Review

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Secondary mental health service utilisation following emergency department contact for suicidal behaviour: A systematic review

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Abstract

Objective: Engagement with secondary mental health services after an emergency department presentation with suicidal behaviours may be an important strategy for reducing the risk of repeat attempts. Our aim was to examine secondary mental health service contact following a presentation to emergency department with suicidal behaviours.

Methods: A systematic review of papers published between 2000 and 2020 was undertaken. This identified 56 papers relating to 47 primary studies. Data were extracted and summarised separately by age group: (1) young people, (2) older adults and (3) adults and studies with participants of 'all ages'.

Results: Studies in young people ($n = 13$) showed, on average, 44.8% were referred and 33.7% had contact with secondary mental health services within 4 weeks of emergency department discharge. In comparison, in adult/all ages studies ($n = 34$), on average, 27.1% were referred to and 26.2% had mental health service contact within 4 weeks. Only three studies presented data on contact with mental health services for older adults, and proportions ranged from 49.0% to 86.0%.

Conclusion: This review highlights poor utilisation of secondary mental health service following emergency department presentation for suicidal behaviours, and further research is needed to identify the reasons for this. Crucially, this information could assist in the allocation of resources to facilitate the timely implementation of suicide prevention services.

Keywords

Suicide attempt, suicidal behaviour, emergency department, secondary mental healthcare, mental health referral, age, sex, systematic review

Introduction

Each year in Australia, over 3000 people die by suicide, and it is the leading cause of death for people aged 15–44 years (Australian Bureau of Statistic [ABS], 2021). Despite several decades of national suicide prevention initiatives, between 2012 and 2021, the suicide rate increased from 5.6 to 6.1 deaths per 100,000 for women and from 17.0 to 18.2 deaths per 100,000 for men. However, since 2019, the data show a downwards trend in rates for men from a high of 20.1 deaths per 100,000 (ABS, 2021). A recent systematic review found that 44% of people attempting suicide had been in contact with primary care health services and 21% with mental health services (Stene-Larsen and Reneflot, 2019) in the 1 month before the attempt. Although not everyone who has suicidal thoughts or who makes a suicide attempt will seek medical help (Jollant et al., 2022; Madge et al., 2008), the number of people presenting to a hospital

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emergency department (ED) following a suicide attempt has been increasing (Stapelberg et al., 2020; Ting et al., 2012), and in 2020–2021, there were almost 30,000 hospitalisations in Australia for intentional self-harm (Australian Institute of Health and Welfare, 2023). Evidence shows that the risk of repeated suicide attempts and death in the 12 months after ED presentation is substantially increased (Geulayov et al., 2019; Goldman-Mellor et al., 2019; Kapur et al., 2006; Olfson et al., 2021). Findings suggest that the majority of people who make a repeat suicide attempt will do so within the first 6 months; however, a small proportion makes a second attempt within the first few weeks (Esmaeili et al., 2022; Fedyszyn et al., 2016; Irigoyen et al., 2019; Kapur et al., 2006; Suárez-Pinilla et al., 2020).

National and international clinical guidelines (Alderdice et al., 2010; Carter et al., 2016; National Institute for Clinical Excellence, 2004) recommend that people presenting to hospital with suicidal behaviour should receive a psychosocial assessment by a trained health professional and be offered or have appropriate mental health aftercare arranged. Early access to and engagement with mental health services after an ED presentation with suicidal behaviours may be an important strategy for reducing the risk of repeat attempts and suicide mortality (Inagaki et al., 2015; Turecki and Brent, 2016). We undertook a comprehensive systematic review of the literature to determine whether people who present to an ED with suicidal behaviour are receiving secondary mental health aftercare services following ED discharge. As not everyone will accept the offer of mental health aftercare (Lin et al., 2014; Miller et al., 2020), we also examined referral to secondary mental health treatment services and admission from ED to a mental health bed (referred to in this paper as a mental health admission).

Methods

The study protocol is registered in PROSPERO, the international prospective register of systematic reviews of the University of York (www.crd.york.ac.uk/prospero/) and is accessible under ID no. CRD42022320512.

Eligibility criteria

Published studies were considered eligible if participants had presented at an ED expressing suicidal ideation or following an act of intentional self-injury irrespective of the intent and whether they were referred to or had contact with secondary mental health services. Only papers in English and those published from 2000 to December 2020 were included. The authors decided to restrict the review to a 20-year date range with the upper date (2020) chosen to limit the possible impact of COVID-19 on ED contact and aftercare provisions, given that access to ED care has been reported to be impacted by the pandemic (Dragovic et al., 2020). Randomised control trials (RCT) were excluded as interventions implemented were not 'usual care' such as active contact and follow-up interventions after ED discharge.

Study selection

Potentially eligible records were identified by searching electronic databases (PubMed, PsycINFO, MEDLINE, CINAHL Plus and Embase) for search terms in the title, abstract or text (see Supplemental Table 1 for search terms). After duplicate records had been removed, the titles and abstracts of identified records were screened to determine initial eligibility. The full text of eligible papers was then assessed in a second screening process. When papers were identified as having overlapping data, all papers were retained but were considered to be one study. The reference lists of all papers retained after the second screening were reviewed for missed eligible studies. Both stages of screening were conducted by two independent reviewers, and any differences were resolved through discussion (A.W. and G.M.V.).

Data management

Data extraction was conducted separately by two researchers (A.W. and Y.R.F.) and recorded on a spreadsheet. Data and information extracted included source of data, period of observation, sample size and the proportion of participants who, on ED discharge, had a secondary mental health service contact, a mental health service referral or a mental health admission. Proportions were manually calculated if not reported. We summarised and presented the data separately by three age groups: (1) children/young people aged 24 years and under (referred to as young people), (2) older adults 55 years and over and (3) adults 18 years and over and studies with participants of 'all ages'.

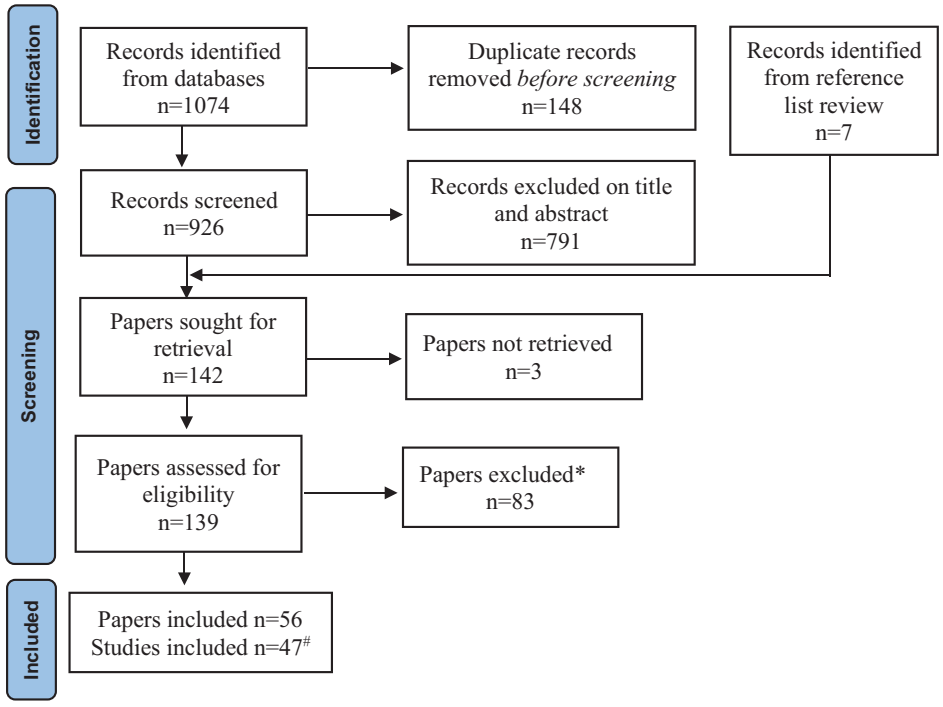
Included studies

The database search identified a total of 926 records after duplicates had been removed (see Figure 1). After screening the titles and abstracts of these records and reviewing the reference lists of the relevant papers, a total of 142 papers were retained for full-text screening. Of these, 3 papers were not able to be retrieved and 83 papers were excluded: $n = 10$ study participants did not meet inclusion criteria; $n = 11$ had an ineligible study design (e.g. RCT); $n = 14$ did not provide a breakdown of data for participants with suicidal behaviours; $n = 44$ did not report outcome data relevant or useable for this review and $n = 4$ reported duplicate data.

Results

A total of 56 papers relating to 47 primary studies presented data on mental health service contact, referral or admission following an ED presentation with suicidal behaviours and

Figure 1. Flow chart of study identification and selection.



*Reasons for exclusion: Duplicate reporting of data (n = 4); Ineligible study design (n = 11); Did not meet inclusion criteria (n = 10); Inability to identify percentage of suicide participants at ED contact (n = 14); No outcome data (n = 44).
#Papers with overlapping samples (n = 9).
There were some inconsistency with how numbers in the text appeared. I have added comments where I think these need to be changed from numbers to words.

were included in this review (Table 1). There were 32 studies (68.1%) which had an observation period prior to 2010, 13 studies (27.7%) with the observation period in 2010 or after and two studies (4.3%) which did not report the dates of their observation period.

Characteristics of included studies and participants

The included studies were undertaken in 24 countries, of which 37% were European, 30% North American, 20% Asian and 13% from other countries. Two main sources of data were used in the included studies: medical records (46.8%) and register or linked administrative health databases (31.9%); a further 14.9% undertook participant interviews and 6.4% conducted clinical assessments. Most (72.3%) studies reported outcomes for unique individuals, although 25.5% reported on the outcome for each episode of ED contact. Consequently, in those studies, an individual could contribute to more than one ED contact. Almost all (91.5%) studies selected their cohort from all people presenting to ED with suicidal ideation or any suicidal behaviours, irrespective of the intent. One study restricted inclusion to people with schizophrenia or depression who were hospitalised after ED presentation (Routhier et al., 2012) and a second followed up adults released from prison (Young et al., 2020). In addition, two studies limited inclusion to people who presented to ED after a self-poisoning attempt (Rhodes et al., 2008) or after self-wrist cutting (Park et al., 2020).

The number of study participants ranged from 43 to 45,562, with an overall mean of 4788 (median=600). On average, females made up 58.4% of all participants (range=38.2–80.4%). Of the 47 primary studies included in the review, 34 (72.3%) studies were conducted on adult (n=8) or all age (n=25) participants, 11 (23.4%) studies restricted inclusion to children or young people up to the age of 24 years and two (4.3%) studies only included people aged 65 years and over. However, a total of five studies (10.6%) reported data separately for older participants aged 55 years and over, and 13 studies reported data separately for participants aged 24 years and under.

Age-specific outcomes

Children and young people

A total of 13 (27.7%) studies provided data for young people ranging in age from 2 to 24 years (Table 2). The mean age of participants in these studies was 15.3 years (standard deviation [SD]=2.2). Seven papers reported on contact

Table 1. Characteristics of the 47 included primary studies.

Study authors	Publication year	Location	Observation period	Data source	Age (years)	Participant (*N*)	Females (%)	Outcome data[a]
Azcárate-Jiménez et al.	2019	Spain	2015	Participant interview	18+	207	58.9	c, a, r
Baca-García et al.	2004	Spain	1996–1998	Clinician assessment	18+	509	N/A	a, r
Barr et al.	2004	The United Kingdom	1996–2000	Participant interview	16+	2417	52.4	a, r
Bolger et al.	2004	Ireland	2001–2002	Medical records	14–20	89	60.7	c, a, r
Bridge et al.	2012	The United States	2006	Register/ health database	10–19	2327	69.7[b]	c, a
Chihara et al.	2018	Japan	2009	Clinician assessment	15+	81	55.6	a
Cooper et al. Bennewith et al.[c]	2013 2004	The United Kingdom	2010–2011	Medical records	18+	6442	55.6	a, r
Cooper et al. Cooper et al.[c]	2006 2003	The United Kingdom	1997–2001	Medical records	15+	7185	55.4	r
Fedyszyn et al.	2016	Denmark	1996–2011	Register/ health database	10+	11,802	59.5	a
Ferreira et al.	2016	Brazil	2006–2007	Medical records	All ages	412	58.7	a, r
Fleischmann et al. Malakouti et al.[c]	2005	Multiple[d]	2002–2004	Participant interview	All ages	4314	60.5	r
Gardner et al.	2020	The United Kingdom	2005–2011	Register/ health database	15–24	799	61.3[b]	r
Gerson et al.	2017	The United States	2011–2012	Medical records	⩽18	885	48.7	a
Goldberg et al.	2007	The United States	2003	Medical records	18+	257	43.2	a, r
Greenfield et al.	2002	Canada	1996–1998	Participant interview	12–17	286	68.9	a
Huffman et al.	2012	The United States	2005–2009	Register/ health database	5–17	17,512	72.1	a
Hunter et al.	2018	Canada	2007–2009	Register/ health database	18+	23,140	54.2	c, a
Kapur et al. Cooper et al.[c]	2013 2010	The United Kingdom	2000–2009	Register/ health database	16+	35,938	57.1	a, r

(Continued)

Table 1. (Continued)

Study authors	Publication year	Location	Observation period	Data source	Age (years)	Participant (*N*)	Females (%)	Outcome data[a]
Kawahara et al.	2017	Japan	2013–2014	Medical records	12+	405	70.1	a, r
Kim et al.	2020a	Korea	2017–2019	Medical records	All ages	674	62.6	c, a
Kim et al.	2020b	Korea	2015–2019	Medical records	⩽18	46	80.4	a, r
Kudo et al.	2010	Japan	2002–2008	Medical records	All ages	1348	69.1	a
Kuehl et al.	2012	New Zealand	N/A	Medical records	All ages	48	56.3	a, r
Leckning et al.	2020	Australia	2013	Medical records	13+	167	43.1	a
Lilley et al. Horrocks et al.[c]	2008 2003	The United Kingdom	2000–2001	Register/ health database	12+	7344	55.5[b]	a, r
Lin et al.	2014	Taiwan	2004–2005	Medical records	All ages	468	80.1	c, a, r
Majid et al.	2016	The United Kingdom	2012	Register/ health database	16+	969	56.6	c, a, r
Marriott et al.	2003	The United Kingdom	2000–2001	Medical records	12+	236	53.8[b]	c, a, r
McInerney et al.	2020	Canada	N/A	Medical records	All ages	1152	38.2	a, r
Newman and Bland	2004	Canada	1993–1994	Medical records	16+	1412	60.7	c, a
Newton et al. Rosychuk et al.[c]	2015 2016	Canada	2002–2011	Register/ health database	<18	5259	73.2[b]	c, a
Nordentoft and Søgaard	2005	Denmark	2001	Register/ health database	All ages	223	61.4	c, a, r
Olfson et al. Marcus et al.[c]	2012 2012	The United States	2006	Register/ health database	21–64	4440	68.3[b]	c, a
Park et al.	2020	Korea	2011–2015	Medical records	18–65	300	61.3	c, a
Perquier et al.	2017	France	2015–2016	Participant interview	15+	168	66.1	a, r
Rhodes et al.	2008	Canada	2001–2002	Register/ health database	12–64	16,294	63.7	a

(Continued)

Table 1. (Continued)

Study authors	Publication year	Location	Observation period	Data source	Age (years)	Participant (*N*)	Females (%)	Outcome data[a]
Routhier et al.	2012	Canada	2002–2005	Register/ health database	15+	525	53.5	c, a
Ruths et al.	2005	The United Kingdom	1998–1999	Medical records	65+	43	72.1	c, a
Schmutte et al. Schmutte et al.[c]	2020 2019	The United States	2015	Register/ health database	65+	45,562	53.7[b]	c, a
Sobolewski et al.	2013	The United States	2010	Participant interview	11–18	100	50.0	c, a
Steeg et al.	2018	The United Kingdom	2003–2012	Medical records	16+	16,456	56.6	a, r
Stewart et al.	2001	Canada	1997–1998	Medical records	5–19	224	70.5	a, r
Suominen and Lonnqvist Suominen et al.[c]	2006 2004	Finland	1997–1998	Medical records	15+	1198	52.7	c, a, r
Waseem et al.	2015	The United States	2004–2007	Medical records	Children	160	62.5	a
Wittouck et al.	2010	Belgium	2007–2008	Participant interview	16+	131	48.1	c, a, r
Young et al.	2020	Australia	2008–2012	Register/ health database	18+	N/A	N/A	c, a
Zeppegno et al.	2015	Italy	2008–2011	Clinician assessment	16+	280	65.4	a, r

N/A: not available.
[a]c = mental health service contact, a = hospital admission – mental health, r = mental health referral.
[b]Percentage of episodes.
[c]Data are an overlapping sample.
[d]Brazil, China, Estonia, India, Iran, South Africa, Sri Lanka and Vietnam.

with mental health services between 7 days and 12 months after an ED presentation. The four papers which reported on mental health service contact within 4 weeks showed that one-third (33.7%) of young people had contact with mental health services (range = 14.3–47.0%). Twelve studies reported on the proportion of young people with a mental health admission from ED, and six studies reported on referral to mental health services. On average, 43.0% were admitted (range = 13.9–54.4%), and 44.8% were referred to mental health services (range = 25.9–75.4%).

Older adults

Of the five (10.6%) studies which presented outcome data for older adults, three studies were conducted in the United Kingdom (Table 3). Four of the five studies had sample sizes of less than 150 people, while the one US study had over 45,000 people with more than 50,000 episodes of ED care. Contact with mental health services following an ED presentation with suicidal behaviour was reported in three papers and rates ranged from 49.0% to 86.0%. Four papers reported on the proportion of older people who were admitted to a mental health bed from ED. In the three UK studies, the average proportion admitted was 24.6% (range = 14.0–28.6%), and in the US study, 62.8% were admitted. Three papers presented data on referral to mental health services, and the proportions referred ranged from 28.6% to 66.0%.

Adult/all ages

Mental health service contact. Fourteen (30.0%) studies reported on contact with mental health services after

Table 2. Studies reporting contact with mental health services for children and young people 24 years and under.

Study authors	Location	Age (years)	Total sample	Mental health			Follow-up
				Admission	Referral	Contact[a]	
Bolger et al.	Ireland	14–20	108 ED episodes	13.9%[b]	25.9%	38.7% of 31 followed-up	6 months
Bridge et al.	The United States	10–14 15–19	857 ED episodes 2384 ED episodes	27.0%[b] 27.1%[b]		47.0% of 626 not admitted 41.6% of 1737 not admitted	1 month
Gardner et al.	The United Kingdom	15–24	1196 ED episodes		32.9%		
Gerson et al.	The United States	2–11 12–15 16–18	256 people 406 people 223 people	38.7% 23.4% 22.4%			
Greenfield et al.	Canada	12–17	286 people	24.8%			
Huffman et al.	The United States	5–14 15–17	4796 people 12,716 people	52.0% 54.4%			
H. Kim et al.	Korea	⩽18	91 ED episodes	40.7%	51.6%		
Majid et al.	The United Kingdom	16–24	309 people	1.0%[c]	26.9%	68.7% of 83 referred 22.9% missing data	12 months
Newton et al.	Canada	<18	5939 ED episodes	24.8%		14.3% of 3133 people discharged	7 days
Rosychuk et al.[d]		15–17	3927 people			45.2%	14 days
Sobolewski et al.	The United States	11–18	1161 people	50.2%[b]		66% of 100 followed-up	2 months
Stewart et al.	Canada	5–19	224 people	24.1%	75.4%		
Suominen et al.	Finland	15–19 20–24	64 people 124 people	23.4% 19.4%	42.2% 46.8%	29.7% 21.8%	1 month
Waseem et al.	The United States	Children	160 people	29.4%			

ED: emergency department.
[a]Percentage is based on proportion of total sample unless stated.
[b]Includes general and/or mental health admission.
[c]Involuntary mental health hospital admission.
[d]Data are an overlapping sample.

presenting to ED with suicidal behaviours (Table 4). The types of secondary mental health services and health professionals which people had contact with included psychiatrists, psychologists, psychological counselling, mental health outpatients, group programmes, suicide prevention centre and community mental health services. Half ($n=7$) the studies provided data on mental health service contact within 30 days following ED contact, and of these, on average, 26.2% (range = 20.7–61.1%) had a mental health service contact within this period. Two studies had a 3-month

Table 3. Studies reporting contact with mental health services for older adults 55 years and over.

Study authors	Location	Age (years)	Total sample	Mental health			Follow-up
				Admission	Referral	Contact[a]	
Barr et al.	The United Kingdom	65+	91 people	28.6%	28.6%		
Lin et al.	Taiwan	55+	34 people		55.9%		
Marriott et al.	The United Kingdom	55+	141 ED episodes	25.2%	66.0%	51.8%	N/A
Ruths et al.	The United Kingdom	65+	43 people	14.0%		86.0%	Mean = 789 days, SD = 420
Schmutte et al.	The United States	65+	52,383 ED episodes	62.8%		49.0% of 8244 discharged	1 month

N/A: not available; SD: standard deviation; ED: emergency department.
[a]Percentage is based on proportion of total sample unless stated.

follow-up (see Table 4), with both showing that half the participants had a mental health service contact, and two studies had a 6- to 12-month follow-up. The study by Azcárate-Jiménez et al. (2019) found 78.7% had a mental health contact at 6 months and Majid et al. (2016) reported that 67% of those referred were seen by mental health services within 12 months. Three studies provided information on secondary mental health service contact, but not on the follow-up time period. We compared secondary mental health service contact following an ED presentation for those studies with an observation period prior to 2010 ($n = 9$) with those from 2010 and after ($n = 5$) and found that the average proportion with a mental health service contact increased from 26.8% (range = 20.7–61.1%) to 38.0% (range = 13.0–78.7%).

Mental health admissions and referrals. Thirty-one (66.0%) studies reported on mental health admission from ED in adult/all age participants, with the proportion ranging from 1.9% in Korea to 69.9% in the United States. Excluding the two studies which reported on involuntary mental health admission only, on average, 12.5% were admitted. Examining the seven studies conducted in the United Kingdom separately, the data showed that, on average, the proportion admitted was 5.9% (range = 3.2–12.8%). While in the six studies conducted in Asian countries (Japan, Korea and Taiwan), the average proportion admitted was 20.6% (range = 1.9–36.1%). A total of 29 (61.7%) studies reported on referrals to mental health services after an ED presentation with suicidal behaviours (Table 5). The mental health services and health professionals to which people were referred included suicide prevention clinics, community mental health services, outpatient mental health services, alcohol and drug treatment services, child and adolescent mental health services, hospital in the home, partial hospitalisation and day hospital programmes, case management, crisis services, group psychotherapy, psychiatrists and psychologists. Across these 29 studies, the average proportion referred was 27.1%, and this ranged from 1.7% in China to 85.2% in Brazil. Studies with an observation period from 2010 ($n = 5$) had a higher average proportion referred to mental health services (32.4%; range = 29.6–76.3%) compared to studies conducted prior to 2010 ($n = 15$, 26.5%; range = 5.7–85.2%).

Sex differences in mental health service contact and referrals

Five studies (10.6%) provided data on sex differences and contact with mental health services within 1 month following an ED contact (Bridge et al., 2012; Kim et al., 2020a; Olfson et al., 2012; Rosychuk et al., 2016; Suominen et al., 2004). All five studies showed that, on average, the proportion of women who had a mental health service contact within 4 weeks following an ED presentation (47.3%; range = 24.4–53.6%) was higher than for men (43.0%; range = 20.9–49.8%). Seven studies presented data on referrals by sex (Azcárate-Jiménez et al., 2019; Bolger et al., 2004; Cooper et al., 2006, 2010; Ferreira et al., 2016; Lin et al., 2014; Malakouti et al., 2008). A comparison of males and females referred to secondary mental health services in these studies showed little difference in the average proportion referred (males 30.5% vs females 31.6%) with only two studies showing that the proportion of men referred was higher than for women (Cooper et al., 2010; Malakouti et al., 2008). However, between studies, there was wide variation. The lowest referral rates for both men and women were in the study by Malakouti et al. undertaken in Iran (6.1% and 5.1%, respectively). In contrast, 80% of men and

Table 4. Studies reporting contact with mental health services for adults and people of all ages by length of follow-up time.

Study authors	Location	Age (years)	Total sample	Mental health contact[a]	Follow-up
One-week follow-up					
Nordentoft and Søgaard	Denmark	All ages	223 ED episodes	61.1% of 18 referred to hospital-based services	7 days
Young et al.	Australia	18+	190 episodes	54.2%	7 days
One-month follow-up					
Hunter et al.	Canada	18+	23,140 people	20.7%	1 month
D. Kim et al.	Korea	All ages	674 people	22.7%	1 month
Olfson et al.	The United States	21–64	7355 ED episodes	52.4% of 4595 discharged	1 month
Suominen et al.	Finland	25+	1010 people	26.3%	1 month
Wittouck et al.	Belgium	16+	131 people	47.3%	1 month
Three-month follow-up					
Newman et al.	Canada	16+	1412 people	51.4% of 307 followed-up	3 months
Routhier et al.	Canada	15+	525 people	50.9%	3 months
Six- to twelve-month follow-up					
Azcárate-Jiménez et al.	Spain	18+	207 people	78.7%	6 months
Majid et al.	The United Kingdom	25+	660 people	67.0% of 215 referred (25.1% missing data)	12 months
Follow-up time period not reported					
Lin et al.	Taiwan	All ages	468 people	26.1%	N/A
Marriott et al.	The United Kingdom	16–54	125 ED episodes	32.0%	N/A
Park et al.	Korea	18–65	300 people	13.0%	N/A

N/A: not available; ED: emergency department.
[a]Percentage is based on proportion of total sample unless stated.

85.1% of women in the study by Ferreira et al. conducted in Brazil were referred to mental health services.

Discussion

Rapid and active support and care after a suicide attempt is critically important to reducing the risk of a subsequent suicide attempt (Inagaki et al., 2019; Stanley et al., 2018). This systematic review of 47 studies aimed to determine what proportion of young people, adults and older adults has contact with secondary mental health services following an ED presentation for suicidal behaviours and to examine referrals to mental health treatment services and mental health admissions after discharge from ED. We found that, on average, young people presenting to ED for suicidal behaviours were more likely than adults to have a secondary mental health service contact, to be admitted to hospital and to be referred to mental health services. For older adults, we found there was a paucity of studies ($n=5$), despite evidence that suicide rates in older adults are increasing (Morgan et al., 2018; Wang et al., 2020). Four of the five studies had small sample sizes (less than 150 people or ED episodes), and there were methodological differences across these studies which restricted our ability to make meaningful comparisons. A comparison of studies based on the date of their observation period (prior to 2010 or from 2010 onwards) showed that, on average, studies conducted in the last 10 years had higher proportions referred to and in contact with mental health services than those undertaken prior to 2010. However, we found very few studies in young people or adults who had mental health service contact, admission or referral rates of 50% or more, irrespective of date. These findings suggest the opportunity to provide longer-term mental health treatment

Table 5. Studies reporting on mental health admission and referrals after ED presentation for adults and people of all ages by region.

Study authors	Location	Age (years)	Total sample	Mental health	
				Admission	Referral
Europe					
Azcárate-Jiménez et al.	Spain	18+	207 people	26.1%	43.5%
Baca-García et al.	Spain	18+	509 people	38.5%	39.3%
Fedyszyn et al.	Denmark	10+	11,802 people	16.2%	
Nordentoft and Søgaard	Denmark	All ages	223 ED episodes	20.2%	26.5%
Perquier et al.	France	15+	168 people	49.4%	38.7%
Suominen et al.	Finland	25+	1010 people	25.0%	44.0%
Wittouck et al.	Belgium	16+	131 people	43.5%	61.1%
Zeppegno et al.	Italy	16+	280 people	34.6%	5.7%
The United Kingdom					
Barr et al.	The United Kingdom	16–64	2326 people	10.2%	23.9%
Cooper et al. (2006)	The United Kingdom	15+	7185 people		29.6% (35.0% missing data)
Cooper et al. (2013)	The United Kingdom	18+	7689 ED episodes	7.4%	29.6%
Bennewith et al.			4150 ED episodes	10.2%	
Kapur et al.	The United Kingdom	16+	35,938 people	5.2%	24.8%
Lilley et al.	The United Kingdom	12+	7209 ED episodes	10.5%	41.6%
Majid et al.	The United Kingdom	25+	660 people	1.0%[a]	32.6%
Marriott et al.	The United Kingdom	16–54	125 ED episodes	12.8%	48.0%
Steeg et al.	The United Kingdom	16+	16,456 people	3.2%	19.0%
North America					
Goldberg et al.	The United States	18+	257 people	69.6%	30.0%
Hunter et al.	Canada	18+	23,140 people	25.1%[a]	
McInerney et al.	Canada	All ages	1152 people	9.9%	30.9%
Newman and Bland	Canada	16+	1412 people	17.1%[b]	
Olfson et al.	The United States	21–64	7355 ED episodes	37.5%[b]	
Rhodes et al.	Canada	12–64	16,294 people	22.2%	
Oceania					
Kuehl et al.	New Zealand	All ages	146 ED episodes	15.8%	80.8%
Leckning et al.	Australia	13+	167 people	42.5%	
Young et al.	Australia	18+	190 ED episodes	18.4%[b]	
Asia					
Chihara et al.	Japan	15+	81 people	7.4%	
Kawahara et al.	Japan	12+	405 people	14.0%	76.3%
D. Kim et al.	Korea	All ages	687 people	1.9%	
Kudo et al.	Japan	All ages	1348 people	36.1%	

(Continued)

Table 5. (Continued)

Study authors	Location	Age (years)	Total sample	Mental health	
				Admission	Referral
Lin et al.	Taiwan	All ages	468 people	3.6%	45.1%
Park et al.	Korea	18–65	300 people	26.7%	
Other					
Ferreira et al.	Brazil	All ages	412 people	13.3%	85.2%
Fleischmann et al.	Brazil	All ages	162 people		4.9% (56.2% missing data)
	China	All ages	120 people		1.7%
	Sri Lanka	All ages	1067 people		25.6% (7.8% missing data)
	Vietnam	All ages	301 people		15.0%
	India	All ages	680 people		2.1%
	Iran	All ages	945 people		5.5%
	Estonia	All ages	469 people		45.8% (11.5% missing data)
	South Africa	All ages	570 people		72.6% (14.0% missing data)

ED: emergency department.
[a]Involuntary mental health hospital admission.
[b]General and/or mental health hospital admission.

to people who present to an ED with suicidal behaviours is being missed.

Interventions and strategies implemented in ED such as educating clients and their families about the importance of follow-up care, assisting with making appointments at convenient times, developing rapport and engaging people in treatment decisions may help improve initial attendance and ongoing engagement with mental health services (Asarnow et al., 2011; Kim et al., 2012; Sobolewski et al., 2013). Studies have shown that a prior mental health diagnosis and previous mental health treatment are both positively associated with receiving follow-up mental healthcare after a hospital presentation with suicidal behaviours which may suggest that positive experiences with mental health services may increase the willingness to re-engage with services in the future (Fontanella et al., 2020; Schmutte et al., 2022). Other factors shown to influence peoples willingness to engage with health services include the attitudes of ED healthcare professionals to people with suicidal behaviours, their level of training and their confidence in providing care to people presenting with suicidal thoughts and behaviours (Boukouvalas et al., 2020). Providing ED staff with specialised suicide education and training may translate to higher rates of referral and better mental health outcomes for patients.

The heterogeneity across the studies in this review made it difficult to compare and present the data in a consistent way. For example, the follow-up periods ranged from 7 to 365 days, and contact with mental health services was reported in a variety of ways including as a proportion of those: not admitted to hospital, discharged from hospital, given a referral, followed-up and of the total sample. Some studies included individuals with multiple ED contacts for suicidal behaviours but selected only one contact to be included, and others included each episode of ED care. We also observed a wide range in the contact, referral and admission rates between studies, which could in part be due to the 47 studies being conducted in 23 different countries and the variations in their healthcare systems. This may include differing thresholds for mental health admission, different models of care such as intensive crisis home treatment services, complexity of referral pathways, the availability of mental health aftercare services, including shortages of old age and child/adolescent psychiatrists and access to universal healthcare. Cultural differences may have also impacted the outcomes, with the authors of studies conducted in Asian countries (Chihara et al., 2018; Lin et al., 2014; Malakouti et al., 2008) noting that the stigma associated with mental illness may explain why patients and/or their family members intentionally misreported the intent of the injury, left hospital before receiving care, refused admission and/or referral to mental health treatment services and failed to attend follow-up appointments.

Almost one-third of the studies in this review used health registries or linked administrative health databases

to identify: eligible participants, subsequent hospital admissions and contacts with secondary mental health services. These databases are a valuable tool for health services research, as they are a rich source of population-level data for utilisation of public health services. However, they were designed to collect data for administrative or billing purposes, and few will capture information on the comprehensive range of referral types such as general practitioners (GPs) and full fee-paying services, such as private psychiatrists or psychologists. Researchers need to be aware that this may lead to an underestimation of secondary mental healthcare service referral and contact. The accuracy of International Classification of Disease (ICD) codes from hospital discharge records to identify people with suicidal behaviours from self-injury with no suicidal intent can also present issues (Sveticic et al., 2020). Some studies in this review adopted strategies to minimise the known limitations of administrative databases. For example, Routhier et al. (2012) only included people who attempted suicide and were hospitalised after presenting at ED in an attempt to differentiate suicidal from non-suicidal injuries, while Park et al. (2020) classified a mental health contact as two rather than one outpatient visit, so as to exclude counting people who only attended once to 'obtain medical documents needed for insurance claims' rather than for aftercare.

Strengths and limitations

Several strengths and limitations of this systematic review need to be considered. The wide coverage of studies from low-, middle- and high-income countries make the findings more generalisable. However, as only studies where people who presented to ED were included, the findings may not be generalisable to people with suicidal behaviours who do not seek medical assistance from an ED or are admitted directly to hospital for inpatient care. Only referrals made to mental health services at the time of ED presentation were examined in this review. Consequently, referrals made to mental health services or to a GP after leaving hospital could not be determined. In some countries, ED referrals are made primarily to GPs (Fleischmann et al., 2005), and evidence shows that GPs are highly involved in the care of their suicidal patients (Boffin and Van Casteren, 2018). GPs are often the first health professional seen after a suicide attempt (Younes et al., 2020), and they frequently see people within 1 week of hospital discharge following a suicide-related admission (Gunnell et al., 2002). As most studies only documented if an individual had a health service contact, and not the number or types of health service contacts received, the overall level of support and aftercare people received could also not be determined. Finally, although two researchers independently screened the records, it is possible that relevant studies were excluded or missed in the review process.

Conclusion

This review highlights the high proportion of people, both young and old, who present to ED with suicidal behaviours but are not receiving timely follow-up specialist mental health support and aftercare, despite being at a higher risk of subsequent suicide attempts. We observed that referral to mental health services was generally low; however, this review did not examine the reasons underpinning the low rates of contact with secondary mental health service such as non-attendance. A better understanding of mental health service utilisation after an ED presentation with suicidal behaviours may help identify gaps in services. Crucially, this information could assist in the allocation of resources to facilitate the timely implementation of suicide prevention services.

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Supplemental Material

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