Suicide and depression in the World Health Organization South-East Asia Region: a systematic review

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Abstract

Background Depression is the most common comorbid psychiatric disorder in people who die by suicide and 39% of global suicides occur in the World Health Organization (WHO) South-East Asia Region. The aim of this systematic review was to identify, for countries of this region, first the prevalence of depression among people who (i) die by, or (ii) attempt, suicide, and second, the proportion of people with depression who attempt or die by suicide.

Methods PubMed, PsycINFO, EMBASE and Google Scholar were searched, together with five available national databases, for quantitative research papers published in English between 1956 and 4 September 2016 from the 11 countries of the WHO South-East Asia Region.

Results The 19 articles that met the predefined eligibility criteria were from five countries: Bangladesh (1), India (12), Indonesia (1), Sri Lanka (3) and Thailand (2); no eligible papers from the remaining countries of the region were retrieved. Eight studies, from Bangladesh, India, Indonesia and Sri Lanka, reported the prevalence of depression among people who had died by suicide. The study settings varied, as did the proportion of depression recorded (6.9–51.7%), and the study sample sizes ranged from 27 to 372. Eight studies from India and one from Sri Lanka investigated depression among people who had attempted suicide. Using a range of screening and diagnostic tools, the reported prevalence of depression ranged between 22.0% and 59.7%. The study sample sizes ranged from 56 to 949. Only two articles were found, both from Thailand, that reported on suicide in people with depression.

Conclusion Despite the high burden of mortality of suicide in the WHO South-East Asia Region, evidence on the relation between suicide and depression is scarce. There is a need to understand this phenomenon better, in order to inform suicide-prevention strategies in the region.

Keywords: depression, South-East Asia Region, suicide, systematic review, WHO, World Health Organization

Background

Suicide is estimated to have resulted in just over 800 000 deaths worldwide in 2012, representing an annual global age-standardized suicide rate of 11.4 per 100 000, the second-leading cause of death among 15–29 year olds and 15th-most common cause of death worldwide.1 In 2012, 76% of global suicide occurred in low- and middle-income countries,1 and over the last few decades, the magnitude of the problem has been shifting from western Europe, to eastern Europe to Asia.2 Compared with other countries, countries in Asia have a higher average suicide rate.3

While suicidal behaviour is influenced by several interacting factors – personal, social, psychological, cultural, biological and environmental – depression is the most common psychiatric disorder in people who die by suicide.4 About half of all individuals in high-income countries who die by suicide have major depressive disorder at the time of their death.4,5 Moreover, a history of suicide attempts is a robust risk factor for death by suicide.6

The World Health Organization (WHO) has estimated that the 26% of the world’s population living in the 11 countries of the WHO South-East Asia Region accounts for 39% of global suicides.1 Therefore, a better understanding of the relationship between suicide and depression in the WHO South-East Asia Region is essential to inform and improve the region’s public health prevention programmes.

The aim of this systematic review was to identify, for countries of the WHO South-East Asia Region, first the prevalence of depression among people who (i) die by, or (ii) attempt, suicide, and second, the proportion of people with depression who attempt or die by suicide.
Methodology

A systematic review of peer-reviewed publications and grey literature was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement for the optimal reporting of systematic reviews,7 and a narrative synthesis of the eligible articles was carried out. The PRISMA statement consists of a 27-item checklist and a four-phase flow diagram.

Search strategy

Identification of articles

PubMed, PsycINFO, EMBASE and Google Scholar were searched. In addition, the key national journal databases for five of the 11 countries of the WHO South-East Asia Region were searched: Bangladesh Journals Online (Bangladesh), medindia.net (India), Nepal Journals Online (Nepal), Sri Lanka Journals Online (Sri Lanka), and Thai Journals Online (Thailand); no databases were available for Bhutan, Democratic People's Republic of Korea, Indonesia, Maldives, Myanmar or Timor-Leste. Searches were carried out using the search terms: (“suicide” AND (“prevalence” or “epidemiologic studies”)) AND (“depression” or “depressive disorder” or “mood disorder”) AND (“Bangladesh”) AND (“Bhutan”) AND (“North Korea”) AND (“India”) AND (“Indonesia”) AND (“Maldives”) AND (“Myanmar”) AND (“Nepal”) AND (“Sri Lanka”) AND (“Thailand”) AND (“Timor-Leste”). This search was limited to studies published between 1956 and 4 September 2016 and to titles, keywords and abstracts. To identify additional articles, a manual search was carried out, based on the bibliographies of the published studies (“snowballing”) on suicide and depression in each of the countries. Citations were managed using EndNote version X7.5. All information and documents were logged and subsequently checked and validated by members of the research team (HUA, MDH, AA, TRS and MTA).

Screening, eligibility, inclusion and exclusion

Papers were screened by reading the title and abstract. Studies not satisfying the inclusion criteria were excluded at this stage. Records published in languages other than English were excluded, as well as book chapters, conference proceedings, dissertations, editorials and commentaries. Papers were excluded if the type of depression-evaluation tool was not reported and if the study design was qualitative. The same inclusion and exclusion criteria were applied to the grey literature.

After removal of duplicates, the records were screened by two members of the research team (MDH, TRS), and independently cross-checked by others (HUA, AA and MTA). Any questions were resolved through discussion.

Subsequently, the full text of selected publications was assessed for eligibility by all the authors. MWAC and AU critically reviewed the papers and provided suggestions on the review process. They also provided suggestions for any additional sources of published or unpublished data. During the initial screening, articles where it was not clear whether the focus was on suicide attempts or deaths by suicide co-occurring with depression were included. The focus was assessed when reviewing the full-text version of these articles. In cases where this could not be determined by reading the full text, the papers were excluded. Any discrepancies were resolved by consensus.

Data extraction

All records included in the data set were read again and data were entered into a predefined spreadsheet. This format included details on the study objectives; period; methods; suicide/attempted suicide and depression metrics (including sex and age, if recorded); means of death by suicide; suicide definitions employed; and suicide reporting or registration system. For the purposes of this study, data on suicide ideation were included in the category on attempted suicide. All information in the spreadsheets was checked by three authors (MDH, AA and TRS) for accuracy and comprehensibility.

Quality appraisal

There is no clear consensus on a preferred tool for assessing the quality of observational studies. Some authors have used the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) method, but this practice is strongly discouraged since STROBE is a reporting tool and is not suitable for assessing the validity of published reports.8 The present study therefore applied a short quality-appraisal checklist that was previously used by Jordans et al.9 The tool consists of eight items:

• is the target/catchment population defined clearly?
• is the sampling method clearly described and adequate?
• do the characteristics of respondents match the target population?
• are the data-collection methods standardized?
• are the instruments/ways in which suicide was established reliable?
• are the survey instruments/ways in which suicide was established valid?

The articles were categorized and tabulated by (i) country; (ii) authors and year of publication; (iii) year of data collection; (iv) type and design of study; (v) study location and participant recruitment; (vi) sample size; (vii) tools used to identify depression among people who had died by suicide or attempted suicide; (viii) age ranges; and (ix) reported prevalence of depression in people who had died by or attempted suicide. All excluded studies and the reasons for exclusion were documented. The process for selection of the articles is displayed in Fig. 1.

Results

Selection of literature

A total of 688 articles were identified through the initial search – 669 through predefined database searching and 19 through other sources. One hundred and sixty-five articles were removed because of duplication and 523 articles were screened. A total of 252 studies met the inclusion criteria. The full text of 247 studies was assessed (full text could not be retrieved for five studies); 228 were excluded, mostly because they failed to meet the screening criteria or because they were found to have not focused on suicide attempts/deaths by suicide co-occurring with depression; not focused on the review objective; not mentioned the name of the tools used; or not fulfilled the required methodological
Depression among people who died by suicide

Table 1 summarizes the eight studies that reported the prevalence of depression among people who had died by suicide – one from Bangladesh,10 four from India,11–14 one from Indonesia,15 and two from Sri Lanka.16,17 Reported depression among people who had died by suicide varied widely among the eight studies (6.9–51.7%). None of the studies discussed the generalizability of their findings.

In the study from Bangladesh, 6.9% of 145 postmortem cases of people who had died by hanging were judged to have had depression.10 In the four studies from India, the proportions of people who died by suicide who had concurrent depression ranged from 8.7% to 27.8%.11–14 In Indonesia, of 60 people who died by suicide, 48 (80%) had at least one current psychiatric diagnosis, the most prevalent of which was major depressive episode (n = 31; 51.7%).15 In Sri Lanka, two community-based studies using psychological autopsy techniques reported similar findings, where more than one third of the people were thought to have moderate or severe depression at the time of their death by suicide.16,17

Depression among the people who attempted suicide

Nine articles were found that reported on the presence of depression among people who had attempted suicide (see Table 2), eight from India16–25 and one from Sri Lanka.26 Almost all studies involved assessment of patients attending tertiary-care emergency services following a known or suspected suicide attempt. One involved community follow-up of such patients.23

<table>
<thead>
<tr>
<th>Country: author, year of publication</th>
<th>Study year: participants and setting</th>
<th>Number of deaths by suicide (age, years)</th>
<th>Proportion with depression, %</th>
<th>Assessment method/tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh: Ahmad and Hossain, 201010</td>
<td>2003–2004: Postmortem cases of people who had died by hanging, from a government medical college morgue</td>
<td>145 (560)</td>
<td>6.9</td>
<td>Inquest reports and information from decedents’ attendants</td>
</tr>
<tr>
<td>India: Khan et al., 200511</td>
<td>2003: Postmortem cases from the mortuary of a tertiary-level facility, of people who had died by suicide</td>
<td>50 (15–35)</td>
<td>10.0</td>
<td>Interviews with decedents’ relatives and friends</td>
</tr>
<tr>
<td>India: Kanchan and Menezes, 200812</td>
<td>2000–2004: Postmortem cases from a tertiary-care facility, of people who had died by suicide by poisoning</td>
<td>137 (16–82)</td>
<td>10.9 (male) 27.8 (female)</td>
<td>Autopsy records; police inquest reports</td>
</tr>
<tr>
<td>India: Shukla et al., 199013</td>
<td>1986–1987: Deaths by suicide reported in two leading daily city newspapers cross-validated with police records</td>
<td>115 (10–75)</td>
<td>8.7</td>
<td>Interviews with the decedents’ relatives</td>
</tr>
<tr>
<td>India: Vijayakumar and Rajkumar, 199914</td>
<td>1994–1995: Deaths in an urban zone certified as suicide by the police; case–control study</td>
<td>100 (15–60)</td>
<td>17.0</td>
<td>Interview with a key informant (relative) using a predesigned questionnaire based on FH-RDC; Paykel’s scale; SAP; and SCID</td>
</tr>
<tr>
<td>Indonesia: Kurihara et al., 200915</td>
<td>2007: Case–control psychological autopsy of consecutive deaths by suicide extracted from police records</td>
<td>60 (13–87)</td>
<td>51.7</td>
<td>DSSI; negative life-events checklist; SCID-1</td>
</tr>
<tr>
<td>Sri Lanka: Samaraweera et al., 200816</td>
<td>2002: Psychological autopsy of Sinhalese people who had died by suicide</td>
<td>27 (15–74)</td>
<td>37.0</td>
<td>Interviews with closest relative and next of kin, using the Psychological Autopsy Checklist (Sinhala); prescription and medical records, ICD-10</td>
</tr>
<tr>
<td>Sri Lanka: Abeyasinghe and Gunnell, 200817</td>
<td>1997: Psychological autopsy of suicides in three rural districts</td>
<td>372 (10–94)</td>
<td>37.1</td>
<td>Interviews with decedents’ contacts; ICD-10</td>
</tr>
</tbody>
</table>

Using a range of screening and diagnostic tools, the reported prevalence of depression among people attempting suicide in these studies ranged between 22.0% and 59.7%. The study sample sizes ranged from 56 to 949. Owing to the heterogeneity of sampling strategies and methodologies of the studies, it was not possible to conduct a meta-analysis of the data.

**Suicide or attempted suicide in people with depression**

Only two articles, both from Thailand (table not shown), were found that reported on suicide in people with depression. One study reported that, of the 2102 patients with mood disorders admitted to a psychiatric hospital in northern Thailand during 2007–2009, 235 (11.2%) were admitted owing to a suicide attempt. Of these, seven died. Of the remaining 228 patients, 175 had major depressive disorder and 53 had bipolar disorder. Of the patients with major depressive disorder, 27 (15.4%) reattempted suicide during the 1-year follow-up period. In the second, a study of current or past major depressive disorder, diagnosis was confirmed by the Mini International Neuropsychiatric Interview, Thai version, in 190 (76%) of 250 outpatients attending a tertiary-care facility in Bangkok during 2012–2014. Of the 190 patients with major depressive disorder, 38 (20%), 8 (4.2%) and 15 (7.9%) were assessed as being at low, medium and high risk of suicide, respectively.

**Discussion**

The aim of this systematic review was to identify, for countries of the WHO South-East Asia Region, first, the prevalence of depression among people who (i) die by or (ii) attempt suicide, and second, the proportion of people with depression who attempt or die by suicide. Only 19 papers were identified that fulfilled the eligibility criteria, from only five of the 11 countries

### Table 2. Depression among people who attempted suicide

<table>
<thead>
<tr>
<th>Country: author, year of publication</th>
<th>Study year: participants and setting</th>
<th>Number attempting suicide (age, years)</th>
<th>Proportion with depression, %</th>
<th>Assessment method/tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>India: Latha et al., 1996&lt;sup&gt;18&lt;/sup&gt;</td>
<td>1988–1992: Consecutive patients attending the emergency medical unit of a tertiary-care hospital following first-known attempted suicide</td>
<td>63 (10–51)</td>
<td>22.0</td>
<td>BDI; DSM-III; SIS</td>
</tr>
<tr>
<td>India: Unni and Mani, 1996&lt;sup&gt;19&lt;/sup&gt;</td>
<td>1988–1991: Patients attending a psychiatric outpatient facility serving a mainly rural population, who were screened for suicidal ideation</td>
<td>154 (&lt;15 to &gt;46)</td>
<td>59.7</td>
<td>ICD-10</td>
</tr>
<tr>
<td>India: Jain et al., 1999&lt;sup&gt;20&lt;/sup&gt;</td>
<td>1994: Patients admitted to tertiary care via emergency services following attempted suicide</td>
<td>56 (&gt;80% younger than 30)</td>
<td>37.5</td>
<td>BHS; HRSD; ICD-10; SIQ</td>
</tr>
<tr>
<td>India: Bhatia et al., 2000&lt;sup&gt;21&lt;/sup&gt;</td>
<td>No year given: Consecutive patients referred to the tertiary-care psychiatry department following attempted suicide</td>
<td>58 (&lt;15 to &gt;45)</td>
<td>34.6 (adjustment disorder with depression)</td>
<td>ICD-10; SIQ</td>
</tr>
<tr>
<td>India: Narang et al., 2000&lt;sup&gt;22&lt;/sup&gt;</td>
<td>1996–1997: Patients presenting at a tertiary-care facility following a suicide attempt</td>
<td>100 (14–50; 73% younger than 30)</td>
<td>35.0 (mood disorders)</td>
<td>ICD-10</td>
</tr>
<tr>
<td>India: Parkar et al., 2006&lt;sup&gt;23&lt;/sup&gt;</td>
<td>2000–2001: Patients presenting at a tertiary-care emergency department after putative deliberate self-harm</td>
<td>196 (18–60)</td>
<td>38.8</td>
<td>EMIC; SCID</td>
</tr>
<tr>
<td>India: Chandrasekaran and Gnanaselane, 2008&lt;sup&gt;24&lt;/sup&gt;</td>
<td>2002: 2-year follow-up of people presenting to the emergency department of a tertiary-care facility after their first suicide attempt</td>
<td>293 (≥18)</td>
<td>25.6 (45% of those who attempted suicide again; 20% of those who did not)</td>
<td>BHS; GAF; ICD-10; MADRS; MINI; MSPSS; PSLES; RRRS; SIS</td>
</tr>
<tr>
<td>India: Kar, 2010&lt;sup&gt;25&lt;/sup&gt;</td>
<td>1994–1996: Consecutive patients who had attempted suicide and been admitted to a tertiary-care hospital</td>
<td>149 (18–60)</td>
<td>24.8</td>
<td>LASPCS; LSARS; PSLES; RRRS</td>
</tr>
<tr>
<td>Sri Lanka: Rajapakse et al., 2014&lt;sup&gt;26&lt;/sup&gt;</td>
<td>2012–2013: Persons admitted to a tertiary-care hospital for medical management of non-fatal self-poisoning</td>
<td>949 (22, median)</td>
<td>51.1</td>
<td>AUDIT; GAD-7; PDS; PHQ-9</td>
</tr>
</tbody>
</table>

**Note:** AUDIT: Alcohol Use Disorders Identification Test; BDI: Beck Depression Inventory; BHS: Beck Hopelessness Scale; DSM: Diagnostic and Statistical Manual of Mental Disorders; EMIC: Explanatory Model Interview Catalogue; GAD-7: Generalized Anxiety Disorder questionnaire; GAF: Global Assessment of Functioning; HRSD: Hamilton Rating Scale for Depression; ICD-10: International Statistical Classification of Diseases and Related Health Problems, 10th revision; LASPCS: Los Angeles Suicide Prevention Center Scale; LSARS: Lethality of Suicide Attempt Rating Scale; MADRS: Montgomery–Asberg Depression Rating Scale; MINI: Mini International Neuropsychiatric Interview; MSPSS: Multidimensional Scale of Perceived Social Support; PDS: Peradeniya Depression Scale; PHQ-9: Patient Health Questionnaire; PSLES: Presumptive Stressful Life Events Scale; RRRS: Risk Rescue Rating Scale; SCID: Structured Clinical Interview for DSM Disorders; SIQ: Suicidal Intent Questionnaire; SIS: Suicide Intent Scale.
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in the region: Bangladesh, India, Indonesia, Sri Lanka and
Thailand. No eligible data were found for Bhutan, Democratic
People’s Republic of Korea, Maldives, Myanmar, Nepal or
Timor-Leste. During the screening and selection process,
it was clear that evidence on the relation between suicide
depression is scarce, due in part to poor-quality data,
derunderreporting and misclassification. Factors such as
the varying suicide registration systems used by different
countries compound the challenges in assessing this public
health issue.

Depression among people who died by suicide
This study located only eight papers, from four countries of
the WHO South-East Asia Region, on depression among people
who died by suicide.10–17 A previous review of the literature
noted that the prevalence of depression or other diagnosable
mental disorders recorded by psychological autopsy for people
who died by suicide in Asian countries was lower than that in
non-Asian high-income countries.3 In the present review, the
prevalence of depression among people who died by suicide
ranged from 6.9% to 51.7%. Despite wide ranges in prevalence
estimates and variability among the studies, these data suggest
that depression among people who died by suicide is a public
health issue in the WHO South-East Asia Region that is worthy
of further investigation.

In Bangladesh, the most recent estimate of the annual
suicide rate is 39.6 per 10 000 population.29 The number of
deaths by suicide in Bangladesh was 10 167, or 1.40% of the
total deaths in 2012.1 A nationwide survey on suicide has not
yet been conducted in Bangladesh but depressive disorders
were the fourth-leading cause of disability in the country in
2015.30 In the single study from Bangladesh retrieved in the
present study, depression was rarely reported by relatives as
a cause of the suicide.10 The strong stigma associated with
mental disorders in Bangladesh means this figure is likely to be
an underestimation, with relatives being unwilling to disclose
depression.29,32

In Sri Lanka, between 1985 and 1989, male suicide rates
were the second-highest in the world.33 A steady decline has
been apparent in the past two decades. In 2014, WHO listed
Sri Lanka as having the fourth-highest suicide rate globally,
at 28.8 per 100 000 population.1 However, it should be noted
that Sri Lanka was one of the 112 Member States for which
the WHO report noted that the data quality was poor and so
should be interpreted with caution.1 The Sri Lanka estimate for
this WHO report was modelled using data submitted to WHO
in 2006. A subsequent analysis, using annually collected police
data, calculated the age-standardized suicide rate in Sri Lanka
in 2012 as 17.1 per 100 000.34 In this review, nearly 40% of
deaths by suicide reported in the two eligible articles were in
individuals who had moderate or severe depression.16,17

Suicide in Indonesia is an increasing concern.35 There were
9105 suicide deaths in Indonesia in 2012, or 0.65% of total
deaths,1 and depressive disorders were the fifth-leading cause
of disability in 2015.36 For Indonesia, only one psychological
autopsy study was found; this study had a high participation
rate of family members of both people who had died by suicide
and controls, and involved face-to-face direct interviews with
key informants, all of whom were close relatives rather than
non-family members such as friends or visiting nurses.15 Major
depressive episode was diagnosed in more than half of the
people who died by suicide.

India accounted for the highest estimated number of
suicides in the world in 2012.1 The estimated suicide rate
in the WHO South-East Asia Region is the highest of all
WHO regions.1 Suicide rates show a peak among the
young and the elderly.37 In India, a nationally representative
survey estimated that, in 2010, about 3% of deaths at age
15 years and older (2684/95 335) were due to suicide.38
For example, among eligible studies in a systematic review
of suicide in India, verbal-autopsy studies in several rural
areas reported up to eight-fold higher suicide prevalence
than the official national suicide data.39 The same review
noted that the quality of the information about suicide in
India is quite limited and also suggested that depression
plays a less dominant role in suicide in India than in high-
income countries.30

Depression among people who attempted suicide
This systematic review identified nine studies in the WHO
South-East Asia Region, from India and Sri Lanka, that provided
data on the proportion of people attempting suicide who had
depression.18–26 Although these studies noted other psychiatric
disorders among people who attempted suicide, depressive
disorders were the most prominent. Depressive episode was
a significant clinical condition in people attempting suicide
in India.18–25 Notably, the stigma associated with suicide and
depression in India may indicate significant underestimation of
both.30

In one study from India, which followed up people who
had been hospitalized after a first suicide attempt, baseline
depression was present in a higher proportion of people who
went on to attempt suicide again (45%) than those who did
not (20%); baseline presence of major depression and social
maladaptation were significant predictors for repeat suicide
attempts.24 The one study retrieved from Sri Lanka reported
that depression was present in 50% of males and over 50% of
females who had attempted self-poisoning, and was the most
important predictor of suicidal intent in both sexes.26

Suicide or attempted suicide in people with depression
Only two studies were found reporting suicidal behaviour among
people with depression, and both were from Thailand.27,28 In
both, the population studied was patients receiving psychiatric
care. A systematic review of all types of mortality associated
with depression reported that suicide accounted for 16–19% of
the mortality in the studies retrieved on deaths among
patients with depression who were receiving psychiatric
care.40 In South-East Asia, mental illness and suicide are
widely stigmatized, both socially and culturally. Suicide risk
varies with the type of depressive disorder and with a range of
biopsychosocial factors, including age, sex, previous history,
family history, social support, religious belief and occupations.
Social, psychological, cultural and other factors can interact
to lead a person to suicidal behaviour, but the stigma attached
to mental disorders and suicide means that many individuals feel
unable to seek help.1 In May 2013, the Sixty-sixth World Health
Assembly adopted the first-ever WHO mental health action
plan, to demonstrate their increased commitment to mental
health by achieving specific targets.41 Suicide prevention is an
integral part of the WHO Mental health action plan 2013–2020,
with the goal of reducing the rate of suicide in countries by 10%
by 2020.41
Conclusion

Few reliable data were retrieved on depression and suicide in countries of the WHO South-East Asia Region. The main limitations to synthesizing the evidence retrieved were due to heterogeneity of the study populations, settings and design and assessment tools used. A major source of additional bias is the use of data extracted from police reports. In addition, there are significant inherent difficulties related to the retrospective assessment of depression in persons attempting or dying by suicide; thus, all data should be interpreted with caution.

Most of the studies found were from India. Not a single article was found focusing on depression and suicide from the Democratic People’s Republic of Korea or Timor-Leste. Moreover, during the evaluation phase, screened articles from Bhutan, Maldives, Myanmar and Nepal failed to qualify for inclusion. The study inclusion criteria were limited to cross-sectional study, case–control study, and baseline data of a cohort study where sample size and point prevalence were presented. Several articles had to be excluded because the findings were incomplete and/or self-contradictory. This review focuses only on the presence of depression at the time of suicide death or attempt. Data on other relevant factors, including severity of depression, social–personal circumstances and suicide method were not explored.

It is possible that the small number of studies found reflects the belief in countries of the WHO South-East Asia Region that the role of depression in suicide is not as important as in other regions, and so the topic has not been as extensively reviewed. This review highlights the lack of knowledge on depression and suicide in most countries of the South-East Asia Region and the need to understand this phenomenon better, to inform suicide-prevention strategies.

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Authorship: HUA conceived and designed the study with advice from MDH, participated in the conception, design, intellectual content, literature search, acquisition of literature, analysis and interpretation of data, and drafted the manuscript. MDH conceived the study, guided the design, intellectual content, literature search, acquisition of literature, analysis and interpretation of data, and revised the draft critically for important intellectual content. AA, TRS and MTA participated in the design, literature search, acquisition of data and manuscript drafting and revisions. MWAC and AU participated in the conception, design and manuscript preparation and reviewed the draft critically for important intellectual content. All authors read and approved the final manuscript. HUA and MDH contributed equally to this study (joint first authors).


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