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Effects of media stories of hope and recovery on suicidal ideation and help-seeking attitudes and intentions: systematic review and meta-analysis

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Effects of media stories of hope and recovery on suicidal ideation and help-seeking attitudes and intentions: systematic review and meta-analysis

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Summary

Background There is strong evidence that suicides increase after media stories about suicides by celebrities, particularly those that highlight the suicide method (the Werther effect). Much less is known about the Papageno effect—the protective effects of media stories of hope and recovery from suicidal crises. A synthesis of the retrievable evidence is lacking. We aim to summarise findings from randomised controlled trials about the effects of stories of hope and recovery on individuals with some degree of vulnerability to suicide.

Methods For this systematic review and individual participant data meta-analysis, we searched PubMed (including MEDLINE), Scopus, Embase, PsycInfo, Web of Science, and Google Scholar published from inception to Sept 6, 2021, without language restrictions. We included trials that reported suicidal ideation (the primary outcome) or help-seeking attitudes or intentions (the secondary outcome) and tested a media narrative of hope and recovery. Studies were excluded if they did not feature a clearly positive story of hope and recovery, or had a control group exposed to suicide-related stimulus material. We contacted the lead or senior authors of all original studies to obtain participant-level data for this study. The primary analysis was restricted to individuals with some vulnerability to suicide. Risk of bias was assessed using the Cochrane risk-of-bias tool for randomised trials. The study is registered with PROSPERO, number CRD42020221341.

Findings Our search yielded 7347 records. 3920 records were screened by title and abstract, and 25 full-text records assessed for eligibility. There were eight eligible studies with 2350 participants for which individual participant data were sought. For suicidal ideation, six studies met the inclusion criteria for the primary analysis. Follow-up responses were available for 569 (90%) of 633 participants who were randomised with high vulnerability (345 [55%] allocated to the intervention group and 288 [45%] to the control group). The pooled standardised mean difference (SMD) indicated a small reduction in suicidal ideation of -0.22 (95% CI -0.39 to -0.04 , $p=0.017$; six studies) in the intervention group. For help-seeking attitudes and intentions, four studies met the inclusion criteria and follow-up data were available for 362 (86%) of 420 participants (247 [59%] allocated to the intervention group and 173 [41%] to the control group). The pooled SMD showed no evidence of a difference between the groups (SMD= 0.14 , 95% CI -0.15 to 0.43 , $p=0.35$; four studies). Low levels of cross-study heterogeneity effects were observed for both analyses ($I^2=5\%$ [suicidal ideation] and $I^2=36\%$ [help-seeking attitudes and intentions]). We found no evidence of publication bias.

Interpretation Media narratives of hope and recovery from suicidal crises appear to have a beneficial effect on suicidal ideation in individuals with some vulnerability, but there is insufficient evidence regarding help-seeking attitudes and intentions. These findings provide new evidence about narratives for suicide prevention.

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Introduction

The way that media reports about suicide has received considerable attention in suicide prevention research over the past 5 decades. Most of the research has focused on harmful media impacts—the Werther or imitation effect.^{1,2} The Werther effect refers to the relationship between sensationalist or repetitive reporting of suicide and subsequent increases in suicide in the population. There is now strong empirical support for the Werther effect. A 2020 systematic review and meta-analysis found

that media reports about celebrity suicides were associated with an 8–18% increase in suicides within 2 months of the reporting.³ This highlights that media reporting of suicide is a powerful environmental exposure that can have an impact on suicides. But importantly, poor reporting of suicide is potentially amenable to intervention through the implementation of media guidelines. For this reason, recommendations about news reporting on suicide are now a standard component of national suicide prevention strategies.⁴

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Research in context

Evidence before this study

Three systematic reviews and meta-analyses on harmful media reporting about suicides and subsequent suicides in the general population have been published (the Werther effect). One was published in 2005, another in 2012, and the third one in 2020. The most recent meta-analysis found that media reporting of celebrity suicides was associated with an 8–18% increase in suicides in the population in the following 1–2 months. The increase was even stronger for the same suicide method as reported in the media (18–44%). No systematic reviews or meta-analyses have assessed the effects of media messages designed to be protective against suicidal behaviour (the Papageno effect). We searched PubMed, Embase, PsycInfo, Scopus, Web of Science from inception up to Sept 6, 2021, using the search terms ((suicid* OR self-harm OR help-seeking) AND (Werther* OR Papageno* OR ripple* OR copycat OR imitat* OR contagio* OR suggesti* OR lived-experience) AND (media OR newspaper* OR print OR press OR radio* OR televis* OR film* OR movie OR book* OR documentar* OR internet OR cyber* OR web* OR music* OR drama* OR message* OR news* OR announcement* OR video OR broadcast* OR song* OR play* OR theat* OR story* OR narrative)). No language restrictions were applied. The first study investigating protective media information—an observational study—was published in 2010. This study showed a small negative association between protective media reports and suicide. Eight subsequent studies tested different types of protective interventions using a randomised controlled trial design. The interventions that were tested included media stories featuring individuals mastering their suicidal crises, and stories featuring prevention experts and peers of suicidal individuals speaking about suicide prevention and help seeking. All the eight studies included some baseline indicator of vulnerability of participants, and four of them

explicitly examined protective effects among people with some degree of vulnerability to suicide. The individual studies showed differing results—four showed no statistically significant changes in suicidal ideation after the exposure to a narrative of hope and recovery whereas another four showed some beneficial effect. Among six studies assessing help-seeking attitudes, one reported a statistically significant beneficial effect while five reported no changes. There are no existing evidence syntheses on this topic.

Added value of this study

To our knowledge, this is the first systematic review and meta-analysis to pool together studies examining the association between protective media and suicidal behaviour. Our pooled analysis showed evidence that exposure to narratives of hope and recovery resulted in a small, but statistically significant reduction in mean suicidal ideation when compared with active controls. There was insufficient evidence to conclude that narratives of hope and recovery were associated with differences in help-seeking attitudes and intentions between groups.

Implications of all the available evidence

To our knowledge, this is the first study providing combined evidence across published trials that media narratives of hope and recovery from a suicidal crisis have a small protective effect on suicidal ideation on the short term (up to 4 weeks after exposure) among individuals with some degree of vulnerability to suicidal ideation or behaviour. These narratives pose little risk in populations with some degree of vulnerability to suicide. Large-scale trials to test the efficacy of these types of interventions on suicidal and help-seeking behaviours are needed.

Although the harmful effects of media are documented, less is known about protective effects. In the past 10 years, researchers have begun to investigate how media exposure might be used to reduce suicide risk.^{5–10} If some specific media portrayals serve as a basis for subsequent suicidal behaviours, as indicated by the Werther effect, other narratives, particularly those featuring individuals who tell stories of overcoming suicidal crises without engaging in suicidal behaviour might reduce suicidal behaviours by decreasing the risk of acting out suicidal thoughts. Findings from the first study⁶ in the topic area suggested that news items featuring individuals who survived suicidal crises were associated with a small decrease in suicides. This suicide-protective media effect has been termed the Papageno effect.^{6,7}

Nearly all the studies of the Papageno effect have been randomised controlled trials (RCTs), which differ from ecological research designs used to study the Werther effect and provide a stronger basis for making causal inferences. These studies have frequently used ideation

as the main endpoint of interest, which is a pragmatic endpoint for trials especially for assessing the safety of suicide-related messaging.^{8,10–14} A further important endpoint in these studies has been help-seeking attitudes and intentions.⁵ Some of these studies suggest that stories of hope and recovery have the strongest effect on individuals with some degree of vulnerability.^{10,12} This might be due to stronger identification with the stories, or higher perceived usefulness among individuals with personal experience of suicidality or suicide attempts.¹⁵ Effects on individuals with some degree of vulnerability are of particular importance to suicide prevention. Stories of suicide have been shown to be particularly harmful among those with some vulnerability,¹⁶ which raises the question of whether narratives of hope have similar harmful effects. Considering the small samples analysed in previous studies, meta-analytic approaches, particularly analyses using individual participant data (IPD), can answer the question about harmfulness in vulnerable audiences.

In this systematic review and IPD meta-analysis,¹⁷ we combined participant-level data from RCTs on the Papageno effect to quantify the effect of personal stories of mastery of suicidal crises on individuals with some degree of vulnerability. We focused on two endpoints which have received the most attention: first, suicidal ideation (the primary outcome); and second, help-seeking attitudes and intentions (the secondary outcome). In two sensitivity analyses, we assessed whether findings for vulnerable individuals were generalisable to the entire intervention groups including people with low vulnerability, and whether findings were generalisable to narratives featuring peers and professionals rather than individuals speaking about their own recovery process.

Methods

Search strategy and selection criteria

In this analysis, we searched PubMed (including MEDLINE), Scopus, Embase, PsycInfo, and Web of Science using the following search terms ((suicid* OR self-harm OR help-seeking) AND (Werther* OR Papageno* OR ripple* OR copycat OR imitat* OR contagio* OR suggesti* OR lived-experience) AND (media OR newspaper* OR print OR press OR radio* OR televis* OR film* OR movie OR book* OR documentar* OR internet OR cyber* OR web* OR music* OR drama* OR message* OR news* OR announcement* OR video OR broadcast* OR song* OR play* OR theat* OR story* OR narrative)). No language restrictions were applied. We searched titles, abstracts, and keywords from inception until Sept 6, 2021, for each database. The search was intentionally broad to capture all related studies. Google Scholar was used to identify grey literature, using the search terms “suicide and media”. Furthermore, we checked the Canadian Agency’s for Drugs and Technologies in Health (CADTH) Grey Matters guidance for a comprehensive list of clinical trials registries to identify any unpublished or further trials of interest.¹⁸ We also screened the reference lists of identified reviews and recent editorials or comments for further references. Finally, we searched the reference lists and did a cited-reference search for all included studies using Google Scholar. For a detailed overview of the search strategy see the appendix (p 3).

Titles and abstracts were screened independently by two authors (TN and SK) using Mendeley. Eligible studies were then selected by full-text articles review by the same authors. At both stages of screening, disagreements were resolved by consensus.

Our eligibility criteria were framed using the Population, Intervention, Comparison, Outcomes, and Study (PICOS) design tool. Studies were included that used data from the general population (P), analysed a media intervention illustrating hope and recovery from a suicidal crisis (I), used active controls not exposed to suicidal media content (C), measured suicidal ideation or help-seeking attitudes or intentions as an outcome (O), and used an RCT design (S).

The media interventions needed to satisfy all the following criteria: first, have a focus on suicidal ideation in the absence of near-fatal or fatal suicidal behaviours; second, feature a personal narrative of hope and recovery; and third, involve media exposure only and not include any other components (eg, skills training). We were primarily interested in stories featuring hope and recovery from the perspective of an individual experiencing a suicidal crisis or ideation, but we also included stories from other perspectives (eg, stories emphasising recovery but featuring peers or professionals). Regarding the content of the control group, restrictions were applied in that it had to be a non-suicide related intervention and comparable to the intervention (eg, similar length, style, and format).

Studies were excluded if they did not feature a clearly positive story of hope and recovery, had no control group, or had a control group exposed to suicide-related stimulus material. Furthermore, we excluded studies if they did not measure suicidal ideation or help-seeking attitudes or intentions. No restrictions were placed on the instruments used to assess outcomes, the publication dates, or follow-up periods.

Data collection and analysis

We contacted the lead or senior authors of all original studies to obtain participant-level data for our meta-analysis. All authors provided their data and the data documentation. These authors were included as coauthors in this study and approved the estimates from their original data.

From each original dataset, we extracted participant-level data on age, gender, trial group allocation, baseline scores for suicidal ideation, help-seeking attitudes or intentions, suicide vulnerability, and follow-up scores for suicidal ideation and help-seeking attitudes or intentions. Datasets were checked for consistency and completeness, and where appropriate, data recoding was done to ensure consistency (such that the vulnerability and outcome variables were scored in the same direction). We also extracted study-level data on the number of trial groups, the content of the intervention and control narratives, their length (in time), the scales used to measure ideation and help-seeking attitudes or intentions, how baseline suicide vulnerability was defined, where the trial was done, and follow-up times. Extractions were done independently by SK, TN, and MJS. Discrepancies were discussed and resolved.

See Online for appendix

Risk of bias assessment

Risk of bias within studies was based on the Cochrane risk-of-bias tool for randomised trials.¹⁹ This tool assesses bias in RCTs. It includes five domains: first, bias arising from the randomisation process; second, bias due to deviations from the intended interventions; third, bias due to missing outcome data; fourth, bias in outcome measurement; and fifth, bias in selection of reported

results. Each domain is coded into low, some, or high risk of bias. Studies were coded as being overall at low risk of bias if all five domains were coded as low risk. Studies were coded as being at some risk of bias if at least one domain was coded to be at some risk, but no domains were coded as being at high risk. Studies were coded as high risk if any domain was at high risk. Domain three largely determined the overall assessment. The coding of bias was done by two independent researchers (unconnected with this study or any of the original studies) for both outcomes. Any discrepancies were discussed and resolved by consensus.

Risk of bias across studies, primarily due to missing results in the synthesis (publication bias), was assessed visually using contour-enhanced funnel plots and statistically with Egger's regression test for funnel plot asymmetry of the study-specific estimates.

Synthesis methods

For studies with multiple intervention groups, we recoded the data to make a two-group comparison (intervention *vs* control). We combined intervention groups because we were primarily interested in a direct comparison between Papageno interventions and active controls (rather than examining whether some types of Papageno interventions have greater efficacy than others). We did a primary analysis and two sensitivity analyses using studies rated at low or some risk of bias. The primary analysis was done on studies that tested personal narratives of how to cope with a suicidal crisis and was done using participants experiencing vulnerability. Our first sensitivity analysis used the same set of studies as the primary analysis but included all individuals (ie, those not experiencing vulnerability in addition to those with vulnerability). Our second sensitivity analysis took a broader view of the narratives—that is, including studies testing professional as well as peer narratives of hope and recovery. In this analysis, we included only individuals experiencing vulnerability.

For all analyses, we estimated the pooled standardised mean difference (SMD). We did this using the two-stage IPD meta-analysis approach. In the first stage, we extracted from the intervention and control groups of each study the mean, its standard deviation, and sample size of each outcome using complete-case methods. We then calculated study-specific SMDs and standard errors (the difference in means between groups divided by the pooled standard deviation). In the second stage, we used these data to estimate the pooled SMD using random-effects restricted maximum likelihood estimation. Heterogeneity for all models was assessed using the I^2 statistic. Values around 25%, 50%, and 75% were interpreted as low, moderate, and high heterogeneity, respectively.²⁰ All analyses were done using Stata (version 16.1) and R (version 3.6.1).

This study is registered with PROSPERO,²¹ number CRD42020221341. We made one amendment to the design

of the study after registration. Instead of stratifying the analyses by vulnerability of study participants, we decided to focus solely on individuals with some degree of vulnerability in the primary analysis. This decision was due to the high relevance of findings in this subsample. Findings for all participants are reported as sensitivity analysis. A further protocol change was that we removed laboratory experiments from the eligible designs to focus only on RCTs. No changes in terms of studies included resulted from this change. We report our study using the Preferred Reporting Items for Systematic Review and Meta-Analyses of Individual Participant Data (PRISMA-IPD) guidelines.²² Ethical approval was obtained from the Ethics Review Board of the Medical University of Vienna (review number 1481/2020).

Role of the funding source

There was no funding source for this study.

Results

Our search yielded 7347 records, and after removing the duplicates, 3920 records remained for screening (figure 1). After the removal of ineligible records, we retained 25 records that we assessed for eligibility by reading the full text; 17 of these were excluded for specific reasons (figure 1). The appendix (pp 4–6) contains a complete description of the excluded studies. No additional ongoing or completed trials of possible relevance were identified in the search of clinical trials registries as listed in CADTH's Grey Matters. This left eight unique studies^{8,10–14,23,24} for our qualitative synthesis and meta-analysis (table and appendix p 7). IPD data were sought and obtained from all eight studies. No issues of data integrity were identified.

Two studies^{23,24} were done in Australia and six studies in Austria.^{8,10–14} The studies had a total of 2350 participants randomly assigned to either the intervention or control groups. At baseline, participants had a mean age of 32 years (SD 14, range 18–97) and 60% were female. Because five studies had multiple intervention groups,^{8,11,12,14,23} there was an imbalance in the allocation to intervention and control groups. In total, 1518 participants (65%) were allocated to the intervention groups and 832 (35%) to the control groups. Detailed information on each study (ie, number of participants, demographic profile, and unavailability of outcomes) is available in the appendix (p 8).

Vulnerability to suicide before the intervention was recorded in a variety of different ways (table 1). In four studies,^{8,10,23,24} vulnerability was measured using a suicidal ideation questionnaire and recorded as a binary variable (low *vs* high) that was split into two groups at the median. One study¹² measured vulnerability using a question about suicide attempts in the past year. One study¹³ measured vulnerability using the Patient Health Questionnaire-9, with scores above 14 indicating vulnerability. One study¹⁴ assessed vulnerability with a question about current suicidal thoughts. A final study¹¹

had no baseline assessment of vulnerability but measured identification with the suicidal person featured in the media story, which has been shown to constitute a relevant factor in vulnerability and media effects.^{9,15}

Suicidal ideation was measured using the Adult Suicidal Ideation Questionnaire (two studies^{23,24}), the Reasons for Living Inventory (one study¹⁰), its subscale, the Survival and Coping Beliefs subscale (four studies^{8,12-14}), or the Implicit Association Test (one study¹¹). Help-seeking intentions were measured using the General Help-Seeking Questionnaire (four studies^{13,14,23,24}) and help-seeking attitudes with the Short Attitudes Towards Seeking Professional Help Scale (two studies^{10,12}). Details on the interventions are in table 1. Follow-up outcome data were collected immediately after the media exposure for four studies,^{8,11,13,14} 1 week after for two studies,^{10,12} and 4 weeks after for two studies.^{23,24} Four studies^{8,10,12,24} were judged to be at low risk of bias and four^{11,13,14,23} at some risk. No studies were at high risk of bias (appendix p 9), and therefore all studies were included in our analyses.

For suicide ideation, scales in the original studies were scored so that lower scores were associated with lower levels of suicidal ideation. For the primary analysis, six studies met the inclusion criteria and follow-up data were available for 569 (90%) of 633 participants with baseline ideation scores above the median (345 [55%] participants were allocated to the intervention group and 288 [45%] to the control group). The pooled SMD for this group indicated a small reduction in mean suicidal ideation in the intervention group of -0.22 (95% CI -0.39 to -0.04 , $p=0.017$, six studies; figure 2A). Low levels of heterogeneity were observed in this analysis ($I^2=5\%$). For the first sensitivity analysis that used all participants regardless of the baseline vulnerability, data were available from the same six studies for 1138 (86%) of 1317 participants (717 [54%] allocated to the intervention group and 600 [46%] to the control group). The pooled SMD for this group was -0.06 (95% CI -0.24 to 0.11 , $p=0.49$, six studies; figure 2B). Moderate heterogeneity was observed ($I^2=49\%$). For the second sensitivity analysis, which broadened the types of narratives under investigation, all eight studies were included, and baseline data were available for 876 (87%) of 1009 participants who had baseline ideation scores above the median (643 [64%] allocated to the intervention group and 366 [36%] to the control group). For this group, the pooled SMD was -0.13 (95% CI -0.28 to 0.01 , $p=0.064$, eight studies; figure 2C) and the heterogeneity was low ($I^2=0\%$).

For help-seeking attitudes and intentions, scales were scored so that higher scores indicated stronger help-seeking attitudes or intentions. For the primary analysis, four studies met the inclusion criteria and follow-up data were available for 362 (86%) of 420 participants who had baseline ideation scores that were above the median (247 [59%] allocated to the intervention group and 173 [41%] to the control group). The

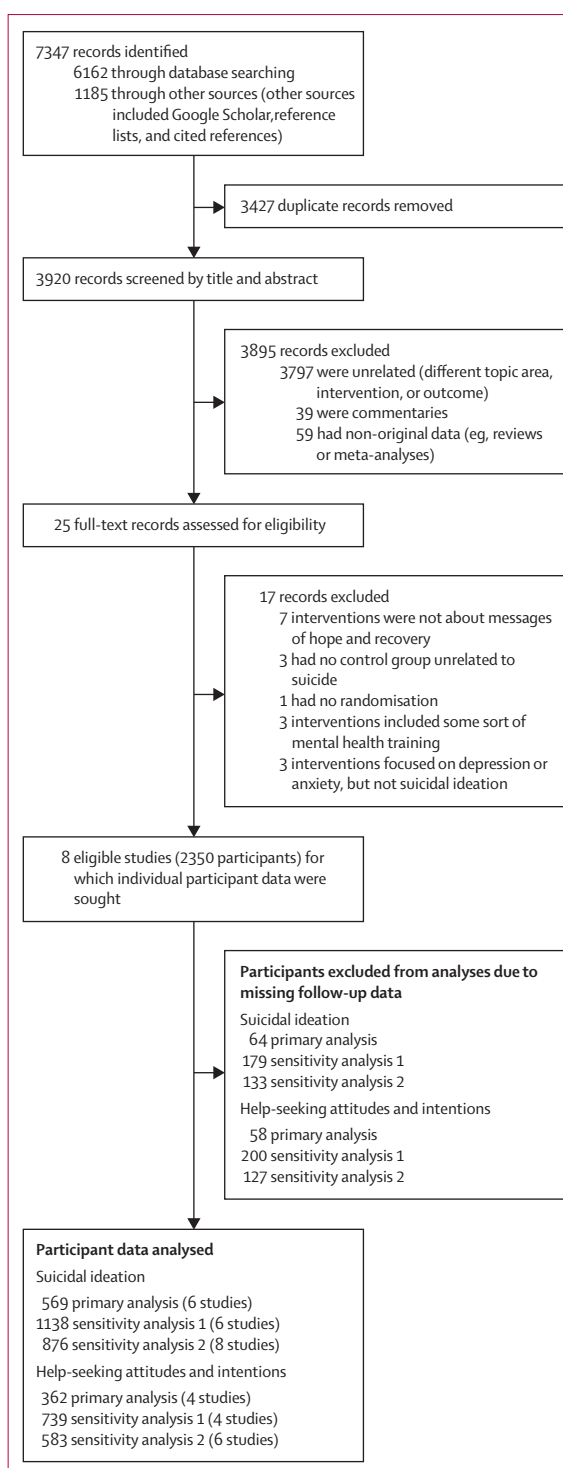


Figure 1: Study profile

pooled SMD showed no significant difference between the groups (SMD=0.14, 95% CI -0.15 to 0.43 , $p=0.35$, four studies; figure 3A). Moderate heterogeneity was observed for this set of studies ($I^2=36\%$). For the first sensitivity analysis that included all participants, follow-up

Intervention group (format, perspective, content, and how it is used [ie, primary or secondary analysis])	Length of exposure or intervention estimate	Role of help seeking in recovery (intervention material)	Control group (format, perspective, content, and similarities with intervention group materials)	Definition of vulnerability	Primary outcome and population group	Questionnaire suicidal ideation	Questionnaire help-seeking attitudes or intentions	Online-s on-site participation	Study endpoint or follow-up	Assessment of outcomes (T1: baseline and T2 and T3: subsequent outcomes)
Ftanou et al (2021) ³³ Video message; peer perspective; one of three narratives that encouraged suicidal young adults to seek help, titled "Talk to someone" (INT-1), "Find what works for you" (INT-2), or "Life can get better" (INT-3); secondary analysis only	30 s	Help seeking is the main topic presented as a personal advice and not contextualised with an individual story of recovery	Video message; peer perspective; narrative that encouraged young adults to get emergency contraception; titled "Available from your pharmacy"; same style and length, and same actors as intervention material	Baseline median split; suicidal ideation	Attitudes about youth suicide; 18–24 year olds	Adult Suicidal Ideation Questionnaire	General Help-Seeking Questionnaire	On site	4 weeks post exposure	Baseline (T1) and 4 weeks later (T2)
King et al (2018) ³⁴ Television documentary; men who experienced and coped with crises or suicidal ideation; narratives that encouraged help seeking in suicidal men, focused on men's gender roles, help seeking and recovery from suicidal ideation, titled "Man-up"; primary and secondary analyses	3 parts of 1 h each (ie, 3 h total time)	Help seeking is the main topic and contextualised within individual stories of recovery	Television documentary; personal perspectives are not emphasised; scientific perspectives instead; narrative described inner workings of the brain; titled "Test your brain"; has the same length	Baseline median split; suicidal ideation	Help-seeking intentions; adult men (aged 18–80 years)	Adult Suicidal Ideation Questionnaire	General Help-Seeking Questionnaire	On site (entry interview) and online	4 weeks post exposure	Baseline (T1) and 4 weeks later (T2)
Arendt et al (2016) ³¹ Newspaper article; person who experienced and coped with a suicidal crisis by getting help; narrative described coping process, titled "Suicide prevented by a mere hair's breadth—Martin got anonymous help from the crisis line"; primary and secondary analyses	2 pages (578 words)	Help seeking is a side topic and contextualised within an individual story of recovery	Newspaper article; local citizens; narrative described feelings of local residents annoyed by an infrastructure project in their area; same pictures and similar length, written by same journalist as intervention material	Identification with article above sample median	Suicide cognitions; adults (aged 18–46 years)	Implicit Associations Test	None	On site	Immediately after exposure (T2)	At T2 only

(Table continues on next page)

Intervention group (format, perspective, content, and how it is used [ie, primary or secondary analysis])	Length of exposure or intervention estimate	Role of help seeking in recovery (intervention material)	Control group (format, perspective, content, and similarities with intervention group materials)	Definition of vulnerability	Primary outcome and population group	Questionnaire suicidal ideation	Questionnaire help-seeking attitudes or intentions	Online vs on-site participation	Study endpoint or follow-up	Assessment of outcomes (T1: baseline and T2 and T3: subsequent outcomes)
<i>(Continued from previous page)</i>										
Niederkrötenhaller et al (2020) ³²	2 pages (497–685 words per group)	Help seeking is a side topic and contextualised within individual story of recovery (material was slightly adapted from Arendt et al ³¹)	Newspaper article; local citizens; narrative described feelings of local residents annoyed by an infrastructure project in their area; same pictures and similar length, written by same journalist as intervention material	Suicide attempt in the last year	Suicidal ideation; adults (aged 18–75 years)	Survival and Coping beliefs subscale and Reasons for Living Inventory	Short Attitudes Toward Seeking Professional Help Scale	Online	1 week after exposure (T3)	Baseline (T1), immediately after exposure (T2), and 1 week later (T3)
Niederkrötenhaller et al (2020) ³³	5 min 41 s	Help seeking is a main topic and contextualised within individual story of recovery	Video message; perspective of an advocate for vaccination; narrative described the effectiveness of vaccination, titled "Vaccination: the true problem behind the risk"; similar style and length as intervention material	Depressive symptoms >14 points (moderately severe) on the Patient Health Questionnaire-9	Suicidal ideation; 18–24 year olds	Survival and Coping beliefs subscale and Reasons for Living Inventory	General Help-Seeking Questionnaire	Online	Immediately after exposure (T2)	Primary outcome: baseline (T1) and all outcomes (T2)
Till et al (2017) ³⁰	10 min	Help seeking is a main topic and contextualised within individual stories of recovery	Videos and written text provided on website of the Austrian Boy Scouts: Boy Scouts' leadership and members; benefits of being a boy scout; similar style as intervention material	Baseline median split, suicidal ideation	Suicidal ideation; adults (aged 18–62 years)	Reasons for Living Inventory	Short Attitudes Toward Seeking Professional Help Scale	On site	One week after exposure (T3)	Baseline (T1), immediately after exposure (T2), and 1 week later (T3)

(Table continues on next page)

Intervention group (format, perspective, content, and how it is used [ie, primary or secondary analysis])	Length of exposure or intervention estimate	Role of help seeking in recovery (intervention material)	Control group (format, perspective, content, and similarities with intervention group materials)	Definition of vulnerability	Primary outcome and population group	Questionnaire suicidal ideation	Questionnaire help-seeking attitudes or intentions	Online vs on-site participation	Study endpoint or follow-up	Assessment of outcomes (T1: baseline and T2 and T3: subsequent outcomes)
(Continued from previous page)										
Till et al (2019) ⁸ Newspaper article; one of two perspectives—physician who experienced and coped with a suicidal crisis by getting help (INT-1) or physician treating suicidal patients. Tells story of patient recovery (INT-2); narrative described coping process, titled “Coping with suicidal crisis”; primary analysis (INT-1 and control group) and secondary analysis (INT-1 and INT-2)	2 pages (497 words)	Help seeking is a side topic and either contextualised within an individual story of recovery or provided as an expert advice	Newspaper article; physician who advises on how to prevent infections with influenza; narrative encouraged audience to protect themselves by getting vaccinated; similar style and length as intervention material	Baseline median split; suicidal ideation	Suicidal ideation; adults (aged 18–83 years)	Survival and Coping beliefs subscale and Reasons for Living Inventory	None	Online	Immediately after exposure (T2)	Baseline (T1) and T2
Till et al (2020) ¹⁴ Newspaper article; perspective of a physician who treats suicidal patients; narrative described coping process, titled either “Coping with suicidal crisis” (INT-1) or “Suicide: a common problem in society” (INT-2); secondary analysis	2 pages (500–600 words per group)	Help seeking is a side topic and not contextualised with individual story of recovery, but provided as an expert advice	Newspaper article; physician who advises on how to prevent infections with influenza; narrative encouraged audience to protect themselves by getting vaccinated; similar style and length as intervention material	Single question on current suicidal thoughts (low vs high)	Suicidal ideation (aged 18–97 years)	Survival and Coping beliefs subscale and Reasons for Living Inventory	General Help-Seeking Questionnaire	Online	Immediately after exposure (T2)	At T2 only

INT-1=intervention group 1, INT-2=intervention group 2, INT-3=intervention group 3.

Table: Core study features of the primary studies included in the individual-patient data meta-analytic models

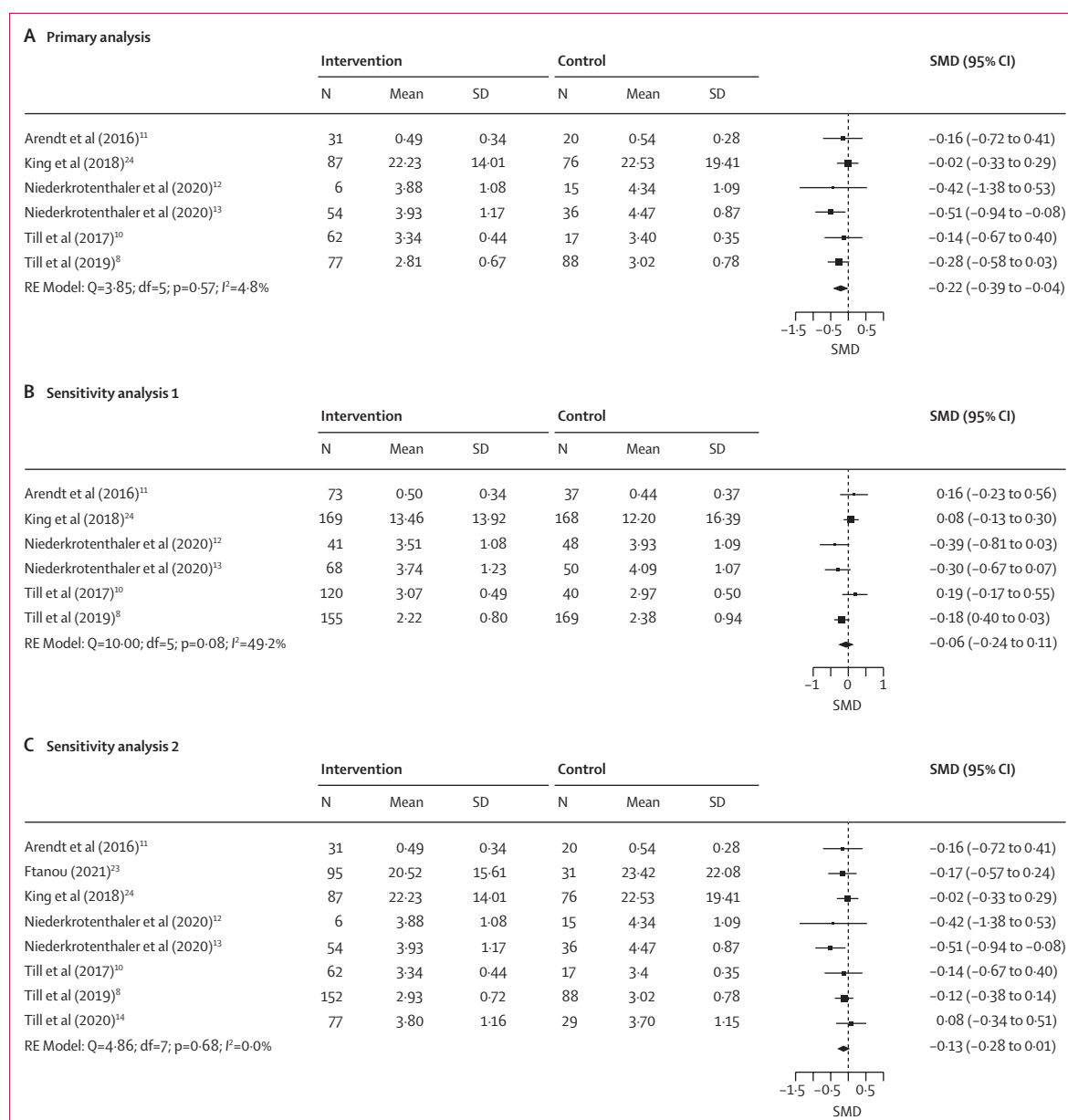


Figure 2: Change in suicidal ideation

The primary analysis used studies that tested a personal narrative of how to cope with a suicidal crisis and was done using data of participants who were experiencing vulnerability at baseline. The first sensitivity analysis used the same set of studies but used all participants. The second sensitivity analysis used a broader set of narratives and was restricted to participants experiencing vulnerability at baseline. SMD=standardised mean difference. RE=random effects. Q=Cochran's Q test for heterogeneity.

data were available for 739 (79%) of 939 participants (556 [59%] allocated to the intervention group and 383 [41%] to the control group). The pooled SMD for this analysis was 0.12 (95% CI -0.10 to 0.35, $p=0.28$, four studies; figure 3B) and the heterogeneity was moderate ($I^2=50\%$). For the second sensitivity analysis, follow-up data were available for 583 (82%) of 710 participants who had baseline ideation scores above the median (459 [65%] participants were allocated to the intervention group and 251 [35%] to the control arm). The

pooled SMD was 0.04 (95% CI -0.16 to 0.25, $p=0.69$, six studies; figure 3C). The heterogeneity in this analysis was low ($I^2=24\%$).

We found no evidence of publication bias in any of the analyses. For the outcome suicidal ideation in the primary analysis, scores were to the left of the null line, but none were outside the contours representing the 1% significance level (figure 4A). All other estimates were distributed symmetrically around the null line with none falling outside the 1% significance level.

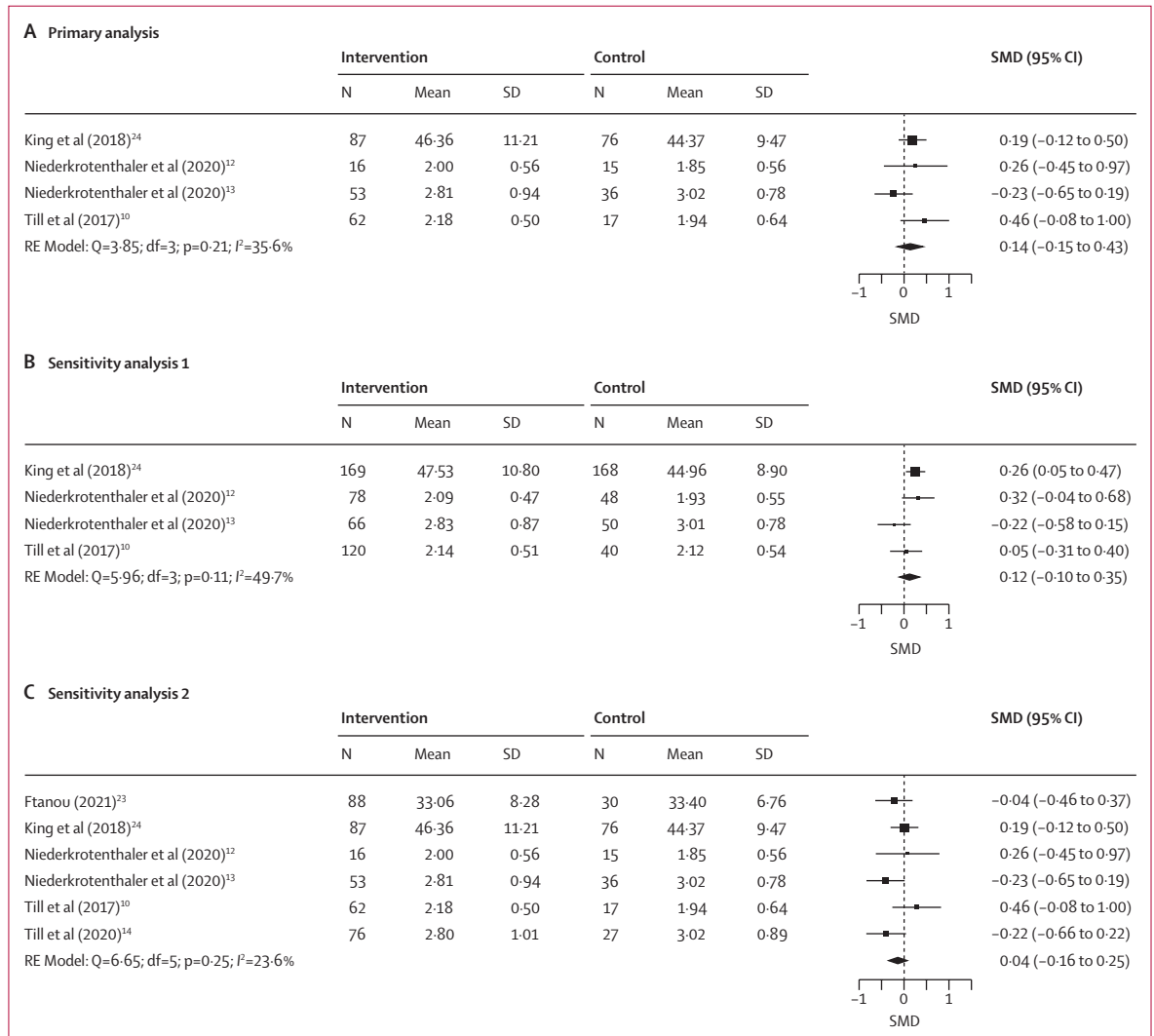


Figure 3: Change in help-seeking attitudes and intentions

The primary analysis used studies that tested a personal narrative of how to cope with a suicidal crisis and was done using data of participants experiencing vulnerability at baseline. The first sensitivity analysis used the same set of studies but used all participants. The second sensitivity analysis used a broader set of narratives and was restricted to participants experiencing vulnerability at baseline. SMD=standardised mean difference. RE=random effects. Q=Cochran's Q test for heterogeneity.

Egger's test for asymmetry was non-significant for all analyses.

Discussion

To the best of our knowledge, this is the first systematic review and meta-analysis about media portrayals of stories of hope and recovery from suicidal crises on suicidal ideation and help-seeking attitudes and intentions. The evidence is that, among individuals with some degree of vulnerability, personal stories of hope have a small protective effect on suicidal ideation up to 4 weeks after exposure.

The protective effect highlights that these narratives are unlikely to be harmful for individuals with some degree of vulnerability to suicide in the general population. This is

important because this group is the key target for many media-based suicide prevention efforts. There are several examples of well intentioned media narratives that sought to educate the public and reduce suicide, but which have tragically resulted in an increase in suicides.^{25,26} These narratives have not typically focused on hope and recovery, but featured a specific suicide or suicide method. This highlights the importance of identifying narratives that do not put individuals at risk of harm.

Our IPD meta-analysis did not find evidence of an association between personal stories on help-seeking attitudes and intentions. The wide confidence interval of the combined estimate pointed in the expected direction but was based on a small number of studies. Thus, we lack sufficient evidence to make a reliable determination

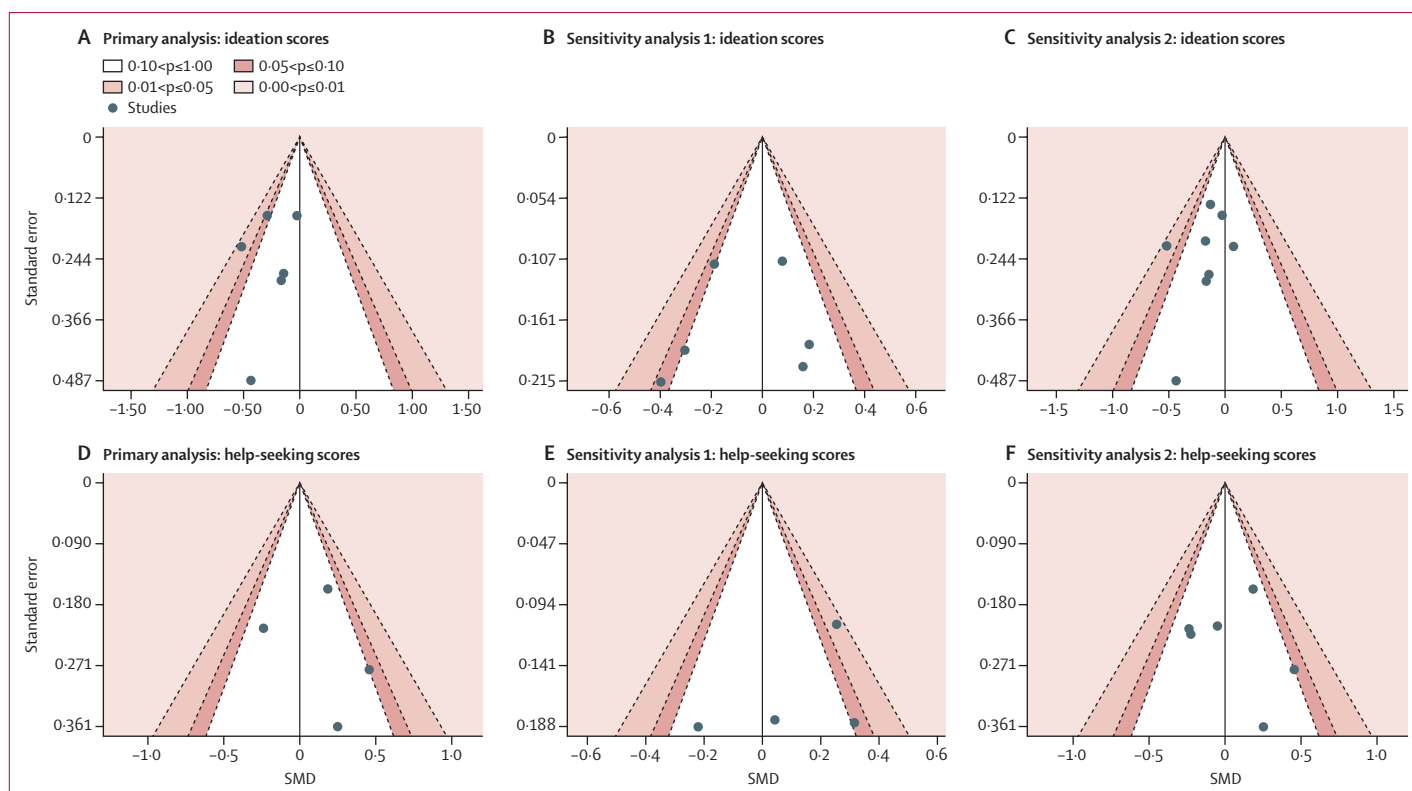


Figure 4: Contour enhanced funnel plots

The primary analysis used studies that tested a personal narrative of how to cope with a suicidal crisis and was done using data of participants experiencing vulnerability at baseline. The first sensitivity analysis used the same set of studies but used all participants. The second sensitivity analysis used a broader set of narratives and was restricted to participants experiencing vulnerability at baseline. SMD=standardised mean difference.

about Papageno messages on this outcome. The only original study that found a statistically significant improvement in help-seeking intentions used a narrative that was specifically set up to tackle gender stereotypes to enhance help seeking in men,²⁴ who have higher suicide rates but show less help seeking than women.²⁷ To influence help-seeking attitudes and intentions, a focus on barriers to help seeking in the context of surviving a crisis might be necessary.

Although the efficacy of messages of hope and recovery from a suicidal crisis was small, there are some reasons to be optimistic about their real-world impacts when implemented at scale. First, universal interventions with low efficacy can still be important if they can be delivered to a large proportion of the population. Media interventions are a good example of this because they can have substantial reach into the population. Narratives of hope and recovery are already readily available, and they are widely acceptable to stakeholders including individuals bereaved by suicide or with personal experience of suicidal ideation and attempts.²⁸ Development and implementation of this type of intervention requires fewer resources than other interventions.²⁹

Another reason for optimism is that effects were observed in randomised trials where the outcomes were

measured within a short period of time. Demonstrating efficacy at this stage should be a necessary precondition to further develop public health messages. It is unlikely that media messages will be effective in the real world if they have no effect in the short term. But in contrast to the included RCTs measuring single exposures, in the real world, successful public health advertising works through repetition and over prolonged periods.³⁰ Finally, it is increasingly common to target advertising to a specific population using social media. Many media consumers are self-selecting themselves into media streams that reflect their interests, meaning it is possible to deliver relevant media messages to many people in the target audience at the same time.

Another key implication of our study is the issue of harm. There are several examples of well intentioned media messages that have caused more harm than good.^{25,26,31–34} In contrast to this, stories of hope and recovery do not appear to show harmful effects among those who are vulnerable from the general population and could have some benefits. The Papageno effect cannot replace media narratives about fatal suicides if the topic meets the media criterion of newsworthiness, but it provides a potentially novel and safe way forward to educate the public about suicide prevention that can help

to shift the focus from narratives of despair to a more focused portrayal of how to cope with adversity. Many media guidelines are now rightfully cautious about reporting on suicide.⁴ Our findings suggest that these guidelines could safely be revised to support the reporting of stories of mastery of a suicidal crisis. Further studies specifically analysing the effects of media stories of mastery on a wide range of audiences, using a variety of narratives that are tailored to the specific target groups and to the primary impact domain under investigation (eg, suicidal ideation or help-seeking intentions), are needed, as are large-scale trials that test any effect of such stories on suicidal and help-seeking behaviour.

Strengths of this meta-analysis were the specific focus on stories of hope and recovery from a suicidal crisis and the inclusion of a broad set of interventions consisting of stories of different lengths and media types. The inclusion criteria were intentionally conservative in that they focused on evaluating studies with a message of hope and recovery rather than including studies with broad narratives aiming to promote suicide prevention (specifically those studies featuring suicides or details about suicide methods). Most importantly, the narratives all avoided presenting information on specific near-fatal or fatal suicidal behaviours, something which is known to cause harm. Another strength was that we selected only those studies that used active controls. This is a conservative approach because it isolates the effect of the message from other factors such as the way the message was delivered. None of the included studies were at high risk of bias. Finally, cross-study heterogeneity effects were low and there was no evidence of publication bias as evidenced by contour enhanced funnel plots and Egger's tests.

There are several limitations of our study. First, this meta-analysis relied on suicidal ideation and help-seeking attitudes and intentions as outcomes, rather than suicidal and help-seeking behaviours. It is not possible to generalise findings to suicidal behaviours due to the low specificity of suicidal ideation. It appears likely, however, that an intervention that reduces suicidal ideation in a substantial proportion of a population would reduce some suicides.³⁵ To the best of our knowledge, there are currently only four published studies that have assessed associations between portrayals of suicidal ideation (typically covering stories of recovery) with suicides.^{6,32,36,37} Three of these studies^{6,36,38} suggested fewer suicides following stories about suicidal ideation, whereas one study³² did not identify any association. Second, the study could only examine those interventions that have been tested in RCTs, most of which were short, one-off interventions. Third, all source studies included in the meta-analyses were done by members of the study team. We attempted to address the limitation of evaluating our work by using established guidelines for the conduct and reporting and by being transparent about this. Furthermore, the quality

assessment of included studies was done by independent researchers. Fourth, we assessed effects in a group of individuals with some degree of vulnerability to suicide, but it remains unclear how vulnerable these individuals were. Fifth, although we found no evidence of publication bias, our analyses included a maximum of eight studies. Egger's test might have had insufficient power to detect publication bias if it were present. Nonetheless, the contour enhanced funnel plots showed good symmetry, which strengthens the argument that publication bias is not a factor in the retrievable literature. Sixth, all the studies we identified were done in either Australia or Austria and, therefore, the results might not generalise beyond these settings. Seventh, the outcome related to help seeking included attitudes and intentions, which are not the same constructs. For future studies, we recommend investigating help-seeking intentions (rather than attitudes) with broadly applicable questionnaires (eg, the General Help-Seeking Questionnaire). Eighth, data on race and ethnicity were not available. Finally, media portrayals can affect various other domains beyond help-seeking attitudes and intentions and suicidal ideation (eg, stigmatisation or prevention-related knowledge), which we did not study.

To our knowledge, this is the first meta-analysis on the effect of portrayals of personal mastery of suicidal ideation on suicidal ideation and help-seeking attitudes and intentions. Our results suggest that these narratives reduce suicidal ideation in audiences with some vulnerability to suicide in the general population, providing a strong case for their use for suicide prevention.

Contributors

MJS and TN were responsible for the study concept and design. BT, TN, JP, FA, MF, RK, KK, MSc, SK, and MB acquired the data. MJS, TN, and BT extracted the data. MJS did the statistical analyses. TN, BT, SK, MSi, MB, JP, UST, MV, FA, MF, RK, KK, MSc, SS, and MJS interpreted the data. TN and MJS drafted the manuscript. All authors revised and critically analysed the manuscript for important intellectual content. All authors had full access to the data in the study. TN and MJS had final responsibility for the decision to submit for publication.

Declaration of interests

We declare no competing interests.

Data sharing

The approval from the Ethics Committee does not include permission to make data available to third parties.

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