

The impact of media reporting of suicides on subsequent suicides in Asia: A systematic review

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ABSTRACT

Introduction: This systematic review is aimed at (1) evaluating the association between media portrayals of suicides and subsequent copycat suicides or attempts among the general public in Asia, (2) understanding the factors associated with copycat suicides and (3) determining the positive impacts of the media reporting of suicides (e.g. increased help-seeking, coping).

Method: A systematic review and narrative synthesis of English and Chinese articles from 8 electronic databases (i.e. PsycINFO, MEDLINE, Embase, CINAHL, Web of Science, Ariti, China National Knowledge Infrastructure and OpenGrey) from January 2000 to May 2023 was conducted. Observational studies were included, and the data were analysed through narrative synthesis. The protocol was registered with PROSPERO (CRD42021281535).

Results: Among the 32 studies included (n=29 for evidence synthesis) in the review, there is good-quality evidence to show that copycat suicides and suicide attempts increase after media reports of a suicide, regardless of country, celebrity status, study design, type of media, mode of suicide or follow-up period. Females, younger age groups and those sharing similar characteristics as the deceased in publicised suicides (age, gender) were more susceptible to negative impact. Reporting of the mode of death of the deceased increased suicides by the same method among the public.

Conclusion: Media portrayals of suicide appear to have a negative impact on copycat suicides at the population level in Asia. Thus, in addition to tighter media control, healthcare systems, professional medical bodies and community outreach services should work collaboratively to promote early help-seeking in those with psychological distress.

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Keywords: celebrity, copycat, media reporting, suicide, Werther effect

CLINICAL IMPACT

What is New

- This systematic review examined the effect of media portrayal of suicides on subsequent copycat suicides among public and found substantial evidence for the Werther effect.
- Those who share similar characteristics as the celebrity, younger age groups and females were more susceptible to negative impact.

Clinical Implication

- Policymakers should work together with media professionals and health systems to create awareness and identify the groups at increased risk, to promote help-seeking and reduce copycat effects.

INTRODUCTION

Globally, around 703,000 people die by suicide annually, 77% of which occur in low- to middle-income countries.¹ In 2019, suicide was the fourth leading cause of death among younger adults (15–29 years).¹ Approximately 60% of the global suicide rates were attributed to Asian countries in 2012,² with the data from 2019 showing a higher average rate of suicide in Southeast Asia of 10.2 per 100,000 compared to the global average of 9.0 per 100,000.³ The characteristics of suicide victims in Asia are different from the rest of the globe: the male–female ratio of suicides is 1:1 (compared to 3:5 in other countries); these deaths occur in rural areas, include specific methods of suicide such as poisoning, and the populations have a lower prevalence of psychiatric conditions.⁴

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Religion, cultural beliefs and tradition have a strong influence on the suicide rates in many Asian countries, where suicides are often glorified as acts of valour, devotion or sacrifice.⁵ For example, India has the highest rates of suicide among Asian countries (82% in 2012), and there is a strong influence of tradition in people's lives. While the holy scriptures of Hinduism clearly discourage and condemn suicide for selfish reasons, they also condone suicides offered as sacrifices and to uphold duty. The mythology of the sacrifice of sages for the well-being of the world, of royals to escape apostasy (*Jauhar*), and self-immolation of widows in their husband's pyre (*Sati*)⁵ have a great influence on the populace. There were tales about mass suicides in the Kingdom of Ayodhya upon the passing of Lord Ram in the Ramayana, an epic that has deep-rooted religious sentiments in people's lives.⁶ These strong religious beliefs have resulted in the continued practice of such rituals even in the modern era.⁷ This strong devotion is not limited to deities but often extends to the deification of celebrities and politicians who are worshipped with strong passion and have temples built under their names.⁸ Worshipping of celebrities and idols is omnipresent and often leads to a tendency to idolise celebrities and follow their every move, appearance and other attributes.⁹

Celebrity obsession tends to spark copycat suicides following the deaths of their idols.¹⁰ A study conducted in South Korea marked a clear spike in copycat suicide by 16.4% within a day of the death of a celebrity.¹¹ Fu and Chan showed that the increase in copycat suicides is only specific to those who shared similar characteristics (e.g. age, gender, suicide method) as the celebrity.¹² The Werther effect, that is, a rise in copycat suicides following a celebrity suicide, has also been observed in other Asian countries, such as India and Hong Kong.^{13,14}

The media guidelines for reporting suicides restrict prominent placement of stories, repeated reporting of the same suicide, usage of sensationalised language, indication of suicide method or location, showing of visuals related to suicide, and links to the celebrity's social media page. Nonetheless, media outlets often disregard the guidelines and glamourise the suicide with the inclusion of sensitive information, which brings about a series of copycat suicides in a short period after a suicide has been reported.¹⁵ A meta-analysis of 31 studies from across the globe showed that the risk of suicide increased by 13% following celebrity suicide reporting.¹⁶ Moreover, a 30% increase in suicides using the same method

was noted when the method of suicide was included in the media.¹⁶ Another retrospective time series conducted in 2009 across Hong Kong, Taiwan and China showed a higher risk of copycat suicides by 43%, 29% and 25%, respectively, in the first, second and third weeks following the reports of celebrity suicide.¹⁷ While there is quality evidence from systematic reviews for the Werther effect across the world, no systematic reviews have looked at the trend in Asian countries. Given that the suicide rates, sociodemographic characteristics and cultural influences in Asian populations are different from those in Western countries, a synthesis of relevant evidence through a systematic review is warranted. This information on copycat suicides in Asia is critical to understanding if existing guidelines for suicide reporting and adherence to the media guidelines are adequate to tackle the ongoing situation.

The primary objective was to examine the association between media reporting of suicide and subsequent incidences of copycat suicides and attempts among the public in Asia. The secondary objectives were to understand the factors associated with copycat suicides and whether there were positive impacts of the media reporting of suicides (e.g. higher help-seeking, coping).

We followed the list of countries that fall under the United Nations classification of Asia,¹⁸ which encompasses the geographical area in the eastern and northern hemispheres, extending from the Mediterranean Sea to the Western Pacific Ocean. This includes countries that fall under Central, Eastern, South, Southeastern and Western Asia.

METHOD

Protocol and registration

The systematic review followed the reporting guidelines for the meta-analyses of observational studies in epidemiology (MOOSE) guidelines, and the review was performed as per Cochrane standards. The protocol was registered with PROSPERO (CRD42021281535). A mixed-methods review was initially planned, which was later modified. Qualitative studies and case reports were excluded due to the high heterogeneity and irrelevant outcomes (e.g. attitudes of professionals or the public towards media reporting of suicides) that did not align with the primary outcomes (i.e. copycat suicides and suicide attempts).

Search sources and search

Eight databases (i.e. MEDLINE, Embase, PsycINFO, CINAHL, Web of Science, Airiti, China National

Knowledge Infrastructure and OpenGrey) were searched. The keywords used for each database are included in the Supplementary Appendix S1. We also conducted bibliographic searches from the articles downloaded and subsequent follow-up searches for related articles from Google Scholar using strings of keywords (from the article) or using the related articles retrieval function in Google Scholar.

Screening and eligibility criteria

Studies were included if they were (1) they were in English or Chinese; published between January 2000 and May 2023; (2) they were observational studies; (3) they have primary data; (4) the study setting was in Asia; (5) the exposure was media reporting; and (6) the outcome was suicide rate or attempts. Studies that had secondary data, those reporting unrelated outcomes, data from clinical cohorts published in languages other than English or Chinese, and those with specific study designs (i.e. conference abstracts, qualitative studies and case series or reports) were excluded. Articles were screened against these criteria. Overlapping publications (the same incident in similar settings reported in multiple articles) were screened based on their quality and number of cases. The most robust and comprehensive ones were included. We excluded articles whose eligibility could not be determined based on the information provided in the article and whose authors were uncontactable.

Data collection

Data extraction was done in parallel and independently. The screening of title, abstract and full text was conducted by reviewer pairs (AR and SG; RT and YBT; YSK and BL), and disagreements were resolved by further discussion or by a third reviewer. Disagreements that were not solved by the third reviewer were directed to MS for resolution. We developed a data extraction sheet that was piloted using 5 studies and refined accordingly. The celebrity recognition (i.e. local or international) was determined either by following the article or using Wikipedia¹⁶ when the information was not provided in the article.

Risk of bias (RoB) and publication bias assessment

RoB assessments were performed to determine the sources of bias in various stages of the study, including analysis, reporting and interpretation of results, which could affect the quality of the evidence presented in the systematic review. The RoB of the included studies in this review was assessed using the methods reported by Niederkrötenhaler et al.¹⁶ The RoB was assessed using a modified Robins I tool that assessed biases arising from confounding, intervention classification,

preparatory phase, missing data, measurement of outcome, and selection of reported results. Studies were classified according to 4 levels of RoB (low, moderate, serious and critical). The overall bias was determined by the highest classification among the 6 domains measured e.g. when 1 of 6 domains is coded moderate and the remaining domains are coded low, the study will be coded moderate RoB. RoB was assessed for the outcome of interest, and studies with a critical RoB were excluded from the narrative synthesis. Publication bias was assessed using contour-enhanced funnel plots and Egger's regression test.

Data analysis

In the protocol, we indicated that data will be pooled through random effect meta-analysis, and heterogeneity will be measured using the I^2 statistic and the I^2 test. If a high heterogeneity (>75%) was to be identified, we proposed a narrative synthesis approach. The I^2 value for the current dataset was 99.47%, which was not attributable to common confounding variables, such as region (specific countries), type of media (traditional versus [vs] new media), study design (interrupted time series [ITS] vs pre-post design), and publication year, using meta-regression. Therefore, the initial plans for a meta-analysis were switched to a narrative synthesis. Nonetheless, the summarised data have been presented quantitatively through forest plots (rate ratios; Stata MP Version 18 using meta analysis [StataCorp, College Station, TX, US]) to understand the direction of evidence and extent of heterogeneity in the literature that could provide insights for future research.

We performed subgroup analysis based on celebrity status, entertainers vs non-entertainers, and geographical areas (South Asia vs East Asia). We excluded 3 studies with critical RoB from the analysis.

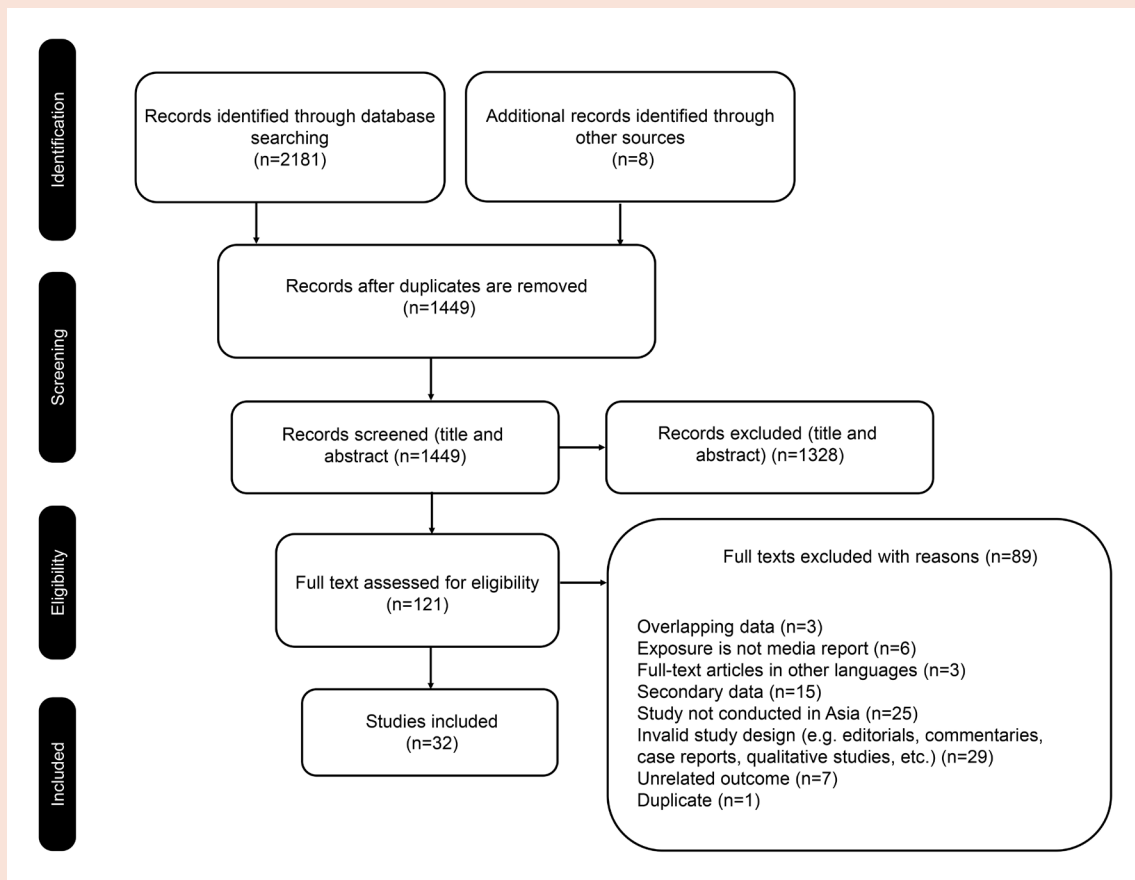
RESULTS

The search retrieved a total of 2181 articles, and 1449 were screened to include 32 eligible articles in this review (Fig. 1).

Study characteristics

The study characteristics and quality assessments of the included studies are in Table 1. All the studies included a community sample, and 2 included specific groups—youths and adolescents. The studies examined a general population with diverse characteristics (all age groups and gender). Eight studies captured suicide attempts as an outcome, of which 2 included combined data for completed suicides and attempts. There were 12

Fig. 1. Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) diagram showing details of the selection and screening process.



studies conducted in South Korea; 9 in Taiwan (of which 2 included data from China, Hong Kong and South Korea); 4 in Hong Kong (2 of which included data from other countries); 5 in Japan; 1 in Israel and 1 in India. A total of 26 studies were ITS, while 4 studies had a pre-post comparison (multiple arms) and 2 had a cross-sectional design. Studies examined the reporting of suicides in mass media (n=13; print, digital and broadcast); newspapers alone (n=15); newspapers along with television (n=2); newspapers with electronic media (n=1); and television alone (n=1). Specific modes of suicide, such as charcoal burning (n=5), hydrogen sulphide (n=2), and other mixed modes of suicide (n=14), were reported; the remaining articles (n=11) did not specify the role of the mode of suicide. The included studies looked at celebrity (n=22) and non-celebrity (n=10) suicides. The specific characteristics are summarised in Supplementary Table S1. Among the 32 studies, 3 with critical RoB^{13,19,20} were excluded from the narrative synthesis.

Overall association between media reporting and risk of copycat suicides and suicide attempts

Meta-analysis

The rate ratio based on the meta-analysis for the association between the media reporting of suicide and actual suicide, ranged from 0.961 to 1.430 among 18 studies. Only 11 out of 18 studies that presented the quantitative data showed statistical significance (Fig. 2A). For the association between media reporting of suicide and suicide attempts, the rate ratio ranged from 1.153 to 1.550 among 2 studies, both of which showed statistical significance (Fig. 2B). The heterogeneity was high (99.47%), and meta-regression failed to identify the source of variation. Therefore, the data from the narrative synthesis were used to summarise the summary of evidence.

Narrative synthesis

Among the 29 studies included in the narrative synthesis, only 2 studies^{21,22} showed no association

Table 1. Study characteristics.

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity	Celebrity type	Celebrity recognition	Number of events
Bakst et al. (2019)	Israel	Pre-post design (multiple arm)	1 Jan 2008–31 Dec 2012	1827 days	28 days	Central Bureau of Statistics	n=2119	Daily suicides	Mass media	Suffocation, firearms, jumping or falling from high-rise buildings, poisoning and burning	No	NA	NA	48 (n)
Chang et al. (2015)	Taiwan	Interrupted time series	27 Jul 2008–31 Dec 2011	1253 days	1253 days	National Death Registry of Taiwan	n=14,920	Weekly suicide rates	Newspaper	Charcoal burning	No	NA	NA	NA
Chen et al. (2010)	Taiwan	Interrupted time series	14 Nov 2008–12 Dec 2008	29 days	29 days	Suicide attempt surveillance database	n=63 (male: 19, female: 44)	Suicide attempts	Mass media	Charcoal burning, drug overdose	Yes	Singer	Local	1 (c)
Chen et al. (2011)	Taiwan	Interrupted time series	Jan 2002–Dec 2005	1461 days	1461 days	Official death records of Taiwan	NR	Daily suicide attempts and rates	Newspaper	NR	No	NA	NA	NR
Chen et al. (2012)	Taiwan	Interrupted time series	2006–2008	1096 days	48 days	Mortality data from Department of Health of the Executive Yuan of Taiwan	n=929; 463 (after reporting) 466 (before reporting)	Biweekly suicide rates	Newspaper	Charcoal burning	Yes	Singer	Local	1 (c) 78 (f)
Chen et al. (2013)	Taiwan	Interrupted time series	1998–2002	1826 days	1826 days	Official death records of Taiwan	NR	Daily suicide rates	Newspaper	Charcoal burning	No	NA	NA	334 (f)
Cheng et al. (2011)	China, Hong Kong, Taiwan	Interrupted time series	1 Jan 2010–1 Dec 2010	365 days	342 days	Media reports from Baidu search engine	n=13	Daily suicide attempts and suicide rates	Mass media	Jumping	No	NA	NA	13 (n), 1279 (f)

Table 1. Study characteristics. (Cont'd)

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity	Celebrity type	Celebrity recognition	Number of events
Cheng et al. (2007)	Taiwan	Interrupted time series	1 Jan 2003–27 Aug 2005	970 days	118 days	List of repeated suicide attempters from the community, mental health centre	n=270 (n=139 agreed)	Weekly suicide attempts	Mass media	NA	Yes	Actor	Local	1 (c)
Cheng et al. (2007)	Taiwan	Interrupted time series	1 Jan 2003–31 Dec 2005	1096 days	244 days	Department of Health, Taiwan	n=10,945	Weekly counts of suicide	TV, newspaper	Hanging	Yes	Actor	Local	1 (c)
Cheng et al. (2017)	Hong Kong	Interrupted time series	1 Sep 1998–31 Dec 2005	2679 days	2618 days	Hong Kong Coroner's Court and Census & Statistics Department	n=6958	Daily suicide rates	Newspaper	Charcoal and non-charcoal	No	NA	NA	1 (c) 1 (n) 6308 (l)
Cheng et al. (2018)	Hong Kong	Interrupted time series	1 Jan 2003–1 Dec 2016	5114 days	1218 days	Coroner's Court, police investigation files	NR	Daily counts of suicides	Newspaper	Non-specified methods	No	NA	NA	101 (n) 1010 (l)
Choi et al. (2016)	South Korea	Interrupted time series	1 Jan 1997–31 Dec 2009	4748 days	2341 days	Statistics Korea	n=129,571	Monthly suicide rates	Mass media	Jumping, hanging, gas poison, overdose	Yes	Mixed (chief executive officer, actors, singers, entertainers, models, former president)	15 local, 7 international	22 (c)
Fu et al. (2009)	Hong Kong, Taiwan, South Korea	Interrupted time series	1 Jan 2001–1 Jan 2006	1827 days	1006 days	Hong Kong Census and Statistics Department and the Coroner's Court, the Department of Health of Taiwan, and the National Statistical Office of Korea	NR	Weekly suicide rates	Newspaper	Jumping, hanging	Yes	Mixed (pop singer, actors)	Local	3 (c)

Table 1. Study characteristics. (Cont'd)

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity	Celebrity type	Celebrity recognition	Number of events
Ha and Yang (2021)	South Korea	Interrupted time series	2005–2018	5113 days	10, 20 and 40 days	Mortality microdata from Korean National Statistics Office	n=189,985	Daily suicide rates	Newspaper	Mixed (hanging, fire/explosion/gas, drowning, deadly objects/jumping, unspecified, etc.)	Yes	Mixed (singer, actor, politician and entrepreneur)	NR	13 (c), 99,467 (l) (l) for celebrity: 47,100; (l) for control: 52,367
Hagihara et al. (2007)	Japan	Interrupted time series	1 Jan 1987–31 Mar 2005	6665 days	6664 days	Vital and Health Statistics summary	n=455,282	Monthly suicide rates	Newspaper	Non-specified methods	No	NA	NA	Not specified. Monthly mean: 480.33 (l)
Hagihara et al. (2012)	Japan	Interrupted time series	Feb 2003–Dec 2009	2526 days (83 months)	672 days (post-suicide reporting) 598 days (stop of sale)	Vital and Health Statistics summary	NR	Monthly suicide rates	Mass media	Hydrogen sulphide	No	NA	NA	1 (l)
Hagihara et al. (2014)	Japan	Interrupted time series	27 Mar 2008–21 May 2008	56 days	56 days	Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications in Japan	n=145	Daily suicide attempts	Newspaper	Hydrogen sulphide	No	NA	NA	539 (n), 713 (l)
Jang et al. (2016)	South Korea	Interrupted time series	1 Jan 2005–Dec 2008	1461 days	1409 days	Statistics Korea	NR	Monthly suicide rates	Mass media	Hanging, carbon monoxide poisoning	Yes	Mixed (actor, singer, entertainer, model)	NR	7 (c)
Jang (2021)	South Korea	Multiple arm pre-post comparison	1 Dec 2004–31 Jan 2018	4810 days	30 days	Korea National Statistical Office	n=176,336	Daily suicide rates	Mass media	Mixed; hanging, gas, jumping	Yes	Mixed (entertainers, businessmen, politicians, broadcasters, athletes and writers)	NR	24 (c) 3519 (l)

Table 1. Study characteristics (Cont'd)

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity type	Celebrity recognition	Number of events
Jeong et al. (2012)	Korea	Pre-post design (multiple arm)	Jan 2005–Dec 2008	1461 days	28 days	National Emergency Department Information System database	n=27,605	Weekly suicide attempts	TV	Hanging, suffocation	Entertainer	NR	5 (c)
Ju Ji et al. (2014)	South Korea	Interrupted time series	Jan 2003–Dec 2005	1096 days	313 days (28 days)	National Statistical Office of Korea	n=34,237 (male = 23,309, female = 10,928)	Weekly suicide rates	Mass media	Hanging, non-hanging	Entertainer	Local	1 (c), 1101 (l)
Kim JH et al. (2013)	South Korea	Interrupted time series	May 2007–Oct 2010	1280 days	540 days (30 days)	National Statistical Office of Korea	n=2651 (male = 1595, female = 1056)	Weekly suicide rates	Newspaper	Hanging, jumping, others	Mixed (politician, entertainer)	Local	2 (c), 1265 (l)
Kim WJ et al. (2013)	South Korea	Pre-post design (multiple arm)	1 Apr 2008–31 Mar 2009	365 days	180 days	Hospital medical records	n=299 (male = 64, female = 235)	Suicide attempts	Mass media	Hanging, self-poisoning, wrist cutting, drowning, gunshot, carbon monoxide poisoning, starving and jumping	Entertainer	Local	1 (c)
Lee SY (2021)	South Korea	Interrupted time series	1 Jan 2007–31 Dec 2015	3287 days	NR	Statistics Korea	n=128,169	(1) Daily suicide rate (2) Web search frequency	Mass media	All	Mixed (entertainers, politicians, famous business professionals, sports players, TV anchors, and TV announcers)	Mixed	69 (c), 10,091 (l)

Table 1. Study characteristics. (Cont'd)

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity	Celebrity type	Celebrity recognition	Number of events
Ling-jing (2008)	Taiwan	Cross sectional	2 weeks	15 days	54 days	Self-report	n=2576 students	Suicide attempts	Newspaper and electronic media (unspecified)	Unspecified	Yes	Artist (otherwise unspecified)	Local	1
Menon et al. (2021)	India	Cross-sectional	14 Jun 2020–15 Jul 2020	32 days	32 days	Regional and English online news portals	n=1160 (male: 757; female: 379; not mentioned: 24)	Number of suicide cases as captured by news articles	Newspapers (online)	Hanging, poisoning, shooting, drowning, burning, jumping from height, jumping in front of train/vehicle, others	Yes	Entertainer (actor)	Local	1 (c)
Park et al. (2016)	South Korea	Interrupted time series	1 Jan 1996–31 Dec 2010	5479 days	30 and 60 days	National Statistical Office of Korea	n=150,736	Monthly suicide rate	Newspaper	NR	Yes	Mixed (business executive, entertainers)	NR	9 (c)
Suh et al. (2015)	South Korea	Cross-sectional	1 Jan 1991–31 Dec 2010	7305 days	2707 days	Korean Statistical Information Service database	NR	Daily suicide rates	Newspapers, TV	NR	Yes	Mixed (politicians, entertainers, conglomerate)	Local	15 (c)
Ueda et al. (2014)	Japan	Interrupted time series	1 Jan 1989–31 Dec 2010	8035 days	8035 days	Vital Statistics of Japan database (Ministry of Health, Labour and Welfare)	n=596,707	Daily suicide counts	Newspapers	NR	Yes	Mixed (politicians, entertainers, athletes, professors, executives)	Local	109 (c)

Table 1. Study characteristics. (Cont'd)

Author and year	Country	Design	Study period	Study length	Follow-up time	Data source	Participants	Main outcome	Type of media	Method of suicide	Celebrity	Celebrity type	Celebrity recognition	Number of events
Ueda et al. (2017)	Japan	Interrupted time series	1 Jul 2010–31 Dec 2014	1645 days	1638 days	Vital Statistics Report database (Ministry of Health, Labour and Welfare)	NR	Daily suicide counts and number of Twitter posts	Mass media	NR	Yes	Mixed (entertainers, business owners, public officials, journalists, athlete, scientist)	Local	26 (c) 985,735 Twitter (l)
Yang et al. (2012)	Taiwan	Interrupted time series	1 Jan 2003–31 Dec 2010	2922 days	2922 days	Collaboration Centre of Health Information, Application, Department of Health database	n=31,364 (male = 21,484; female = 9880)	Monthly suicide counts	Mass media	Hanging, jumping from heights, poisoning, drug intoxication, charcoal burning, others (unspecified)	Yes	Entertainers	NR	2 (c) 1 (n) 16,795 (l)
Yi et al. (2019)	South Korea	Interrupted time series	1 Jan 1993–31 Dec 2013	7670 days	1916 days	Korean National Statistics Office database	NR	Suicide rates (expected and actual)	Newspaper	NR	Yes	Mixed (actors, politicians, businessmen, TV anchors)	NR	10 (c, suicide) 6 (c, control)

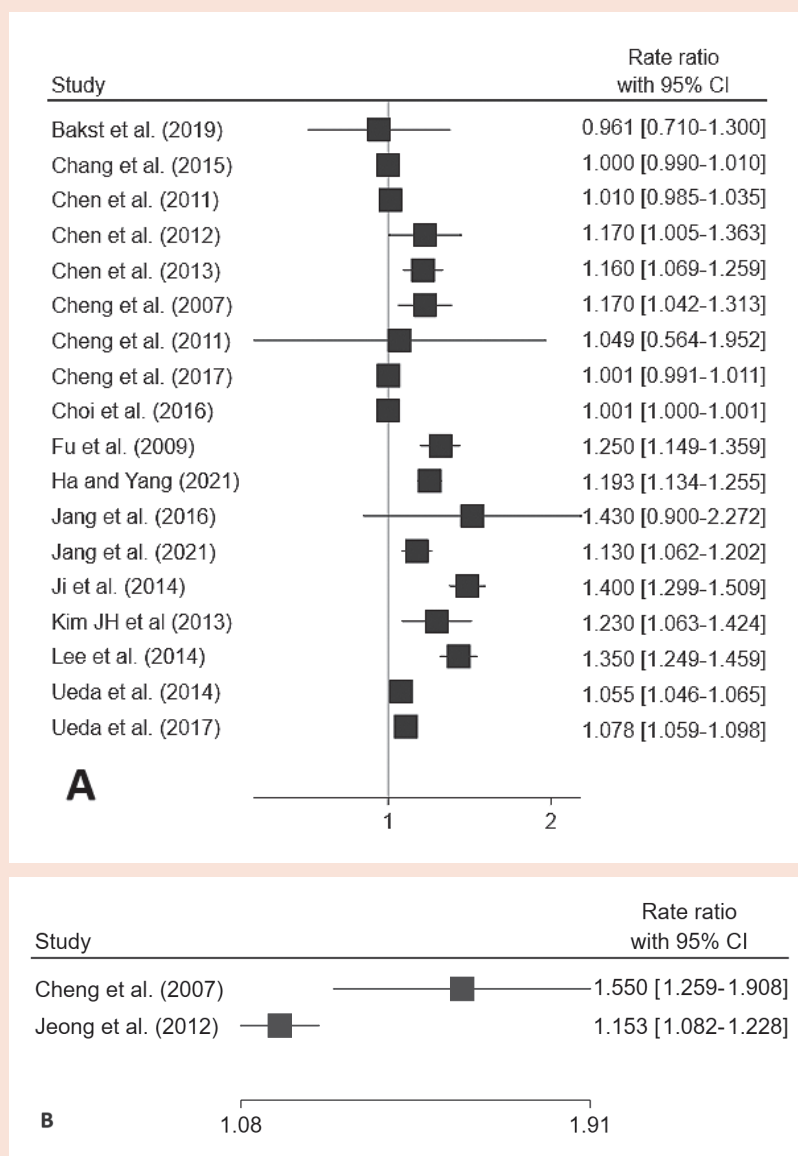
NA: not applicable; NR: not reported; (c): number of celebrities; (n): number of non-celebrities; (l): number of media reports

between media reporting and suicide rates, while the majority found that media reporting of suicides could trigger subsequent copycat suicides among the public. A marked increase in suicide attempts following the media report of suicides was noted in all 6 studies that reported suicide attempts separately. The 2 studies that showed no association involved mainly non-celebrity suicides that were publicised by the media. Cheng et al.²² looked at the point clusters of copycat suicides among a local network rather than mass clusters (general population) or among those who shared similar risk factors. Bakst et al., on the other hand, focused on a diverse sample of “publicised” suicides involving dentists, police officers, social activists

and celebrities, making it a diverse mixed group.²¹ There were no other differences between these 2 studies and the rest of the articles that could explain this discrepancy. Overall, the negative influence of media reporting (higher rates of suicides or attempted suicides) was evident regardless of country, celebrity status, study design, type of media, mode of suicide, length of follow-up period, or RoB rating. Many of the suicides and attempted suicides happened within the 4 weeks of media reporting, with higher rates observed in earlier weeks.^{17,23-34}

Univariable meta-regressions were run to determine the heterogeneity observed among different studies. None of the variables (i.e. study,

Fig. 2. Forest plot showing the association between media reporting of suicide and actual suicide (A) and suicide attempts (B).



CI: confidence interval

design, publication year, confounders adjusted, and study length [per 10,000 days]) were significant enough to explain the source of heterogeneity.

Factors affecting copycat suicides

Sociodemographic characteristics

The impact of sociodemographic characteristics (age and gender) of the participants on copycat suicides was explored in 15 studies. Twelve studies reported gender differences in copycat suicides.^{10,23,24,28,30,35-37} A higher risk of copycat suicides among females was reported in 8 studies^{10,23,24,30,31,35,36,38} and among males in four studies.^{26-27,39-40} Three studies showed that the risk of copycat suicides or suicide attempts is similar in both genders.^{31,39,41} Many studies found that younger age groups are at a higher risk of copycat suicides following media reporting.^{10,24,27,28,30,37,40}

Idol's characteristics

The impact of celebrity suicides on the rates of copycat suicides was reported in 22 studies, and all of them evidenced a Werther effect. Celebrity death by suicide as opposed to other causes of death, such as accidents, was associated with higher subsequent suicide rates in 2 studies.^{28,37} A comparison of the consequences of media reporting of entertainers' suicides as opposed to non-entertainers' suicides was reported in 5 studies showing mixed results.^{31,33,34,37,38} The role of an idol's characteristics (age, gender) in copycat suicides was noted by 7 studies showing a higher Werther effect in those who share similar characteristics as the idol.^{10,17,30,31,33,35,37} Thirteen studies showed that reporting the method of suicide of the idol could lead to higher rates of copycat suicides following the same methods.^{10,17,23-28,30,31,42-44}

Vulnerability of the participants

The association of vulnerability to the Werther effect was assessed by 3 articles and showed that those who had a previous history of suicide ideation, attempts, stress, negative attitudes towards life (life despair), depression, and financial problems had a higher tendency for copycat suicides or attempts.^{27,32,39}

Media-specific factors

The association between media-specific factors and subsequent suicides was analysed in 3 studies. Competition among media could trigger an increase in the reporting intensity of suicides, which could lead to a higher rate of copycat suicides, as reported by Chen et al.⁴⁵ Furthermore, the number of reports could affect copycat suicides. For example, more than 10,000 social media posts

featuring young celebrities were associated with higher copycat deaths.⁴⁶ High-intensity descriptive reporting resulted in higher copycat suicides, while preventive reporting reduced the suicides.⁴⁷ There was only one article among the included studies that described a positive outcome (coping) of the media reporting.⁴⁷ The study showed that preventive reporting (i.e. sharing stories of how people overcame suicide ideations, introducing community resources for suicide prevention and coping) had a protective effect on copycat suicides.

Additional information, including the findings from the individual studies, is included in Supplementary Table S2. A summary of the potential factors is shown in Fig. 3.

RoB and strength of evidence

Among the included studies, there were 3 with critical, 10 with serious and 19 with moderate RoB. Those with critical RoB were excluded from the narrative synthesis. Therefore, the synthesis includes 29 articles. The RoB of the included studies is shown in Fig. 5. A detailed list of individual domains of RoB is included in Supplementary Table S3. Based on the results and quality of the evidence, there was indeed a copycat effect following media reporting of suicide.

Publication bias

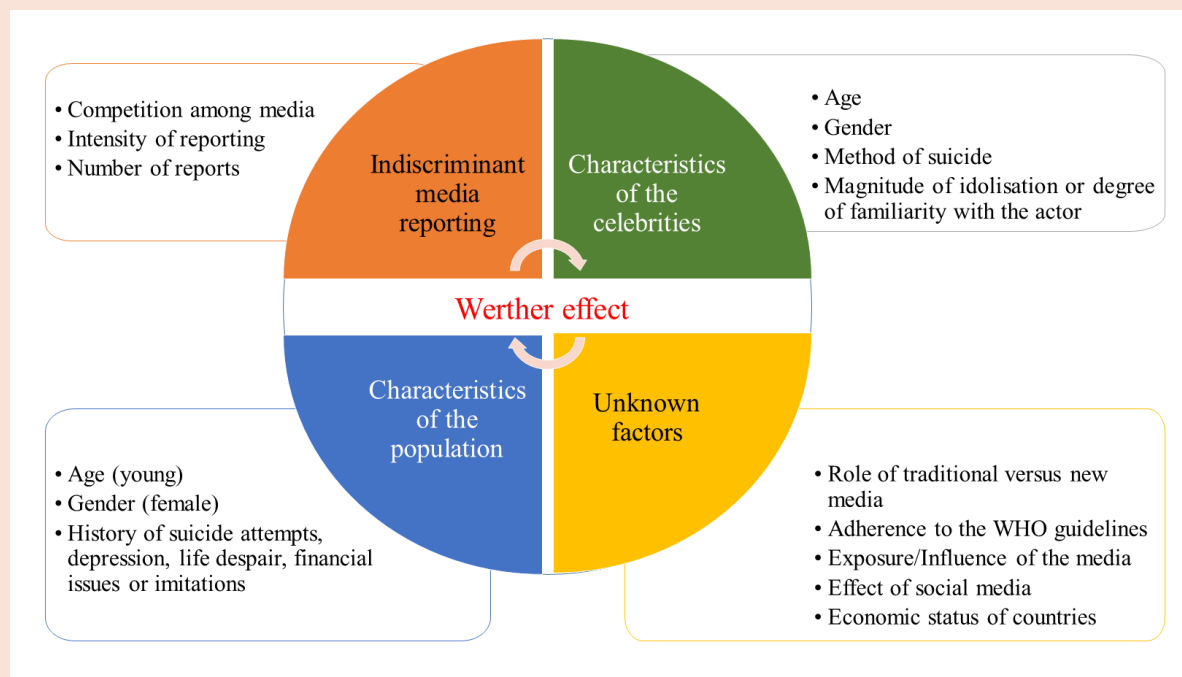
We performed publication bias assessments on 18 studies, as 8 studies did not have relevant outcome measures. The asymmetric funnel plots (Fig. 5) indicated publication bias. The bias was confirmed by Egger's regression test ($P=0.03$).

DISCUSSION

Our systematic review found substantial evidence that media's portrayal of suicide was associated with higher rates of copycat suicides. The evidence showed a positive trend but was not sufficient for suicide attempts due to the small number of studies examining this outcome. It was also noted that the population (age and gender) and characteristics of the deceased (age, gender, suicide method) were associated with the copycat deaths.

Previous systematic reviews that looked at studies across the world shared similar findings in their meta-analyses.^{16,48} The previous meta-analysis showed a 13% higher suicide risk following the media report of suicide while an 18% risk was noted when the media report involved a fictional portrayal of suicide.¹⁶ We have noted similar findings in the current review, with the majority of the studies showing a higher rate of copycat suicides and attempts following publicised suicides. This shows

Fig. 3. Factors associated with higher rates of copycat suicides.



that the Werther effect exists in Asian countries, which is a finding of great concern given the higher suicide statistics in Asian countries.

Almost all the included studies supported the association between media reporting of suicide and subsequent copycat suicides. Copycat suicides commonly occur in individuals with strong worship or idolisation of another person (a role model or celebrity).^{35,49} People often follow the lifestyle, looks, clothing and mannerisms of a specific person (e.g. celebrity, writer or politician) out of devotion,^{50,51} which leads to a fictional attachment to them even with no direct contact. This attachment, especially among those with underlying vulnerability (depression or anxiety) or a history of previous suicide attempts or self-harm, trigger copycat suicides imitating the same method when their idol dies.^{35,49} Thus, identifying with the person or celebrity in the media reports triggers a Werther effect, especially in susceptible people, based on the degree of vulnerability and idolisation they have.

We identified sociodemographic characteristics of the population, characteristics of the idol, vulnerability of individuals, and media-specific factors to be associated with the Werther effect. Younger age groups and predominantly females were more susceptible to the Werther effect, as noted in the current review, which was corroborated by others.^{13,52} While 8 studies reported female

gender to be associated with copycat suicides, 4 showed an association with male gender. While the RoB between these studies remained comparable, the studies that found an effect of male gender were from Taiwan. Thus, the reason for this discrepancy could be related to a specific population. Research has also shown that the magnitude of the copycat effect (2.31-fold) and the mortality of copycat suicides (22.7-fold) are higher in younger females (20–29 years).³⁷ This could be explained based on psychological vulnerability, where younger females tend to have more susceptibility to mental health conditions,⁵³ especially mood disorders and obsessive-compulsive disorder.⁵⁴ We had also noted a higher copycat effect in the population that shared similar characteristics as the idol. While none of the previous systematic reviews looked at these characteristics, this similarity was noted in many other studies.³⁷

Only a single study in the current review linked the copycat effects with non-adherence to the World Health Organization's reporting guidelines.⁴³ Research showed that media coverage of the famous actor Robin Williams' suicide resulted in a 10% increase in suicides in the US. Furthermore, analysis of the media reports showed that 46% reported the method of suicide, 27% of articles romanticised suicide, and only 11% included information on help-seeking.⁵⁵ A report from India

Fig. 4. RoB and the evidence.

Citations	Overall risk Direction of evidence	Outcome	Conclusion
Bakst et al. (2019)	?	-	There is no evidence for a copycat effect following media reporting.
Chang et al. (2015)	?	+	Celebrity suicide was associated with method-specific suicides.
Chen et al. (2010)	?	+	Exposure to media reporting is associated with higher suicide attempts.
Chen et al. (2011)	?	+	Media has an influence on higher copycat suicides.
Chen et al. (2012)	?	+	A significant increase in method-specific suicide was noted.
Chen et al. (2013)	?	+	A rapid increase in method-specific suicide was noted.
Cheng et al. (2011)	?	-	Suicide incidence, but not media reports influence Foxconn suicides.
Cheng et al. (2007a)	?	+	Media report could increase copycat suicide in those with previous attempts.
Cheng et al. (2007b)	?	+	Media reporting is associated with higher copycat suicides.
Cheng et al. (2017)	?	+	Media reporting can elicit higher copycat suicides regardless of the method.
Cheng et al. (2018)	?	+	Indiscriminant media reporting can lead to subsequent higher suicides.
Choi et al. (2016)	?	+	Copycat suicides are prevalent following media reporting of celebrity suicides.
Fu et al. (2009)	?	+	Media reporting triggers method-specific suicides, especially in vulnerable groups.
Ha and Yang (2021)	?	+	Media reports can elicit higher suicide rates at a population level.
Hagihara et al. (2007)	?	+	Media reports can lead to higher suicide rates among public.
Hagihara et al. (2012)	?	+	Media reports can lead to higher suicide rates among females but not in males.
Hagihara et al. (2014)	?	+	Media reports can lead to higher method-specific suicides.
Jang et al. (2016)	?	+	Copycat effect exists among those with similar characteristics as the celebrity.
Jang (2021)	?	+	Media reports can lead to higher copycat suicides.
Jeong et al. (2012)	?	+	Media reports of celebrity suicide lead to higher number of suicide attempts.
Ji et al. (2014)	?	+	Media reports can lead to higher suicide rates and copycat suicides.
Kim JH et al. (2013)	?	+	A Werther effect was noted following media reporting of celebrity suicide.
Kim WJ et al. (2013)	?	+	Copycat effect was noted among suicide attempters following media reports.
Lee SY (2021)	?	+	Media coverage of suicide affects subsequent suicides.
Ling-jing (2008)	?	+	Media coverage of suicide increases suicide attempts in adolescents.
Menon et al. (2021)	?	+	An increase in copycat suicide was noted following celebrity suicide.
Park et al. (2016)	?	+	Media coverage of suicide impacts subsequent suicides.
Suh et al. (2015)	?	+	Media coverage of suicide impacts subsequent copycat suicides.
Ueda et al. (2014)	?	+	Media reports can lead to higher copycat suicides.
Ueda et al. (2017)	?	+	Media coverage of celebrity suicide affects subsequent copycat suicides.
Yang et al. (2012)	?	+	Media reports increase actual suicide rates.
Yi et al. (2019)	?	+	Media reports lead to copycat suicide matching celebrity characteristics.

* Excluded from the analysis

- Critical
 ? Serious
 ? Moderate
 + Low

✓ Moderately strong evidence was noted between media reporting of celebrity suicides and subsequent copycat suicides/attempts.

✓ Reporting of the suicide method can trigger higher rate of suicides using the same method.

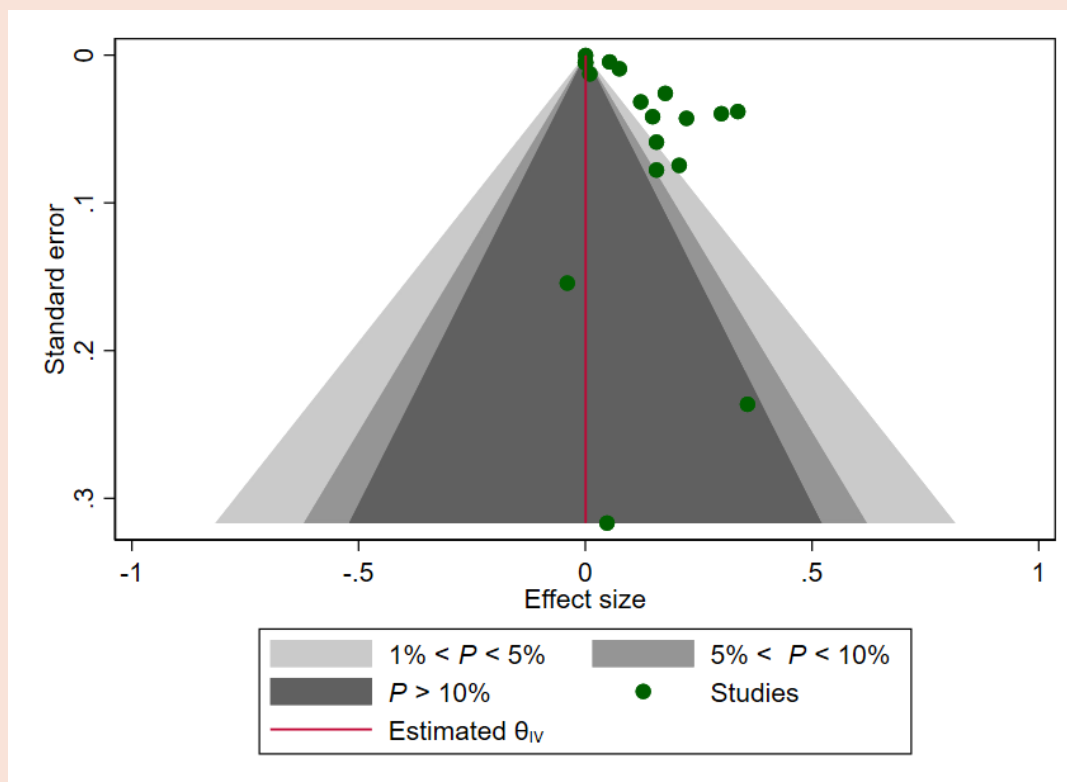
✓ Preliminary evidence noted on the association of copycat deaths with sociodemographic characteristics of the victims (e.g. younger age, females, etc.) and celebrity characteristics.

showed that all the news articles indicated the name of the victim, and 10% included the method and location of suicide in the title, while 80% reported the method and location in the main contents with no guidance for help-seeking or coping.⁵⁶ Given that media reporting has a strong impact on the Werther effect, reports should emphasise more on help-seeking and coping strategies, rather than publicising or romanticising the suicides. The majority of Asian countries have no national-level guidelines for suicide prevention.⁵⁷ Thus, along with the attempts to enforce adherence to the reporting guidelines, there is an urgent need to identify the population at risk and develop specific public health suicide prevention interventions for them in the wake of a celebrity suicide.

The role of specific factors that could have a significant influence on the extent of the Werther

effect, such as the recognition of celebrities (local vs international), gender and age of the celebrities (male vs female; younger vs older), magnitude of fame (popular actresses vs TV anchors), type of celebrities (entertainers vs non-entertainers), and the media coverage that different types of celebrity suicides (e.g. entertainers) receive, are currently unknown or unclear. To our knowledge, only a limited number of studies have addressed these factors. Similarly, the impact of media reporting through electronic media vs print media and social media was not taken into account by the included articles. In particular, since social media is used by many people in the world, the platform represents a new face of global networking and thus affects people's social behaviour. Early reports showed that specific emotional responses to social media reports of celebrity suicides were associated with a

Fig. 5. Funnel plot for suicide rates indicating publication bias.



subsequent rise in national-level suicides.⁵⁸ On the other hand, Shoib et al. noted that social media could also have a positive impact by providing the necessary help-seeking and support online, along with potential predictions on the suicide behaviours of the users, aiding in prevention.⁵⁹ Given the higher penetration and accessibility of social media, its influence on copycat suicides should be further explored. The analysis in the current review showed evidence for publication bias, which suggests that the evidence could be weaker than reported. However, in the absence of unpublished data to compare and contrast, the extent of publication bias and its impact cannot be determined.

The current review includes data mainly from East Asia, and there is a dearth of literature from many Asian countries (e.g. India, China, Singapore and Thailand). Current data represent high-income countries, which do not give a clear understanding of the Asian situation. Hence, it is not possible to compare how the Werther effect varies between different Asian regions (e.g. Southeast Asia vs East Asia). There are reports on the extreme worship and huge fan base of celebrities in India.⁸ However, minimal research was conducted in this area. Menon et al.¹³ showed that there was an increase in news articles about copycat suicides among the public following the death of a popular actor. More studies

representing the country need to be done in view of the rising prevalence of celebrity suicides in India⁶⁰ which would provide further clarity to the country's position in the Asian situation.

The strengths of the review include its robust search strategy through multiple databases, including Chinese literature databases, and its adherence to Cochrane standards. The comprehensive synthesis methods and quality assessments further add to the strengths of the review. The high-level heterogeneity within the studies, publication bias, and the inability to establish a causation effect between the media reports and subsequent deaths are the limitations of the review. Also, some studies had overlapping data, and it was difficult to exclude the overlapping data in instances where the identity of the celebrity was masked. We have tried to contact the authors for clarifications and have excluded studies where data overlap could be confirmed. The homogenous design could have led to the loss of important data from case series, reports and qualitative studies.

Given the high heterogeneity of data in the existing literature, future studies should employ robust study designs, valid outcome measures, and quantitative reporting of results (rate ratios, odds ratios or standardised mortality ratios) to facilitate future meta-analysis and thus advance the reach of

the data. The studies should also employ vigorous data collection methods that address potential confounders, consider cultural and contextual variations, and examine the effects of various media and celebrity-related factors (i.e. impact of celebrity gender, entertainers vs non-entertainers, suicide vs other modes of death, electronic media vs traditional media vs social media, other celebrity characteristics and sensationalised vs non-sensationalised reporting) on suicide outcomes. Longitudinal studies should be conducted in diverse populations (males, females, adolescents, adults, older adults and children) to track individuals' exposure to suicide-related media content from various specific types of media over time and assess its impacts on their mental health behaviours. These details are indispensable for preventive efforts to design new guidelines or interventions to curtail this growing challenge.

Even with years of lobbying to enforce compliant reporting, non-compliant reporting by the media persists with lucrative business outcomes in mind. This persistent problem underscores the necessity for collaboration between researchers, media professionals, professional medical bodies and mental health experts to create awareness among media professionals about the public health impact of non-adherent reporting and implement guidelines for responsible reporting on suicide. Proactive involvement of healthcare systems and community services to raise population-wide awareness about copycat suicides and to promote early help-seeking behaviour in the context of suicide prevention is a necessity. Mental healthcare organisations serve as critical anchors for early identification, assessment, intervention and follow-up care for vulnerable subjects, offering them a comprehensive suicide prevention platform. Long-term support and crisis intervention, together with collaborative efforts among various professionals, might ultimately contribute to improved public health outcomes and lower suicide rates.

CONCLUSION

The current systematic review showed higher suicide rates among the public following media reporting of suicides in Asian countries. While the meta-analysis showed high heterogeneity and little evidence, the narrative synthesis of 29 studies showed modest evidence with the reporting of suicide methods shown to have a negative impact on subsequent suicides. Factors identified as potentially associated with a higher risk of copycat suicides were younger age and female gender. This also calls for stringent adherence to the reporting guidelines and the development of national-level, stringent guidelines for suicide by media

professionals, which include not romanticising the suicide or giving unwanted attention to the details of the event as a social responsibility. Since many Asian countries do not have national-level guidelines for suicide prevention, media professionals and policymakers should take up the responsibility to reduce the cluster effect due to this avoidable cause. Future studies should explore additional factors specific to Asia in greater detail. In addition to reporting guidelines for the media, a collaborative effort between healthcare systems, media professionals and other community partners to raise awareness and administer early interventions targeting those at risk may also be helpful.

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