

Psychological Autopsy Studies of Suicide in South East Asia

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ABSTRACT

Background: Psychiatric disorders have been identified as an important risk factor for suicide. However, different psychological autopsy studies have revealed different prevalences at different times and places.

Objective: We aimed to see the distribution of psychological autopsy studies and the prevalence of mental disorders among suicides and identify major risk factors in Southeast Asian countries.

Method: We scrutinized psychological autopsy studies published in the World Health Organization (WHO) South-East Asia (SEA) region countries. We also searched the available bibliographies to identify the studies in the region so that all the possible articles could be included.

Results: Out of the 11 countries, 14 psychological autopsy studies were identified in five SEA countries (Bangladesh [1], India [9], Indonesia [1], Nepal [1], and Sri Lanka [2]). Seven studies (50%) used a case-control study design, and eight (57.1%) were carried out in urban settings. The prevalence of psychiatric disorders in case-control studies was from 37% to 88%. Stressful life event was identified as a major risk factor in all the case-control studies.

Conclusion: Psychological autopsy studies have not been conducted in 6 out of 11

countries of the SEA region. The presence of pre-existing psychiatric morbidity and stressful life events were the two most common risk factors noted across settings, even though there is wide heterogeneity in samples, study design, instruments, and study settings.

Keywords: Psychiatric disorders, risk factors, suicide, case-control study, psychological autopsy, South Asia

Suicide is an endpoint of a complex interaction among various risk factors. Therefore, the identification of the precise risk factors is a fundamental challenge for suicide prevention.¹ Psychiatric disorders have been identified as an important risk factor for suicide, and treating the mental illness with psychotropics is a prominent suicide prevention strategy.^{1,2} Currently it has been well accepted that about 90% of the people who die by suicide have at least one psychiatric disorder.¹ However, evidence has revealed a lower percentage of mental disorders among suicides, especially in Asian countries.³⁻⁵ Different psychological autopsy (PA) studies from different settings, with heterogeneous methods, have come out with different prevalence of psychiatric disorders.³⁻⁵ PA study is the

most standard and well-accepted study design to assess the risk factors for suicide by evaluating the psychological and contextual aspects before death, where data are collected from the proxy respondents, next-of-kins, or close relatives.^{3,5}

The World Health Organization (WHO) South-East Asia (SEA) region is the most populated area globally. It consists of 11 low- and middle-income countries (LMICs) accounting for 26% of the global population and 39% of total suicides.^{6,7} The region has the highest regional suicide rate of 17.7 per 100,000.^{6,8} The region portrays different epidemiological patterns for suicide compared to the West. Some noticeable factors have been identified: low rate of psychiatric illness, reverse gender distribution, significant stigma, and different cultural, socioeconomic, and religious factors.⁹ Moreover, fewer studies have been conducted exploring the risk factors for suicide, the prevalence of mental disorders, and identifiable social factors. One recent systematic review and meta-analysis assessed psychiatric morbidity in suicidal behavior in the LMICs, including all available articles mentioning the prevalence of psychiatric disorders.¹⁰

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The study found a different prevalence of mental disorders in different countries.¹⁰ On this background, here we aimed to see the distribution of PA studies and the prevalence of mental disorders among suicides and to identify major risk factors in the WHO SEA countries. The findings would help formulate the suicide prevention strategies for a specific region or country compared to others.

Materials and Methods

Search Strategy

The first author did a search to identify the original PA studies from the WHO SEA countries. The search was conducted in PubMed, PubMed Central, Scopus, and Google Scholar. The second author scrutinized and validated the search. All authors discussed the inclusion of an article, and the third author extracted the data. We also scrutinized the available bibliographies to identify the studies in the region so that maximum studies could be included. Articles published from inception till the end of 2020 were included.

Search Terms

We used “psychological autopsy study in SEA countries” as the search term. We also searched by individual country names (Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, North Korea, Sri Lanka, Thailand, and Timor-Leste).

Inclusion Criteria

Quantitative PA studies from the WHO SEA countries, published in the English language, with full-accessible text, were included. We included the studies where “psychological autopsy” was mentioned in the title and/or abstract.

Exclusion Criteria

Other types of articles (any review, commentary, correspondence/letter to the editor, viewpoints/opinions, case studies, and editorials), qualitative studies, and studies published in other languages were excluded.

Statistical Analysis

Descriptive statistics were used to analyze the data. Frequency and percentages were used to express the categorical variables and binomial responses.

Results

Psychological Autopsy Studies in SEA

A total of 14 PA studies was identified from the WHO SEA countries; of these, nine (five case-control, four case series) were from India, two (case series) from Sri Lanka, and one (case-control) each from Nepal, Indonesia, and Bangladesh. The first such study was conducted more than two decades ago (1999) in India, but since then, only 13 more studies have been conducted; five of these were in the last decade. Seven studies used a case-control design, while others were case series. No case-control study has been conducted in Nepal or Sri Lanka (see **Table 1**).

Nearly all the studies used a semi-structured interview method to elicit information; only one study used a mixed-methods design (Nepal). Six studies used Structured Clinical Interview for DSM (Diagnostic and Statistical Manual of Mental Disorders) Axis-I Disorders (SCID), three used International Classification of Diseases, Tenth Revision (ICD-10), and three didn't use any instrument to diagnose mental disorders (see **Table 2**). Only two studies assessed the personality disorders among the suicides; one from India²⁰ and another from Bangladesh.¹¹ Eight studies were carried out in urban settings. One study was done on deceased farmers, one on suicidal hanging, and the rest were on the general population.

Prevalence of Psychiatric Disorders Among Suicides

A wide variation was noted in the prevalence of psychiatric disorders; figures ranged from 5% to 94% in two Indian case series studies. Even among case-control studies, prevalence varied both within and between countries; prevalence in Indian studies ranged from 37% to 88%, while the prevalences in Nepal and Indonesia were 10.3% and 80%, respectively. There are also variations in the interviewers' specialty, the instrument used for psychiatric diagnosis, sample size, and study setting. The case series autopsy study from Nepal reported only 39 suicides²², and one case series autopsy study from Sri Lanka assessed only 27 suicides.²⁴

Only six studies reported the percentage of people under mental health services coverage; the figures ranged from 13% in Bangladesh to 26% in India (see **Table 2**). The proportion of suicide decedents who had attempted suicide in the past ranged from 5.1% to 58% in Indian studies; for other countries, the proportion varied between 10.3% in Nepal to 26% in Sri Lanka (see **Table 2**).

Risk Factors for Suicide in SEA

Case-Control Studies

The case-control studies identified that the presence of a psychiatric disorder and life event are the universal risk factors across the studies and countries (see **Table 3**). The presence of personality disorders, substance use, past history of suicide attempts, and interpersonal problems were the other most common risk factors for suicide. Furthermore, low levels of religiosity and domestic violence emerged as key risk factors in Indonesia²¹ and Sri Lanka,²⁴ respectively. Only a few studies evaluated protective factors; one identified good coping, problem-solving, and positive outlook on life as protective factors.¹⁹

Case-Series Studies

Presence of stressful life events (such as interpersonal conflicts and dowry stress) and pre-existing psychiatric morbidity were the two most common risk factors noted across settings. Other several key risk factors were noted such as migration, loneliness, unemployment, indebtedness, male gender, married persons, urban living, and lower education.^{13,17,22-24}

Discussion

Distribution of the PA Studies in SEA

The volume of published PA literature from SEA is low, and more than half of the available evidence is from India. No PA study was found from Bhutan, Maldives, Myanmar, North Korea, Thailand, or Timor-Leste. This is an obvious research gap for a suicide-dense region that contributes about 39% of annual global suicide deaths.^{6,7} Moreover, the studies are sporadic, and no case-control

TABLE 1.

Psychological Autopsy Studies in South East Asia (n = 14)

S. No.	Study	Place of Study	Study Design	Study Duration (Month)	Data Collection	Study Population	Sample Size	M:F	Age of Suicide Deaths (Years) Mean (\pm SD) [Range]
1	Arafat et al., 2021 ¹¹	Dhaka, Bangladesh	Case control	13	Interview	General population	Case 100; control 100	.96:1	26.30 (\pm 12.36) [9-75]
2	Bhise & Behera, 2016 ¹²	Maharashtra, India	Case control	18	Interview	Farmers	Case 98; control 98	8.8:1	
3	Shrivastava, 2013 ¹³	Goa, India	Case series	36	Interview	General population	100	2.33:1	
4	Kumar et al., 2011 ¹⁴	Kerala, India	Case control	6	Interview	General population	166	2.95:1	40.45 (\pm 17.07)
5	Manoranjitham et al., 2010 ¹⁵	Tamil Nadu, India	Case control	20	Interview	General population	Case 100; control 100	1.44:1	42.24 (20.6g)
6	Bastia & Kar, 2009 ¹⁶	Cuttack, India	Case series	24	Interview	Suicide by hanging	104	0.70:1	28.7 (\pm 11.4)
7	Chavan et al., 2008 ¹⁷	Chandigarh, India	Case series	12	Interview	General population	101	1.34:1	
8	Khan et al., 2005 ¹⁸	Hyderabad, India	Case series	1	Interview	General population	50	1.38:1	[15 - 35]
9	Gururaj et al., 2004 ¹⁹	Bangalore, India	Case control	9	Interview	General population	Case 26g; control 26g	2:1	
10	Vijayakumar & Rajkumar, 1999 ²⁰	Chennai, India	Case control	14	Interview	General population	Case 100; control 100	1.22:1	
11	Kurihara et al., 2009 ²¹	Bali, Indonesia	Case control	4	Interview	General population	Cases 60; control 120	1.72:1	41.4 (\pm 21.5) [13 - 87]
12	Hagaman et al., 2017 ²²	Jumla & Kathmandu, Nepal	Mixed method case series	4	Interview	General population	39	1.16:1	32.9 (\pm 17.55) [14-79]
13	Abeyasinghe & Gunnell, 2008 ²³	Hambantota, Sri Lanka	Case series	3	Interview	General population	372	3.76:1	
14	Samaraveera et al., 2008 ²⁴	Ratnapura, Sri Lanka	Case series	3	Interview	General population	27	2.37:1	43 [15-74]

TABLE 2.

Prevalence of Psychiatric Disorders Among Suicides in South East Asia

S. No.	Study	Study Setting	Instruments	Prevalence of Psychiatric Disorder	Assessment of Personality disorder	Past Attempt	Proportion Under Mental Health services
1	Arafat et al., 2021 ¹¹	Urban, Bangladesh	SCID-I (DSM-IV-TR), SCID-II, Paykel's life events Schedule	61%	Yes	14%	13%
2	Bhise & Behera, 2016 ¹²	Rural, India	SCID-I (DSM-IV-TR), CAGE	60%	No	5.1%	
3	Shrivastava, 2013 ¹³	Urban, India	ICD-10	94%	No	58%	26%
4	Kumar et al., 2011 ¹⁴	Rural, India	SCID (DSM-III-R), Presumptive life events scale	66.9%	No	23.5%	
5	Manoranjitham et al., 2010 ¹⁵	Rural, India	SCID (DSM-III-R)	37%	No	13%	

(Table 2 continued)

(Table 2 continued)

S. No.	Study	Study Setting	Instruments	Prevalence of Psychiatric Disorder	Assessment of Personality disorder	Past Attempt	Proportion Under Mental Health services
6	Bastia & Kar, 2009 ¹⁶	Urban, India		4.8%	No		
7	Chavan et al., 2008 ¹⁷	Urban, India		33.6%	No	8.9%	3.9%
8	Khan et al., 2005 ¹⁸	Mixed		Psychiatric disorder 24%; substance abuse 18%	No	16%	24%
9	Gururaj et al., 2004 ¹⁹	Urban, India	Presumptive life events scale	42.8%	No	12.6%	8.9%
10	Vijayakumar & Rajkumar, 1999 ²⁰	Urban, India	SCID (DSM-III-R), modified Paykel's Scale, Standardized Assessment of Personality, Research Diagnostic Criteria	88%	Yes	28%	10%
11	Kurihara et al., 2009 ²¹	Urban, Indonesia	SCID-I (DSM-IV-TR), Duke Social Support Index	80%	No	20%	13.3%
12	Hagaman et al., 2017 ²²	Rural & Urban, Nepal	Patient Health Questionnaire (PHQ-9)	10.3%	No	10.3%	2.5%
13	Abeyasinghe & Gunnel, 2008 ²³	Rural and Semi-rural, Sri Lanka	ICD-10	Depression 48.4%, psychosis 12.1%, alcoholism 48.92%	No	25.5%	
14	Samaraveera et al., 2008 ²⁴	Urban, Sri Lanka	ICD-10	59%	No		22%

SCID- Structured Clinical Interview for DSM Disorders, DSM- Diagnostic and Statistical Manual of Mental Disorders, TR- Text revision, ICD- International Classification of Diseases

TABLE 3.

Risk Factors for Suicide in South East Asia

S. No.	Study	Study Setting	Study Design	Major Risk Factors
1	Arafat et al., 2021 ¹¹	Urban, Bangladesh	Case control	Psychiatric disorder, life event, sexual abuse, self-harm
2	Bhise & Behera, 2016 ¹²	Rural, India	Case control	Loan, psychiatric disorder, life events
3	Shrivastava, 2013 ¹³	Urban, India	Case series	male, married, urban living, lower education
4	Kumar et al., 2011 ¹⁴	Rural, India	Case control	Psychiatric disorder, migration, marital issues, loneliness, life events
5	Manoranjitham et al., 2010 ¹⁵	Rural, India	Case control	Psychiatric disorder, ongoing stress, chronic pain, living alone, absence of confidants
6	Bastia & Kar, 2009 ¹⁶	Urban, India	Case series	Dowry, unemployment, extramarital relationship of spouse
7	Chavan et al., 2008 ¹⁷	Urban, India	Case series	
8	Khan et al., 2005 ¹⁸	Mixed	Case series	Psychiatric disorder, life event
9	Gururaj et al., 2004 ¹⁹	Urban, India	Case control	Psychiatric disorder, self-harm, emotional abuse, physical violence, alcoholism, poor social support, resource constraints
10	Vijayakumar & Rajkumar, 1999 ²⁰	Urban, India	Case control	Psychiatric disorder, psychopathology in the family, and life events in the previous month
11	Kurihara et al., 2009 ²¹	Urban, Indonesia	Case control	Psychiatric disorder, low level of religious interest, and severe interpersonal troubles
12	Hagaman et al., 2017 ²²	Rural & Urban, Nepal	Case series	Migration, alcoholism, and family history of suicide
13	Abeyasinghe & Gunnel, 2008 ²³	Rural and semi-rural, Sri Lanka	Case series	
14	Samaraveera et al., 2008 ²⁴	Urban, Sri Lanka	Case series	Male sex, alcoholism, and domestic violence

PA study was found in Nepal or Sri Lanka. Only two countries (India and Sri Lanka) have more than one study. The temporal breakup of studies over the last two

decades does not suggest an increasing interest in this line of research, probably owing to the practical complexities in conducting PA studies, as opposed to

studies on other suicidal behaviors such as suicide attempts. Additionally, there is a lack of funds to conduct such studies, especially in the region.

Key Findings

There were two major observations from the present review. The first one pertains to risk factors for suicide; on the one hand, stressful life events and interpersonal conflicts are major risk factors for suicide in the SEA region; on the other hand, rates of psychiatric morbidity among suicides, across nations and settings, appear to be low when compared to the West. The other two previous reviews also reported a similar lower prevalence of mental disorders in Asian countries.^{3,4} This may imply that suicide prevention efforts in SEA must also focus adequately on the socioeconomic determinants of suicide, such as gender inequality and scaling up mental health services, to have a better impact.⁹ Further studies are certainly warranted to replicate the lower prevalence of psychiatric disorder as well as the more precise role of sociocultural factors on suicidality in the region, to plan prevention strategies. However, under-reporting of suicide, lack of suicide surveillance system, and stigma towards suicide and mental health prevail in the SEA countries. These factors can be attributed to the lower prevalence of psychiatric disorders among suicides. Additionally, there are wide variations among the studies. In this regard, it is important to note that 4 of the 14 published studies didn't use a diagnostic measure; this is something that future PA studies must address. A past suicide attempt was noted to be a significant risk factor for suicide, consistent with global findings.^{1,3,4}

The issue of farmer suicides has gained significant research attention in India; two studies that specifically investigated farmer suicides found multifactorial causes of suicide, including interpersonal conflicts, economic factors such as crop failure, depression, and substance use.^{12,14} Large parts of arable land in India are primarily rain-fed and, therefore, subject to vagaries of the monsoon; the economic loss due to seasonal crop failure may aggravate social and interpersonal tensions and lead to depression. The suicidal risk in such cases is compounded by substance use, which clouds individual judgment and actions. There is a definite role for dedicated self-help groups and local advocacy groups in preventing farmer suicides.²⁵

The second important finding was that less than a quarter of suicide decedents had contact with mental health support services prior to the event. These observations are consistent with findings from a recent global review where less than a third of individuals sought mental health services in the year preceding their death.²⁶ Nevertheless, these are substantial figures and highlight the importance of performing regular suicide risk assessments and follow-up service provisions for those reporting suicidal ideation or behavior. No information was gleaned from the reviewed studies on who are more likely to seek professional help, but prior authors have found that "no contact suicides" are more likely to be male, employed, and not have pre-existing psychological morbidity.²⁷ Increasing the awareness regarding the associations between suicide and psychiatric illness should be prioritized, along with the effort to extend the mental health services coverage so that distressed people can easily avail themselves of the services whenever needed.

Current Gaps and Future Directions

Risk factors for suicide in SEA have not been adequately assessed, evident by the number and trends of PA studies. All the published research except two studies^{12,16} focused on the suicide of the general population. Therefore, studies are warranted in suicides of specific groups and marginalized populations (e.g., refugee, gender minority community [lesbian, gay, bisexual, transgender, and queer], homeless population, tourist, inmates of prison and hostel) to compare and contrast the risk factors with the general population. Future PA studies may target these populations, giving insight into the mental health issues and psychosocial circumstances of suicide in these groups.

Strength of the Study

This is the first review assessing the PA studies in a suicide-dense area, identifying the research gaps. We tried to include all the possible studies in the review.

Limitations

We included studies published in the English language only. There is

heterogeneity in the methods of the studies, study population, sample size, and prevalence. More than half of the studies were from a single country (India). As a study design, PA has several limitations, and this review pertains to those. One fundamental aspect is that the psychiatric diagnosis has been made by interviewing the proxy respondents.

Conclusions

PA study has not been done in 6 out of the 11 countries of the WHO SEA region. The presence of a mental disorder and adverse life events were the two most commonly identified risk factors across the studies in the region despite the heterogeneity in samples, study designs, instruments, and study settings. Further replicative studies focusing on the social factors are warranted to customize the prevention strategies based on the risk factors.

Declaration of Conflicting Interests

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