or “Adolescent Attitudes”/ or “Adult Attitudes”/ or “Child Attitudes”/ or “Counselor Attitudes”/ or “Employee Attitudes”/ or “Employer Attitudes”/ or “Explicit Attitudes”/ or “Female Attitudes”/ or “Health Attitudes”/ or exp “Health Personnel Attitudes”/ or “Implicit Attitudes”/ or “Male Attitudes”/ or “Parental Attitudes”/ or “Psychological Attitudes”/ or “Public Opinion”/ or “Stereotyped Attitudes”/ or “Student Attitudes”/ or “Teacher Attitudes”/

	PubMed	PsycINFO
2	Mental Disorders[Mesh:NoExp] OR “Schizophrenia Spectrum and Other Psychotic Disorders”[Mesh] OR “Bipolar and Related Disorders”[Mesh] OR “Mentally Ill Persons”[Mesh] OR schizophrenia[TIAB] OR psychosis[TIAB] OR psychotic[TIAB] OR bipolar[TIAB]	Mental Disorders/ OR exp “Chronic Mental Illness”/ OR exp “Bipolar Disorder”/ OR exp Mania/ OR exp Psychosis/ OR “Schizoaffective Disorder”/ OR “Psychiatric Patients”/ OR “Mental illness (Attitudes Toward)”/ OR “mental illness”.mp
3	“Communications Media”[Mesh] OR “Journalism”[Mesh] OR journalism[TIAB] OR journalist[TIAB] OR media[TIAB] OR news[TIAB] OR newspaper[TIAB] OR television[TIAB] OR radio[TIAB]	exp Communications Media/ OR exp Journalists/ OR journalis\$.mp OR media.mp OR news\$.mp OR television.mp OR radio.mp
4	“Social Media”[Mesh] OR “Social media” [TIAB] OR facebook[TIAB] OR twitter[TIAB]	exp Social Media/ OR (“Social media” OR facebook OR twitter
5	(1 AND 2) AND (3 OR 4)	(1 AND 2) AND (3 OR 4)
6	Limit to Publications >= 2000 and Language = English	Limit to Publications >= 2000 and Language = English

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