Assessment for self-harm/suicide in persons with priority mental, neurological and substance use disorders [2015]

SCOPING QUESTION: Is there an added value to having health workers ask persons diagnosed with depression, bipolar disorder, schizophrenia, epilepsy, alcohol use disorders, illicit drug use disorders, dementia, children diagnosed with mental disorders, or persons reporting current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss, chronic physical illness or chronic pain and who do not report thoughts, plans or acts of self-harm, about thoughts or plans of self-harm in the last month or acts of self-harm in the last year versus not asking them?

Background

No study exists in the literature that answers directly the scoping question. In order to address the issue of an added value in asking persons diagnosed with or reporting the above conditions about thoughts and acts of self-harm, it was evaluated if there is evidence that thoughts and acts of self-harm are associated with these conditions. The possibility that specific treatment for these conditions reduces suicide risk is addressed in the relevant scoping questions of the priority condition.

Population/Intervention(s)/Comparator/Outcome(s) (PICO)

Population:	adults and children with mental, neurological and substance use conditions as mentioned above, who do not report thoughts, plans or acts of self-harm
Interventions:	health workers asking them about thoughts or plans of self-harm in the last month or acts of self-harm in the last year
Comparisons:	usual care
Outcomes:	lifetime rates of suicide attempts
	number of suicide attempts
	observed number of suicides

frequency of suicide as a cause of death

frequency in people who died by suicide of these conditions

frequency of people with suicide ideation

frequency of people who presented to hospital following a self-harm/suicide attempt with these conditions.

List of the systematic reviews/studies identified by the search process

Search strategy

Pub Med, Medline, Ovid MEDLINE(R), EMBASE, PsycINFO, the Cochrane Central Register of Controlled Trials (CCTR), Cochrane Database of Systematic Reviews (CDSR) databases were searched. Keywords used were “major depression”, “bipolar disorder”, “suicide”, “suicidal behaviour”, "suicide attempt", "suicidal ideation", "thoughts", “self harm”, "deliberate self-harm", “diagnosis”, “association”, “asking”, "screening", “schizophrenia”, epilepsy*, "alcohol" “substance abuse”, “dementia”, “Mental disorders”, "adolescents", "children", “loss”, “bereavement”, “intimate partner violence”, “conflict”, "cancer", "diabetes", "chronic pain", "chronic illness", "HIV/AIDS". All selected titles were screening in order to identify a subset of relevant papers. Another level of selection was performed by screening the abstracts of the papers. Reference lists of relevant papers were also examined.

Inclusion and exclusion criteria

Observational studies, non-systematic reviews, randomized controlled trials, and systematic reviews, in English. No limitation for year of publishing.
Studies published in English language in the last 10-20 years.

Narrative description of the studies that went into the analysis (including a study-by-study table)

Association of depression or bipolar disorder with suicide

Author	Title	Reference	Study design	Description of the study	Results
Gao J et al (2009)	Correlates of historical suicide	Journal of Clinical	Cross-sectional	This study investigated factors associated with suicide attempts in patients with	In a univariate analysis, 41% of 561 patients had at least 1 lifetime suicide attempt. Earlier age of

	attempt in rapid-cycling bipolar disorder: A cross-sectional assessment.	Psychiatry, 70:1032-40.		rapid-cycling bipolar I or II disorder.	depression onset, bipolar I subtype; female sex, unmarried status, and a history of drug use disorder, panic disorder, sexual abuse, and psychosis were associated with significantly higher rates of attempted suicide (all $p < .05$). After considering 31 potential confounding factors in the stepwise logistic regression model (n = 387), any Axis I co-morbidity (OR = 2.68, p = .0219), female sex (OR = 2.11, p = .0005), psychosis during depression (OR = 1.84, p = .0167), bipolar I subtype (OR = 1.83, p = .0074), and history of drug abuse (OR = 1.62, p = .0317) were independent predictors for increased risk of attempted suicide. Bipolar I subtype (p = .0302) was associated with increased numbers of suicide attempts by 166%.
Chen YW, Dilsaver SC (1996)	Lifetime rates of suicide attempts among subjects with bipolar and unipolar disorders relative to subjects with other Axis I disorders	Biological Psychiatry, 39:896-9.	Observational	The study determined the lifetime rate of suicide attempts among 801 subjects with unipolar depression in comparison with 168 subjects with bipolar disorder and 5697 subjects with other Axis I psychiatric diagnoses.	The lifetime rates of suicide attempts of persons with bipolar disorder, unipolar depression and other psychiatric disorders were 29.2%, 15.9%, and 4.2%, respectively. The odds ratio of subjects with bipolar disorder having a history of a suicide attempt relative to subjects in the control group was 6.2 (df 1, x(2) = 5347.2, $p < .0001$). The odds ratio of subjects with unipolar disorder having a history of a suicide attempt relative to subjects in the control group was 3.1 (df = 1, X2 = 4785.2, $p < .0001$).
Beautrais AL et al (1996)	Prevalence and co-morbidity of mental disorders in persons making	American Journal of Psychiatry, 153:1009-	Observational	The study compared the prevalence and co-morbidity patterns of psychiatric disorders in subjects making medically serious suicide	Of those who made serious suicide attempts, 90.1% had a mental disorder at the time of the attempt. Multiple logistic regression showed that those who made suicide attempts had high rates of mood

	serious suicide attempts: a case-control study.	14.		attempts and in comparison subjects	disorders (odds ratio = 33.4, 95% confidence interval = 21.9-1.2).
Bostwick JM, Pankratz VS (2000)	Affective disorders and suicide risk: a re-examination.	American Journal of Psychiatry, 157:1925-32.	Meta-analysis	Studies that included data pertaining to suicide occurrence in affective illness were sorted into the three groups' outpatients, inpatients or suicidal inpatients. Suicide risks were calculated meta-analytically for these three groups as well as for two previously published collections.	Patients with affective disorders suffer a higher risk of suicide relative to the general population. The estimate of the lifetime prevalence of suicide in those ever hospitalized for suicidality was 8.6%.
Wulsin LR, Vaillant GE, Wells VE (1999)	A systematic review of the mortality of depression.	Psychosomatic Medicine, 61:6-17.	Systematic review	Review of studies that included formal assessment of depressive symptoms or disorders, death rates or risks, and an appropriate comparison group.	Depression substantially increases the risk of suicide death.
Arsenault-Lapierre G, Kim C, Turecki G (2004)	Psychiatric diagnoses in 3275 suicides: a meta-analysis.	BMC Psychiatry, 37:1-11.	Meta-analysis	Review of studies in which psychological autopsy studies of suicide completers were performed.	On average, 43.2% of suicide cases were diagnosed with any affective disorder, including depressive and bipolar disorders.
Laughren T (2006)	Clinical review: relationship between Antidepressant drugs and suicidality in adults	FDA Memorandum. http://www.fda.gov/ohrms/dockets/ac/06/briefing/2006-4272b1-01-fda.pdf	Review	FDA memorandum on relationship between antidepressant treatment and suicidal behaviour	The review considered 372 trials of adult subjects from 11 modern antidepressants to estimate the effect of the antidepressant drugs versus placebos on suicidal outcomes. There appears to be marginal support that the drugs might have a protective effect on the overall adult population.

Möller HJ (2006a)	Evidence for beneficial effects of antidepressants on suicidality in depressive patients: a systematic review.	European Archives of Psychiatry and Clinical Neuroscience, 256:329-43.	Review	Review on the medical literature on positive effects of antidepressants on suicidality.	Altogether, there seems to be reasonable evidence from different research approaches that antidepressants are able to reduce suicidal ideation and also suicidal behaviour in depressive patients. While the evidence for the beneficial effect on suicidal ideation comes from randomized control group studies, some of which used a placebo arm, the evidence for the prophylactic effect on suicidal behaviour, especially suicide, was primarily obtained from well-designed epidemiological studies. This might counterbalance the positive effect of antidepressants on depressive symptoms and suicidality.	
Möller HJ (2006b)	Is there evidence for negative effects of antidepressants on suicidality in depressive patients? A systematic review.	European Archives of Psychiatry and Clinical Neuroscience, 256:476-96.	Review	Review on the medical literature on negative effects of antidepressants on suicidality.	Altogether, there seems to be only a small amount of evidence from different research approaches that antidepressants, not only serotonin reuptake inhibitors (SSRIs), might induce, aggravate or increase the risk of suicidal ideation and suicide attempts. As to suicide, there are no hints in this direction. The ongoing discussion about suicidality-inducing effects should not prevent physicians from prescribing SSRIs and other antidepressants to their patients if they are clinically indicated.	
Gilbert AM, Garno JL, Braga RJ, Shaya Y, Goldberg TE, Malhotra	Clinical and cognitive correlates of suicide attempts in bipolar disorder: is suicide	Journal of Clinical Psychiatry, 72(8):1027-33	Cross-sectional	Retrospective investigation of potential clinical, demographic, and neuropsychological risk factors for suicide attempts in patients diagnosed with bipolar disorder.	Non-attempters reported significantly higher trait impulsivity scores on the Barratt Impulsiveness Scale compared to attempters, and among attempters, lower trait impulsivity score was associated with higher scores of lethality of prior attempts. Analyses revealed no other group differences on demographic, clinical, or neurocognitive variables when comparing attempters versus nonattempters.	

AK, Burdick KE (2011)	predictable?					
Garcia-Amador M, Colom F, Valenti M, Horga G, Vieta E (2009)	Suicide Risk in Rapid Cycling Bipolar Patients	Journal of Affective Disorders, 117:74-78	Cross-sectional	Three hundred and five patients (n=305) were included in a naturalistic, systematic prospective study in a single site setting. Fifty-five patients (18%) were classified as rapid-cycling (RC), whilst 250 (82%) were considered as non-rapid-cycling (NRC). The two groups were compared regarding clinical and socio-demographic variables, paying special attention to suicidal features.	Altogether, the number of suicide attempts was significantly higher amongst RC. Nonetheless, no significant differences were found between RC and NRC regarding the percentage of suicide attempters. On the other hand patients that presented RC showed a marked increase of lifetime history of suicidal ideation. Finally, there were not any differences between RC patients and NRC in family history of suicide.	
Pompili M, Gonda X, Serafini G, Innamorati M, Sher L, Amore M, Rihmer Z, Girardi P (2013)	Epidemiology of suicide in bipolar disorders: a systematic review of the literature	Bipolar Disorders, 15: 457-490	Review	Review of studies published between 1980 and 2011 that reported epidemiological data about completed suicide in patients with BD.	The main finding of the present review was that the risk for suicide among BD patients was up to 20–30 times greater than that for the general population.	
SaÅLnchez-Gistau V, Colom F, ManeÅL	Atypical Depression is Associated with suicide attempt in Bipolar Disorder	Acta Psychiatrica Scandinavica, 120:30-	Observational	The association between suicide attempt and atypical depression, in addition to other major risk factors, was evaluated in 390 bipolar I and II out-patients. History of suicide attempt was obtained through interviews with patients and relatives.	Attempters showed significantly higher rates of atypical depression, family history of completed suicide, depression at index episode and cluster B personality disorder	

A, Romero S, Sugranyes G, Vieta E (2009).		36		Attempters and non-attempters were compared using univariate and multivariate analysis.	
Hawton K, Comabella C, Haw C,Saunders K (2013)	Risk Factors for Suicide in Individuals with Depression: A Systematic Review	Journal of Affective Disorders, 147:17-28	Review	Systematic review of the international literature, which identified cohort and case-control studies of people with depression in which suicide was an outcome.	Factors significantly associated with suicide were: male gender, family history of psychiatric disorder, previous attempted suicide, more severe depression, and comorbid disorders, including anxiety and misuse of alcohol and drugs.

Association of schizophrenia with suicide

Authors	Title	Reference	Results
Harris EC, Barraclough B (1998)	Excess mortality of mental disorder.	British Journal of Psychiatry, 173:11-53.	The authors estimated the suicide risk of common mental disorders. 38 papers reported over a population of over 30000 subjects with schizophrenia. Combining the studies gave a mean risk of suicide in schizophrenia 8.5 times higher than expected, with a variation between studies of 0.8-115 times.
Palmer BA, Pankratz S, Bostwick JM (2005)	The lifetime risk of suicide in schizophrenia: a re-examination.	Archives of General Psychiatry, 62:247-53.	The authors evaluated lifetime suicide prevalence estimates from published cohorts of schizophrenic patients from 1966 until 2005, identifying 61 relevant reports on a total population of 48176 schizophrenic subjects. Only studies that

			observed a cohort of schizophrenic patients for at least 2 years, with at least 90% follow-up, and reported suicides were included in the meta-analysis. The estimate of lifetime suicide prevalence in those observed from first admission or illness onset was 5.6%
Saha S, Chant D, McGrath J (2007)	A systematic review of mortality in schizophrenia: is the differential mortality gap worsening over time?	Archives of General Psychiatry, 64:1123-31.	The authors explored the distribution of standardized mortality ratios (SMRs) for people with schizophrenia. Population-based studies that reported primary data on deaths in people with schizophrenia were selected and 37 studies that provided data on 561 SMRs of deaths drawn from 25 different countries for different causes were identified. Of the specific-cause SMRs, suicide was associated with the highest estimate: 12 times greater than expected from the general population.
Hennen J, Baldessarini RJ (2005)	Suicidal risk during treatment with clozapine: a meta-analysis.	Schizophrenia Research, 73:139-45.	The authors evaluated published studies with contrasting rates of suicides or attempts by psychotic patients treated with clozapine vs. other agents. Among six such studies, random-effects meta-analysis indicated a substantially lower overall risk of suicidal behaviours with clozapine vs. other treatments.
Hor K, Taylor M (2010)	Suicide and Schizophrenia: A Systematic Review of Rates and Risk Factors	Journal of Psychopharmacology, 24(11):81-90	The authors conducted a systematic review of all original studies concerning suicide in schizophrenia published since 2004. Consensus on the lifetime risk of suicide was approximately 5%. Risk factors with a strong association with later suicide included being young, male, and with a high level of education. Number of prior suicide attempts, depressive symptoms, active hallucinations and delusions, and the presence of insight all had a strong evidential basis. A family history of suicide, and comorbid substance misuse

			were also positively associated with later suicide
Cohen C, Abdallah CC, Diwan S (2010)	Suicide attempts and Associated Factors In Older Adults with Schizophrenia	Journal of Schizophrenia Research, 119: 253-257	Authors studied the prevalence of suicidality and factors associated with previous suicide attempts among a mixed racial sample of older persons with schizophrenia living in New York City. Persons in the schizophrenia group had a significantly higher prevalence of current and lifetime suicidality when compared to the community as well as past suicidal attempts. Within the schizophrenia group, current syndromal depression and higher scores on the Traumatic and Victimization Scale were significantly associated with lifetime suicidal attempts.

Association of epilepsy with suicide

Authors	Title	Reference	Main results
Kanner AM (2009)	Suicidality and epilepsy: A complex relationship that remains misunderstood and underestimated.	Epilepsy currents, 9:63-6.	Suicidality more frequent in people with epilepsy than in general population (up to 5 fold); around 11% deaths in epilepsy are due to suicidality; a suicide attempt increases the chance of later completed suicide by 38%; risk of suicide behaviour increased also by psychiatric co-morbid disorders; certain AED (i.e. levetiracetam) unsystematically linked to suicidality in epilepsy

Bell GS et al (2009)	Suicide in people with epilepsy: How great is the risk?	Epilepsia, 50:1933-42.	Risk of suicidality increased in most populations of people with different types of epilepsy (in particular in people with newly diagnosed epilepsy, people with prevalent epilepsy, persons with temporal lobe epilepsy and temporal lobe excision); risk of suicide also increased by psychiatric co-morbidity; however, risk is lower in people with epilepsy and developmental disability
Hara E et al (2009)	Suicide attempts in adult patients with idiopathic generalized epilepsy.	Psychiatry and Clinical Neurosciences, 63:225-9.	Suicide attempts made without direct relation to epilepsy seizures; patients with epilepsy have had at least one co-morbid mental disorder; epilepsy patients all appeared to have emotional instability and poor impulse control; physicians should be aware of suicide risk when treating epilepsy patients
Verrotti A et al (2008)	Epilepsy and suicide: pathogenesis, risk factors, and prevention.	Neuropsychiatric Disease and Treatment, 4:365-70.	Epilepsy patients have a stronger risk of committing suicide than healthy controls; some kind of epilepsy have a higher risk of suicide than other forms of epilepsy (e.g. temporal lobe epilepsy); among other risk factors are surgery (in comparison to pharmacological treatment increases the suicide risk five fold), absence of seizures for a long time, psychiatric co-morbidity.

Meador KJ (2008)	Suicide in patients with epilepsy.	Epilepsy Currents, 8:40-2.	Increased risk of suicide in epilepsy is modified by psychiatric, demographic and socioeconomic factors; a special vulnerable group are people with newly diagnosed epilepsy.
Okubadejo NU et al (2007)	Prospective case-control study of interictal depression and suicidal ideation in Nigerians with epilepsy.	Nigerian Postgraduate Medical Journal, 14:204-8.	Suicidal ideation and depression in people with epilepsy in developing countries are under recognized and undertreated; while depression in more prevalent in people with epilepsy than in controls, suicidal ideation scores were similar for depressed persons with epilepsy and depressed normal controls but higher in controls with depression; duration of epilepsy is significantly related to depression.
Mainio A et al (2007)	Depression and suicide in epileptic victims: a population-based study of suicide victims during the years 1988-2002 in northern Finland.	Epilepsy Behaviour, 11:389-93.	Hospital treated epilepsy occurred in 1.3% of all suicide victims in northern Finland during the years 1988-2002;compared with other suicide victims, those with epilepsy were more often female, older and had more often depression; epilepsy in average diagnosed 8 yrs before suicide while depression about 1 year after epilepsy; diagnosis and treatment of depression in epilepsy patient important for suicide prevention

Bell GS, Sander JW (2007)	Suicide risk in epilepsy: where do we stand?	Lancet Neurology, 6:666-7.	People with epilepsy, who commit suicide, have a history of psychiatric illness; suicide can occur in people with longstanding seizures and dysphoric disorder shortly after full control of their seizures is achieved. Preventive measures should bet taken when treating epilepsy patients with psychiatric co-morbidity
Christensen J et al (2007)	Epilepsy and risk of suicide: a population-based case-control study.	Lancet Neurology, 6:693-8.	Suicide risk in epilepsy patients modified by psychiatric, demographic and sociodemographic factors; 2.32% individuals who committed suicide had epilepsy compared to only 0.74% controls, corresponding to three times higher risk; the highest risk of suicide was in patients with epilepsy and co-morbid psychiatric disorders; in people with epilepsy the risk of suicide was highest during the first half year of diagnosis; people with newly diagnosed epilepsy are a vulnerable group
Kalinin VV (2007)	Suicidality and antiepileptic drugs: is there a link?	Drug Safety, 30:123-42.	Suicide risk in epilepsy patients 5-fold higher than in the general population, while in temporal lobe epilepsy and complex partial seizures it is approximately 25-fold higher; depression and cognitive impairment main risk factors for suicide in epilepsy patients; certain epilepsy drugs linked to increased/decreased risk of suicidal behaviour according to their

			serrotonergic properties
Pompili M, Girardi P, Tatarelli R (2006)	Death from suicide versus mortality from epilepsy in the epilepsies: a meta-analysis.	Epilepsy Behaviour, 9:641-8.	32,5% of deaths of persons with epilepsy are due to suicide and at least 13,5% of all registered suicides are committed by epilepsy patients (results refer to metanalysis of 30 studies comprising 51 216 people)
Kalinin VV, Polyanskiy DA (2005b)	Gender and suicidality prediction in epilepsy.	Epilepsy Behaviour, 7:657-63.	Gender is an important factor of suicidality prediction; a more precise prediction of suicide risk is possible for male epilepsy patients because of better differentiation of suicide grades in males than in females
Kalinin VV, Polyanskiy DA (2005a)	Gender differences in risk factors of suicidal behaviour in epilepsy.	Epilepsy Behaviour, 6:424-9.	The risk of suicide attempts was higher in epilepsy with concomitant diagnoses of organic affective disorders and cognitive impairment; risk was higher among females than males; early age of epilepsy onset and high frequency of secondary generalized, simple partial, and all seizures were risk factors for suicide in males, whereas low frequency of complex partial seizures was the risk factor in females; daily does of classic AED was a risk factor for males, daily dose of phenobarbital was a risk factor for both genders; in women daily does of valporate is inversely correlated with suicide behaviour but not so in men.

Jones JE et al (2003)	Rates and risk factors for suicide, suicidal ideation, and suicide attempts in chronic epilepsy.	Epilepsy Behaviour, 4(Suppl 3):S31-8.	Suicide rate among epilepsy patients is approx 12% compared with 1.1.-1.2% in the general population; also elevated among epilepsy patients is the risk of suicide att.
Blumer D et al (2002)	Suicide in epilepsy: psychopathology, pathogenesis, and prevention.	Epilepsy Behaviour, 3:232-41.	5 suicides were registered among epilepsy patients in a 12 year period in Memphis - all in patients with longstanding partial seizures and dysphoric disorder a short time after full control of the seizures was achieved; suicide tends to occur among patients with chronic epilepsy who have obtained good control of their seizures;
Fukuchi T et al (2002)	Death in epilepsy with special attention to suicide cases.	Epilepsy Research, 51:233-6.	Temporal lobe epilepsy is most closely associated with death among epilepsy patients; most suicides in epilepsy are results of an immediate causal relationship with ictal or interictal epilepsy manifestations rather than a result of a longstanding handicap derived form the severe illness.
Nilsson L et al (2002)	Risk factors for suicide in epilepsy: a case control study.	Epilepsia, 43:644-51.	A 9-fold increase in risk of suicide with mental illness and a 10-fold increase in relative risk with the use of antipsychotic drugs was identified on a Swedish sample of epilepsy patients; the relative risk of suicide was 16.0 for onset of epilepsy at younger than 18 years, compared with onset after 29 years; the suicide risk increased with

			seizure frequency; epilepsy patients with early onset of the illness are at greater risk for suicide behaviour
Hesdorffer DC, Ishihara L, Mynepalli L, Webb DJ, Weil J, Hauser WA (2012)	Epilepsy, Suicidality, and Psychiatric Disorders: A Bidirectional Association	Annals of Neurology, 72:184-191	The authors studied whether psychiatric disorders associated with suicide are more common in incident epilepsy than in matched controls without epilepsy, before and after epilepsy diagnosis. They conducted a matched, longitudinal cohort study in the UK General Practice Research Database. The study found that epilepsy is associated with an increased onset of psychiatric disorders and suicide before and after epilepsy diagnosis.
Buljan R, Santic AM (2011)	Suicide attempts in hospital-treated epilepsy patients.	Acta Clin Croat, 50(4):485-490	Authors aimed to identify the causes of suicidal behavior in epileptics. The study included patients suffering from epilepsy treated at a hospital. Based on medical history, patients having attempted suicide were allocated to the experimental group and those without a history of suicidal attempt in the control group. Results showed that poor family atmosphere and psychiatric comorbidity had a significant role in suicidal behaviour.

Association of alcohol use disorders with suicide

Authors	Title	Reference	Country	Major findings

Lejoyeux M et al (2008)	Characteristics of suicide attempts preceded by alcohol consumption.	Archives of Suicide Research, 12:30-8.	France	Alcohol dependence was found in more than half of the subjects with completed suicide
Park E (2008)	The influencing factors on suicide attempt among adolescents in South Korea.	Journal of Korean Academy of Nursing, 38:465-73.	Korea	Alcohol abuse as a significant risk factor associated with completed suicide
Pérez-Olmos I et al (2008)	Factors associated with suicide attempts and persistent suicidal ideation at a Primary Care Unit in Bogotá, 2004-2006.	Revista de Salud Publica (Bogota), 10:374-85.	Colombia	Suicide attempts associated with a previous use of alcohol
Hawton K et al (2007)	Self-harm in England: a tale of three cities. Multicentre study of self-harm.	Social Psychiatry and Psychiatric Epidemiology, 42:513-21.	UK	Alcohol was involved in more than half (54.9%) of assessed episode of self-harm
Galaif ER et al (2007)	Suicidality, depression, and alcohol use among adolescents: a review of empirical findings.	International Journal of Adolescent Medicine and Health, 19:27-35.	Developed countries	Alcohol use and depression are the most important risk factors in attempted and completed suicide
Hong Y et al (2007)	Correlates of suicidal ideation and attempt among female sex workers in China.	Health Care for Women International, 28:490-505.	China	Female sex workers who abused alcohol were more likely to report suicidal ideation
Li YM (2007)	Deliberate self-harm and relationship to alcohol use at an emergency department in eastern Taiwan.	Kaohsiung Journal of Medical Sciences, 23:247-53.	Taiwan	Half of the cases of deliberate self-harm were associated with alcohol use
Nojomi M et al	A predictor model for suicide attempt: evidence	Archives of Iranian	Iran	Lifelong use of alcohol as an independent

(2007)	from a population-based study.	Medicine, 10:452-8.		predictor of suicide attempt
Palacio C et al (2007)	Identification of suicide risk factors in Medellin, Colombia: a case-control study of psychological autopsy in a developing country.	Archives of Suicide Research, 11:297-308.	Colombia	Alcohol use disorders were reported in 43% of suicides
Razvodovsky YE (2007)	Suicide and alcohol psychoses in Belarus 1970-2005.	Crisis, 28:61-6.	Belarus	Positive association between alcohol use and suicide, influenced by binge drinking
Rossow I et al (2007)	Cross-national comparisons of the association between alcohol consumption and deliberate self-harm in adolescents.	Suicide and Life Threatening Behaviour, 37:605-15.	Developed countries	In adolescents the risk of self-harm is associated with episodes of intoxication
Akechi T et al (2006)	Alcohol consumption and suicide among middle-aged men in Japan.	British Journal of Psychiatry, 188:231-6.	Japan	Risk of suicide increased with the amount of ethanol consumed
Brady J (2006)	The association between alcohol misuse and suicidal behaviour.	Alcohol and Alcoholism, 41:473-8.	Developed countries	Alcohol misuse predisposes to suicidal behaviour
Kolves K et al (2006)	The role of alcohol in suicide: a case-control psychological autopsy study.	Psychological Medicine, 36:923-30.	Estonia	Alcohol abuse and dependence was significantly more prevalent among suicides than controls
Measey ML et al (2006)	Suicide in the Northern Territory, 1981-2002.	Medical Journal of Australia, 185:315-9.	Northern Territory - Australia	Alcohol misuse was found in 72% of suicide cases
Pridemore WA, Chamlin MB (2006)	A time-series analysis of the impact of heavy drinking on homicide and suicide mortality in Russia, 1956-2002.	Addiction, 101:1719-29.	Russia	Positive and significant association between alcohol misuse and suicide

Sher L (2006)	Risk and protective factors for suicide in patients with alcoholism.	ScientificWorldJournal, 6:1405-11.	Developed countries	Alcoholism is associated with a considerable risk of suicidal behaviour
Thanh H et al (2006)	Life time suicidal thoughts in an urban community in Hanoi, Vietnam.	BMC Public Health, 6:76.	Vietnam	Suicidal thoughts are associated with alcohol use
Van der Hoek W, Konradsen F (2005)	Risk factors for acute pesticide poisoning in Sri Lanka.	Tropical Medicine and International Health, 10:589-96.	Sri Lanka	Alcohol dependence was an import risk factor for completed suicide
Borges G et al (2004)	A case-crossover study of acute alcohol use and suicide attempt.	Journal of Studies on Alcohol, 65:708-14.	USA, Canada, Mexico, Australia	A positive association was found between alcohol use 6 hours prior and suicide attempts
Pirkola SP, Suominen K, Isometsa ET (2004)	Suicide in alcohol-dependent individuals: epidemiology and management.	CNS Drugs, 18:423-36.	Developed countries	Alcohol dependence increases the risk of suicide and attempted suicide
Wilcox HC, Conner KR, Caine ED (2004)	Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies.	Drug and Alcohol Dependence. 76(Suppl 1):S11-9.	Developed countries	Alcohol use disorders are associated with completed suicide, predominantly in women
Thomas M, Morten H (2012)	Suicide behavior in parents with alcohol abuse problems and suicide behavior in their offspring-Adult offspring and counselor perspectives.	Nordic Journal of Psychiatry, 66:343-348	Denmark	There was a significant association between adult children of alcoholics (ACAs) whose parents had committed suicide and ACAs who had attempted suicide during their childhood. There was also a significant association between ACAs where both parents had suicide behavior and ACA childhood suicide behavior.
Branas CC,	Acute Alcohol Consumption, Alcohol Outlets, and	Journal of Substance	USA	Acute alcohol consumption was statistically associated with a significantly higher risk of

Richmond TS, Have T, Wiebe DJ (2011)	Gun Suicide	Use and Misuse, 46:1592-1602		intentionally self-inflicted gun injury and gun suicide.
Razvodovsky Y (2012)	Alcohol Consumption and Suicide in Belarus	Journal of European Psychiatry, 27:1	Belarus	Alcohol consumption is significantly associated with both male and female suicide rates.
Morin J, Wiktorsson S, Marlow T, Olesen P, Skoog I (2013)	Alcohol Use Disorder in Elderly Suicide Attempters: A Comparison Study	American Journal of Geriatric Psychiatry, 21.2:196-203	Sweden	A strong association between Alcohol Use Disorder (AUD) and hospital-treated suicide attempts was noted in both sexes.
Boenisch S, Bramesfeld A, Mergl R, Havers I, Althaus D, Lehfeld H, Niklewski G, Hegerl U (2010)	The role of alcohol use disorder and alcohol consumption in suicide attempts–A secondary analysis of 1921 suicide attempts	Journal of European Psychiatry, 25(7):414-420	Germany	Individuals with a diagnosis of alcohol use disorder, especially men, are a high-risk group for multiple suicide attempts.
Zhang Y, Conner K, Phillips M (2010)	Alcohol use disorders and acute alcohol use preceding suicide in China	Journal of Addictive Behaviors, 35 (2): 152-156	China	Compared with suicides unrelated to alcohol, those with an alcohol use disorder were more likely to have made previous suicide attempts.
Razvodovky Y (2009)	Suicide and fatal alcohol poisoning in Russia, 1956–2005	Journal of Drugs: Education, Prevention and Policy, 16(2): 127-139	Russia	There is a statistically significant positive association between alcohol and suicide at an aggregate level.

Association of Illicit drug use disorders with suicide

Authors	Title	Reference	Main Findings
Sarchiapone M et al (2009)	Risk factors for attempting suicide in prisoners.	Suicide and Life Threatening Behaviour, 39:343-50.	Substance abuse is a risk factor for suicidal behaviour among prisoners.
Yoshimasu K et al (2008)	The Stress Research Group of the Japanese Society for Hygiene. Suicidal risk factors and completed suicide: meta-analyses based on psychological autopsy studies.	Environmental Health and Preventive Medicine, 13:243-56.	Substance-related disorders and mood disorders were strongly associated with an increased risk of completed suicide. The co-morbidity of these two disorders should be paid a maximum attention.
Pompili M et al (2009)	Substance abuse, temperament and suicide risk: evidence from a case-control study.	Journal of Addictive Diseases, 28:13-20.	Substance abusers had a different temperament profile (higher dysthymic/cyclothymic/ anxiety and irritability and lower hyperthymic traits), a higher hopelessness, global psychopathology severity, impulsivity/aggression, and suicide risk (higher lifetime suicide ideation and suicide attempts), and were more frequently depressed.
Schneider B et al (2009)	Substance use disorders as risk factors for suicide in an Eastern and a Central European city (Tallinn and Frankfurt/Main).	Psychiatry Research, 165:263-72.	Substance use disorders were significantly associated with suicide. The highest risk was observed among men with substance use disorders,

			aged 35 to 59 years.
Roy A (2009)	Characteristics of cocaine dependent patients who attempt suicide.	Archives of Suicide Research, 13:46-51.	The results suggest that attempting suicide is common among cocaine dependent patients and that both distal and proximal risk factors play a significant role.
Ramchand R et al (2008)	A prospective investigation of suicide ideation, attempts, and use of mental health service among adolescents in substance abuse treatment.	Psychology of Addictive Behaviours, 22:524-32.	The findings emphasize a high prevalence of suicide risk behaviour in substance abuse treatment programs and provide insight into the specialized treatment youth in substance abuse treatment at risk for suicide currently receive
Tamar-Gurol D et al (2008)	Childhood emotional abuse, dissociation, and suicidality among patients with drug dependency in Turkey.	Psychiatry and Clinical Neurosciences, 62:540-7.	History of suicide attempt and/or childhood emotional abuse was significant predictors of a dissociative disorder. The majority (59.3%) of dissociative drug users reported that dissociative experiences had existed prior to substance use.
Elizabeth Sublette M et al (2009)	Substance use disorders and suicide attempts in bipolar subtypes.	Journal of Psychiatric Research, 43:230-8.	The higher suicide attempt rate associated with drug use disorders in bipolar patients was collectively explained by higher impulsivity, hostility, and aggression scores. The presence of both alcohol and drug use disorders increased odds of a history of suicide attempt in a multiplicative fashion: 97% of bipolar patients who had both co-morbid

			drug and alcohol use disorders had made a suicide attempt.
Brådvik L et al (2007)	Heroin addicts reporting previous heroin overdoses also report suicide attempts.	Suicide and Life-Threatening Behaviour, 37:475-81.	The sample in the present study consisted of 149 regular heroin users in Malmö, Sweden. Out of these 98 had taken an unintentional heroin overdose at some time and 51 had made at least one attempt to commit suicide (but not using heroin). Suicide attempts were significantly more common among those who had taken unintentional overdoses as compared with those who had never taken any overdose ($p < 0.01$). The more overdoses, the greater the risk of suicide attempt.
Maloney E et al (2007)	Suicidal behaviour and associated risk factors among opioid-dependent individuals: a case-control study.	Addiction, 102:1933-41.	A total of 726 opioid-dependent cases and 399 non-opioid-dependent controls, matched on age, sex and employment status were studied. Cases had significantly higher life-time prevalence of suicidal thoughts (66% versus 55%), suicide attempts (31% versus 20%) and multiple attempts (19% versus 11%) compared to controls. Cases were significantly more likely to indicate a severe intent to die (63% versus 43%). Both cases and controls who had attempted suicide were significantly more likely than others to suffer from substance use and psychological disorders, as well as childhood maltreatment.
Darke S et al (2005)	Attempted suicide among heroin users: 12-month outcomes from the	Drug and Alcohol Dependence, 78:177-86.	Independent predictors of a suicide attempt in a sample of 495 heroin

	Australian Treatment Outcome Study (ATOS).		users were social isolation, having made an attempt in the preceding 12 months, suicidal ideation at baseline, a greater number of treatment episodes and higher levels of baseline polydrug use.
Wu P et al (2004)	Substance use, suicidal ideation and attempts in children and adolescents.	Suicide and Life-Threatening Behaviour, 34:408-20.	Using data from a community sample of youth (N = 1,458; ages 9-17), this study assessed the association between adolescent substance use/abuse and suicidal behaviours. Suicide attempts were strongly associated with alcohol and drug abuse and dependence, followed by frequent cigarette smoking. The associations remained significant even after controlling for depression. The associations between substance use/abuse and suicidal ideation were no longer significant after controlling for depression.
Wilcox HC, Conner KR, Caine ED (2004)	Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies.	Drug and Alcohol Dependence, 76(Suppl 1):S11-9.	A meta-analysis, of retrospective and prospective cohort studies of alcohol and drug use disorders and suicide. The estimated standardized mortality ratios (SMR; 95% confidence interval) for suicide were as follows: alcohol use disorder (979; 95% CI 898-1065; $p < 0.001$), opioid use disorder (1351; 95% CI 1047-1715; $p < 0.001$),

			intravenous drug use (1373; 95% CI 1029-1796; p < 0.001), mixed drug use (1685; 95% CI 1473-1920; p < 0.001), heavy drinking (351; 95% CI 251-478; p < 0.001).
Pompili M, Serafini G,Innamorati M, Biondi M, Siracusano A, Giannantonio M Giupponi G, Amore M, Lester D, Girardi P, Mo¨ller-Leimku¨hler A (2012)	Substance abuse and suicide risk among adolescents	European Archives of Psychiatry and Clinical Neuroscience, 262:469-485	This literature review study supports the existence of a strong relationship between suicide and substance abuse in adolescents.

Association of dementia with suicide

Author	Title	Reference	Study design	Description of the study	Results
Haw C, Harwood D, Hawton K (2009)	Dementia and suicidal behaviour: a review of the literature.	International Psychogeriatrics, 21:440-53.	Review 128 papers	The review aimed to describe current knowledge about epidemiology and risk factors for self-harm, suicidal ideation and suicide in people with dementia. The paper also examined evidence associating self-harm and suicidal behaviours with inherited dementias.	The review considered a total of 128 papers. Overall, the existing research suggests that the rate of suicide in the dementia population is lower than that found in the general population. This finding was consistent across different study designs, including studies which used a sensitive method to detect cognitive impairment (e.g. psychological autopsy studies). Rates of self-harm may be increased in mild dementia.
Seyfried L, Kales HC, Ignacio RV, Conwell Y,	Predictors of suicide in	Journal of Alzheimer's and Dementia,	Retrospective cohort study	This national, retrospective, cohort study used data from the Department of Veterans Affairs (fiscal years 2001–2005). The sample included patients over 60 years old diagnosed with dementia of	Increased risk of suicide was associated with white race, depression, a history of inpatient psychiatric hospitalizations, and prescription fills of or anxiolytics. Nursing home admission was associated with lower suicide risk. Severity of

Valenstein M (2011)	patients with dementia	7(6): 567-573		which 241 committed suicide. Potential predictors of suicide were identified using logistic regression.	medical comorbidity did not affect risk of suicide. Sensitivity analysis indicated that the majority of suicides occurred in those who were newly diagnosed with dementia.
Sabodash V, Mendez MF, Fong S, Hsiao JJ (2013)	Suicidal Behavior in Dementia: A Special Risk in Semantic Dementia	American Journal of Alzheimer's Disease & Other Dementia, 28(6), 592-599	Epidemiological study	The authors reviewed the presence of active suicidal behavior and related factors among 25 patients with semantic dementia compared to 111 age-matched patients with early-onset Alzheimer's disease.	There was significantly more depression and greater premorbid history of suicidal behavior among the patients with semantic dementia (SD) compared to those with Alzheimer's disease (AD). Among the patients with SD, those with suicidal behavior, compared to those without, had more depression and greater insight into their deficits.

Children diagnosed with mental disorders and suicide

Author	**Title**	**Reference**	**Description of the study and results**
Gould MS et al (2005)	Evaluating iatrogenic risk of youth suicide screening programs.	Journal of the American Medical Association, 2005, 293:1635-43.	The researchers conducted a randomized controlled study within the context of a 2-day screening strategy on high school students. Half of the students were randomized to receive questions about suicidal ideation and behaviour in the first screening survey. The other half did not receive these questions until a second screening survey 2 days later. There was no evidence of an iatrogenic effect of asking about suicide. Neither distress nor suicidality increased among the entire population of surveyed students or high risk students who were asked about suicidal ideation or behaviour. On the contrary, the findings suggested that asking about suicidal ideation or behaviour may have been beneficial for students with depression symptoms or previous suicide attempts.

Gould MS et al (2006)	Youth Suicide: A Review.	The Prevention Researcher, 13:3-7.	A Psychological autopsy study of youth who completed suicide which found that the vast majority had significant psychiatric problems before the suicidal act. The review which compared profiles of suicide attempters to suicide ideators without attempts concluded that psychiatric problems of youth suicide attempters are quite similar to the profiles of those who complete suicide. For example, depression predicts suicide ideation, but not suicide plans or attempts among those with ideation which shows that the clinical profiles of attempters and ideators are somewhat distinct. Disorders characterized by severe anxiety/agitation (for example, post-traumatic stress disorder) and poor impulse control (e.g. conduct disorder, substance abuse) predict which suicide ideators will go on to make a plan or attempt. Interestingly, substance abuse was found to be more strongly associated with suicide attempts than with ideation. The marked increase in depression and substance abuse from early to late adolescents, paralleling the age differential in suicide rates, suggest that the increase in completed suicide with age may result from the increase in the rates of these psychiatric disorders.
Muehlenkamp JJ, Gutierrez PM (2007)	Risk for suicide attempted among adolescents who engage in non-suicidal self-injury.	Archives of Suicide Research, 11:69-82.	This study indicated that in youth, self harm without suicide intent and suicide attempts seems to represent a continuum of adolescent self injury behaviour, and research shows that the two problematic behaviours share the same potential risk factors.
Larsson B, Sund AM (2008)	Prevalence, course, incidence, and 1-Year prediction of deliberate self harm and suicide attempts in early Norwegian school adolescents.	Suicide and Life-Threatening Behaviour, 38:152-65.	In this study the researchers found that about two thirds of the adolescents who had repeated self-harm also reported suicide intent, a higher proportion for those having attempted suicide.
Tuisku V et al	Suicidal ideation, DSH	European Child and Adolescent Psychiatry,	This study indicated that while depressive disorders are among the most powerful predictors of suicidal ideation and suicide attempts in adolescents, the risk of suicidal

(2006)	behaviour and suicide attempts among adolescent outpatients with depressive mood disorders and co-morbid axis 1 disorders.	15:199-206.	ideation and suicide attempts further increases when depression is co-morbid with disruptive behaviour, Substance abuse and anxiety
Cash SJ, Bridge JA. (2009)	Epidemiology of youth suicide and suicidal behavior	Current Opinion in Pediatrics, 21(5): 613-619.	This review focuses on recent developments in our understanding of the epidemiology and established and emerging risk factors of youth suicide and suicidal behavior. The review explores the relationships between psychopathology, substance use, child abuse, bullying, internet use, and youth suicidal behavior.
Lahti A, Rasanen P, Riala K, Keranen S, Hakko H. (2011)	Youth suicide trends in Finland, 1969–2008	Journal of Child Psychology and Psychiatry 52 (9): 984-991	The authors explore trends in rates and methods of suicide among young people in Finland, where suicide rates at these ages are among the highest in the world. The male-to-female ratio in youth suicides was 3.6:1. Shooting was the most common suicide method among males throughout the period, while hanging exceeded poisoning as the most common method among females after 1990. All violent suicides decreased for males and increased for females in 1990– 2008.
Hill R, Castellanos D, Pettit J. (2011)	Suicide-related behaviors and anxiety in children and adolescents: A review	Clinical Psychology Review, 31: 1133-1144	This paper reviews empirical evidence of the association between suicide-related behaviors and anxiety among children and adolescents. Authors found that there is consistent evidence for a significant association between anxiety and suicide-related behaviors.
Hawton K, Saunders KE, O'Connor R (2012)	Self-harm and suicide in adolescents	The Lancet, 379 (9834): 2372-2382	This review outlined Important contributors to self-harm and suicide including genetic vulnerability and psychiatric, psychological, familial, social, and cultural factors. The study also emphasized the significance of the effects of media and contagion, with the internet having an important contemporary role.

Current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss and suicide

Authors	Title	Reference	Study Description
Ahmadi A et al (2009)	Familial risk factors for self-immolation: a case-control study.	Journal of Women's Health (Larchmt), 18:1025-31.	Case-control study of 30 consecutive cases of deliberate self-inflicted burns admitted to the regional Burn Centre (Imam Khomeini hospital in Kermanshah province, Iran) compared with 30 controls selected from the community and matched by sex, age, and living area. Marital conflict with the spouse and conflict with other members of the family are risk factors for self-immolation.
Shahid M, Hyder AA (2008)	Deliberate self-harm and suicide: a review from Pakistan.	International Journal of Injury Control and Safety Promotion, 15:233-41.	A systematic review of 23 studies conducted to identify risk factors and causes of deliberate self-harm and suicide in Pakistan The most common reported cause for suicide and deliberate self-harm was interpersonal conflict.
Phillips MR et al (2002)	Risk factors for suicide in China: a national case-control psychological autopsy study.	Lancet, 360:1728-36.	Cross-.sectional study of 519 people who committed suicide and of 536 people who died from other injuries (controls) randomly selected from 23 geographically representative sites in China. After adjustment for sex, age, location of residence, and research site, eight significant predictors of suicide remained in the final unconditional logistic regression model. In order of importance they were: high depression symptom score, previous suicide attempt, acute stress at time of death, low quality of life, high chronic stress, severe interpersonal conflict in the 2 days before death, a blood relative with previous suicidal behaviour, and a friend or associate with previous suicidal behaviour.
Olson L et al (1999)	Guns, alcohol, and intimate	Crisis, 20:121-6.	Review of all reports from the New Mexico Office of the

	partner violence: the epidemiology of female suicide in New Mexico.		Medical Investigator for female suicide deaths occurring in New Mexico from 1990 to 1994. Intimate partner violence was documented in 5.1% of female suicide deaths; in an additional 22.1% of cases, a male intimate partner fought with or separated from the decedent immediately preceding the suicide.
Bhugra D et al (1999)	Attempted suicide in west London, II. Inter-group comparisons.	Psychological Medicine, 29:1131-9.	Study on 27 Asian women who had presented to hospital services following attempted suicide (Asian group) who were matched with a group of similar age Asian women attending GP surgeries for other reasons (Asian GP attenders group). Asian attempters were more likely to have had experienced life events pertaining to relationships.
Brent D et al (2009)	The incidence and course of depression in bereaved youth 21 months after the loss of a parent to suicide, accident, or sudden natural death.	American Journal of Psychiatry, 166:786-94.	Study on 176 offspring, ages 7-25, of parents who died by suicide, accident, or sudden natural death. They were assessed 9 and 21 months after the death, along with 168 non-bereaved subjects. Losing a mother, blaming others, low self-esteem, negative coping, and complicated grief were associated with depression and suicide.
Ajdacic-Gross V et al (2008)	Suicide after bereavement: an overlooked problem.	Psychological Medicine, 38:673-6.	Analysis of data extracted from Swiss mortality statistics for the period 1987-2005. The time between bereavement and subsequent death, specifically by suicide, was determined by linkage of individual records of married persons. The suicide rates and the standardized mortality ratios in the first week/month/year of widowhood were calculated based on person-year calculations. The suicide risk of widowed persons is increased in the days, weeks and months after bereavement.
Erlangsen A et al (2004)	Loss of partner and suicide risks among oldest old: a population-based register study.	Age and Ageing, 33:378-83.	Population-based register study on the entire Danish population aged 50 during 1994-1998 (n = 1,978,527). The majority of older persons who commit suicide are widowed, although only a relatively small proportion of the oldest old who commit suicide have experienced a recent loss of partner. There is a significant increase in the suicide risk during the first year after bereavement, especially for men.

Reviere SL et al (2007)	Intimate partner violence and suicidality in low-income African American women: a multi-method assessment of coping factors.	Violence Against Women., 13:1113-29.	This study used quantitative and qualitative methods to examine psychological factors that influence links between intimate partner violence (IPV) and suicidality in a sample of low-income African American women. Quantitative results demonstrated greater general coping, more efficacious behavioural strategies in response to IPV, more effective use of resources, greater use of social support, and less substance use among women who did not attempt suicide compared with those who did.
Weaver TL et al (2007)	Mediators of suicidal ideation within a sheltered sample of raped and battered women.	Health Care for Women International, 28:478-89.	Fifty women were recruited from a regional shelter setting for battered women in a Midwestern city in the United States. Fifty-eight percent had experienced intimate partner rape. More than one-third of the sample confirmed experiencing suicidal ideation at least "some of the time" within the past week. Experiencing intimate partner rape was significantly associated with suicidal ideation and symptoms of post-traumatic stress disorder (PTSD) and depression.
Thompson MP, Kaslow NJ, Kingree JB (2002)	Risk factors for suicide attempts among African American women experiencing recent intimate partner violence.	Violence and Victims, 2002, 17:283-95.	The purposes of this study were to identify risk factors for suicide attempts among 200 African American abused women. Results revealed that attempters were significantly more likely than non-attempters to report high levels of depressive symptoms, hopelessness, drug abuse, and childhood abuse and neglect.
Hawton K, Simkin S (2003)	Helping people bereaved by suicide: their needs may require special attention.	Bereavement Care, 22: 41–2.	Although the effects of suicide bereavement are not necessarily more severe than bereavement following other causes of death, there are certain aspects such as stigmatization and a sense of rejection that may make coping particularly difficult.
Foster T (2011)	Adverse Life Events Proximal to Adult Suicide: A Synthesis of Findings from Psychological Autopsy Studies	Archives of Suicide Research, 15 (1): 1-15	Review of major psychological autopsy studies to summarize and interpret data about adverse life events proximal to adult suicide. Authors found that nearly all suicides have experienced at least 1 (usually more) adverse life event within 1 year of death (concentrated in last few months). Controlled studies have revealed specific life events, notably

			interpersonal conflict, as risk factors for suicide with some evidence of a dose-response effect.
Devries K, Mak J, Bacchus L, Child J, Falder G, Petzold M, Astbury J, Watts C (2013)	Intimate Partner Violence and Incident Depressive Symptoms and Suicide Attempts: A Systematic Review of Longitudinal Studies	PLOS Medicine, 5:1-11	Systematic review and meta-analysis of longitudinal studies published before February 1, 2013 which examined physical and/or sexual intimate partner or dating violence and symptoms of depression, diagnosed major depressive disorder, dysthymia, mild depression, or suicide attempts. Authors found that in women, IPV was associated with incident depressive symptoms, and depressive symptoms with incident IPV. IPV was also associated with incident suicide attempts.
Kerr DC, Capaldi DM (2010)	Young men's intimate partner violence and relationship functioning: long-term outcomes associated with suicide attempt and aggression in adolescence	Journal of Psychological Medicine, 41:759-769	In this longitudinal study, authors found that adolescent aggression was correlated with suicide-attempt history. With few exceptions, aggression and a suicide attempt in adolescence each predicted negative romantic relationship outcomes after controlling for measured confounds. Adolescent aggression predicted young adulthood aggression toward a partner, in part, via relationship dissatisfaction.
Mironova P, Rhodes AE, Bethell J, Tonmyr L, Boyle MH, Wekerle C, Goodman D, Leslie B (2011)	Childhood physical abuse and suicide-related behavior: A systematic review	Vulnerable Children and Youth Studies, 6 (1): 1-7	Systematic review of school- and population-based studies in children and youth which investigated how shared environment with perpetrator(s) identified as a family member or parent/parental figure or an adult at home contribute to the association between childhood physical abuse and suicidal behavior. The association was statistically significant in each study, and when examined the association was independent of childhood sexual abuse and other factors.
Spokas M, Wenzel A, Stirman SW, Brown GK, Beck AT (2009)	Suicide Risk Factors and Mediators Between Childhood Sexual Abuse and Suicide Ideation Among Male and Female Suicide Attempters	Journal of Traumatic Stress, 22 (5): 467-470	This study examined the manner in which childhood sexual abuse (CSA) history relates to risk factors for suicidal behavior among recent suicide attempters. Men who recently attempted suicide and endorsed a CSA history had higher scores on measures of hopelessness and suicide ideation than men without a CSA history. Men with a CSA history were also more likely to have made multiple suicide

			attempts and meet diagnostic criteria for posttraumatic stress disorder and borderline personality disorder. In contrast, there were fewer group differences as a function of CSA history among the female suicide attempters. Hopelessness was a significant mediator between CSA history and suicide ideation in both men and women.

Association of chronic physical illness or chronic pain with suicide

Table 1. Study type, population, cancer and suicidal behaviour

Authors	Title	Reference	Study type	Results
Bellini M, Capannini D (1994).	Increased suicide risk in cancer patients.	Minerva Psichiatrica,35:175-86.	Systematic review	Literature review showed a consensus of significant correlations in particular the first 1-2 years after diagnosis
Chatton-Reith J et al (1990).	The risk of suicide in cancer patients derived from a cancer registry.	Revue D'Epidemiologie et de Sante Publique, 38:125-31.	Cohort study	Significant association found. SMR for suicide was highest 2 years following diagnosis then decreased
Levi F, Bulliard JL, La Vecchia C (1991).	Suicide risk among incident cases of cancer in the Swiss Canton of Vaud.	Oncology, 48:44-7.	Cohort study	Significant association found. SMR for suicide highest during 1st year after diagnosis, then decreased
Storm HH, Christensen N, Jensen OM (1992).	Suicides among Danish patients with cancer: 1971 to 1986.	Cancer, 69:1507-12.	Cohort study	Significant association found. RR was most significant during the first 2 years after diagnosis. Brain and nervous system and with cancer of the lung, stomach, rectum, and kidney; high risks were found among male patients only after a diagnosis of lymphoma or pancreatic cancer. The risk of suicide increased significantly in more recent years.
Allebeck P, Bolung C, Ringback G (1989).	Increased suicide rate in cancer patients. A cohort study based on the Swedish Cancer-Environment Register.	Journal of Clinical Epidemiology, 42:611-6.	Cohort study	Significant association found. SMR for suicide was highest during 1st year after diagnosis. No substantial association with site of tumour.
Crocetti E et al (1998).	High suicide mortality soon after diagnosis among cancer patients in	British Journal of Cancer, 77:1194-6.	Cohort study	Significant association was found and highest during first 6 months after diagnosis. SMR = 2.36

	central Italy.			
Tanaka H et al (1999).	Suicide risk among cancer patients: experience at one medical centre in Japan, 1978-1994.	Japanese Journal of Cancer Research, 90:812-7.	Cohort study	Significant association found. Highest suicide rates found during 3rd and 5th months after diagnosis, but up to 5 years, then decreases after 5 years
Druss B, Pincus H (2000).	Suicidal ideation and suicide attempts in general medical illnesses.	Archives of Internal Medicine, 160:1522-6.	Cohort study	Significant association found. 4-fold increased risk.
Innos K et al (2003).	Suicides among cancer patients in Estonia: a population-based study.	European Journal of Cancer, 39:2223-8.	Cohort Study	Significant association was found in men and highest for cancer of the oesophagus and pancreas. No association was found among women.
Hem E et al (2004).	Suicide risk in cancer patients from 1960 to 1999.	Journal of Clinical Oncology, 22:4209-16.	Cohort Study	Significant association found in both male and female: (SMRs) of 1.55 (95% CI, 1.41 to 1.71) and 1.35 (95% CI, 1.17 to 1.56). Highest was among males with respiratory cancer. Risk was highest first months of diagnosis and decreased over time.
Bjorkenstam C et al (2005).	Are cancer patients at higher suicide risk than the general population?	Scandinavian Journal of Public Health, 33:208-14.	Cohort Study	Significant association was found.
Nasseri K, Mills PK, Mirshahidi H, Moulton L (2012)	Suicide in Cancer Patients in California, 1997–2006	Archives of Suicide Research, 16(4): 324-333.	Cohort study	Suicide in cancer patients is significantly higher than in the general population In men, it rapidly increases by age to a high plateau in the early forties. Metastatic cancers and those of the prostate, lung and bronchus, pancreas, stomach, esophagus, and oral cavity in men and breast in women were associated with significantly higher risk.
Alanee S, Russo P (2012)	Suicide in men with testis cancer	European Journal of Cancer Care, 21: 817–821	Cohort study	Patients with testis cancer have a significant increase in the risk of suicide over that of the general population, and races other than White and Black and younger patients may commit suicide at higher rates.
Anguiano L, Mayer DK, Piven ML,	A Literature Review of Suicide in Cancer Patients	Journal of Cancer Nursing, 35 (4)	Review	The incidence of suicide in someone with a cancer diagnosis is approximately double the incidence of suicide in the general population. Specific diagnoses

Rosenstein D (2012)				associated with higher suicide rates include prostate, lung, pancreatic, and head and neck cancers.
Mahdi H, Swensen RE, Munkarah A, Chiang S, Lockhart D, Kumar S (2011)	Suicide in women with gynaecologic cancer	Journal of Gynecologic Oncology, 122 (2): 344-349	Cohort study	Patients with gynaecologic cancer have an increased suicide risk when compared to the general population. The highest suicide rates were observed in patients with ovarian cancer and within the first year following diagnosis. Suicide risk was associated with younger age at diagnosis, high-grade disease and absence of surgical intervention.
Lu D, Fall K, Sparen P, Ye W, Adami H, Vladimarsdotti U, Fang F (2013)	Suicide and suicide attempt after a cancer diagnosis among young individuals	Annals of Oncology, 24 (12): 3112-3117	Cohort	Adolescents and young adults receiving a cancer diagnosis are at substantially increased risk of suicidal behaviour, particularly during the first year after diagnosis.

Abbreviation: RCT randomized controlled trial.
*Oxford Centre for Evidence Based Medicine, levels of evidence: 1A, systematic review of RCTs; 1B, individual RCT; 2A, systematic review of cohort studies; 2B, individual cohort study, low-quality RCT; 2C, ecological studies; 3A, systematic review of case-control studies; 3B, individual case-control study; 4, case series, poor-quality cohort and case-control studies

Table 2. Study type, population, diabetes and suicidal behaviour

Authors	**Title**	**Reference**	**Population**	**Study type**	**Results**
Goldston DB et al (1994).	Suicidal ideation and suicide attempts among youth with insulin-dependent diabetes mellitus.	Journal of the American Academy of Child and Adolescent Psychiatry, 33:240-6.	95 children aged 8-13 years with IDDM.	Longitudinal study	Significant associations were found in particular during the onset of diabetes.
Kyvik KO et al (1994).	Suicides in men with IDDM.	Diabetes Care, 17;210-2.	1,682 men with IDDM in Denmark.	Cohort study	Significant association was found. SMR = 2.98 among men aged 20-24 years.
Isakov E et al (1992).	Self-injury resulting in amputation among vascular	Disability and	164 nontraumatic vascular	Retrospectiv e case-	High significant association between DSH and diabetes.

	patients: a retrospective epidemiological study.	Rehabilitation, 14:78-80.	amputees; 120 (73%) were diabetic and 44 (27%) non-diabetic.	control study	
Fuller-Thomson E, Sawyer JL (2009).	Lifetime prevalence of suicidal ideation in a representative sample of Canadians with type 1 diabetes.	Diabetes Research and Clinical Practice, 83:e9-11.	132,221 respondents in the general population in Canada	Case-control study	Significant association was found with suicide ideation: OR = 1.61 (95% CI = 1.08, 2.42)
Goldston DB et al (1997).	Suicidal ideation and behaviour and noncompliance with the medical regimen among diabetic adolescents.	Journal of the American Academy of Child and Adolescent Psychiatry, 36:1528-36.	91 adolescents with IDDM in the US	Cross-sectional study	Significant association was found for suicide ideation. There was no significant association with suicide attempts.
Goodwin RD et al (2002).	Diabetes and suicidal ideation among youth in the community.	Archives of Pediatrics and Adolescent Medicine, 156:841.	1295 adolescents with type 1 diabetes in the US	Cross-sectional study	Significant association was found with suicide ideation: adjusted OR, 6.8; 95% CI, 1.1-42.1
Löfman, S (2012)	Characteristics of suicide among diabetes patients: a population based study of suicide victims in Northern Finland	Journal of psychosomatic research, 73(4): 268	2489 suicides (2030 men, 459 women) in Northern Finland; Suicide victims with hospital-treated type 1	Case-controlled study	Significant association was found for suicide ideation. Depression was more common in suicide victims with diabetes than in those without diabetes. Also substance abuse was common especially among type 1 diabetics. Self-poisoning, especially with insulin, was more common in diabetics.

			(*n* = 27) or type 2 diabetes (*n* = 51) were compared with those without diabetes (*n* = 2411).		
Myers AK, Grannemann BD, Lingvay I, Trivedi MH (2013)	Brief Report: Depression and history of suicide attempts in adults with new-onset Type 2 Diabetes	Psychoneuroendocrinology, 38:2810-2814	145 outpatients from diabetes education classes aged 18 or over with a self-reported diagnosis of Type 2 Diabetes	Cross-sectional study	Significant association was found for suicide ideation. In patients with newly-diagnosed Type 2 Diabetes the rate of past suicide attempts was nearly twice the rate seen in the general population.

Abbreviation: RCT, randomized controlled trial.
*Oxford Centre for Evidence Based Medicine, levels of evidence: 1A, systematic review of RCTs; 1B, individual RCT; 2A, systematic review of cohort studies; 2B, individual cohort study, low-quality RCT; 2C, ecological studies; 3A, systematic review of case-control studies; 3B, individual case-control study; 4, case series, poor-quality cohort and case-control studies

Table 3. Study type, population, chronic pain and suicidal behaviour

Authors	**Title**	**References**	**Study type**	**Results**
Fishbain DA (1999).	The association of chronic pain and suicide.	Seminars in Clinical Neuropsychiatry, 4:221-7.	Systematic review	The review found that studies show that CPP populations are at significant increased risk for suicide ideation, attempts and completion.
Ratcliffe E et al (2008).	Chronic pain conditions and suicidal ideation and suicide attempts: an epidemiologic perspective.	Clinical Journal of Pain, 24:204-10.	Cohort Study	Significant associations were found for suicide ideation and suicide attempts.
Woolley SB et al (2008).	Headache complaints and the risk of suicidal thoughts or behaviours.	Journal of Nervous and Mental Disease, 196:822-8.	Cohort study	Significant association was found with suicide thoughts/behaviour: adjusted odds ratio (ORa) = 1.48; 95% confidence interval (CI) = 1.04, 2.11]
Kikuchi N et al (2009).	Pain and risk of completed suicide in Japanese men: a population-based cohort study in Japan (Ohsaki Cohort Study).	Journal of Pain and Symptom Management, 37:316-24.	Cohort Study	Significant associations with completed suicide were found. The risk increased with pain severity: 1.36 (0.67-2.75), 2.11 (1.02-4.33), and 2.93 (1.34-6.42) for

				no pain, mild pain, and severe pain, respectively.
Tang NKY, Crane C (2006).	Suicidality in chronic pain: a review of the prevalence, risk factors and psychological links.	Psychological Medicine, 36:575-86.	Systematic review	The review found a consensus in the studies reviewed significant associations.
Breslau N, Davis GC, Andreski P (1991).	Migraine, psychiatric disorders, and suicide attempts: an epidemiologic study of young adults.	Psychiatry Research, 37:11-23.	Case-control study	Significant association with suicide attempts was found: OR = 3.0 (95% confidence interval, 1.4-6.6) for migraine with aura
Fisher BJ et al (2001).	Suicidal intent in patients with chronic pain.	Pain, 89:199-206.	Case-control study	Significant association found with suicide ideation, but a stronger correlation was found with depression
Edwards RR et al (2006).	Pain-related catastrophizing as a risk factor for suicidal ideation in chronic pain.	Pain, 126:272-9.	Cross-sectional study	Significant association was found with suicide ideation.
Stenager E, Christiansen E, Handberg G, Jensen B (2013).	Suicide attempts in chronic pain patients: A register-based study	Scandinavian Journal of Pain, 5(1):4-7	Cohort study	Significant association was found with suicide attempts.
Kanzler KE, Bryan CJ, McGeary DD, Morrow CE (2012)	Suicidal ideation and perceived burdensomeness in patients with chronic pain	Pain Practice, 12(8):602-609	Retrospective study	Significant association was found with suicide ideation. Perceived burdensomeness was the sole predictor of SI, even in the presence of other well-established risk factors such as age, gender, depressive symptoms, and pain severity.
Okifuji A, Benham B (2011)	Suicidal and self-harm behaviors in chronic pain patients	Journal of Applied Biobehavioral Research, 16(2):57-77	Cohort study	Significant association was found with past attempt of suicide and self-harm and current suicidal ideation
Tilburg M, Spence NJ, Whitehead WE, Bangdiwala S, Goldston DB (2011)	Chronic Pain in Adolescents Is Associated With Suicidal Thoughts and Behaviours	Pain, 12(10):1032-1039	Cohort study	Adolescents who suffer from chronic pain are at increased risk for suicide ideation and attempt. Depressive symptoms account for the link between chronic pain and suicide attempt, but do not completely explain why adolescents with chronic pain show suicide ideation.

Abbreviation: RCT, randomized controlled trial.
*Oxford Centre for Evidence Based Medicine, levels of evidence: 1A, systematic review of RCTs; 1B, individual RCT; 2A, systematic review of cohort studies; 2B, individual cohort study, low-quality RCT; 2C, ecological studies; 3A, systematic review of case-control studies; 3B, individual case-control study; 4, case series, poor-quality cohort and case-control studies

Table 4. Study type, population, HIV/AIDS and suicidal behaviour

Authors	**Title**	**Reference**	**Study type**	**Results**
Beckett A, Shenson D (1993).	Suicide risk in patients with human immunodeficiency virus infection and acquired immunodeficiency syndrome.	Harvard Review of Psychiatry, 1:27-35.	Systematic Review	Significant correlations were found between suicide completion, attempts and ideation and HIV/AIDS. Higher suicidality rates were found among HIV/AIDS patients than the general population.
Komiti A et al (2001).	Suicidal behaviour in people with HIV/AIDS: a review.	Australian and New Zealand Journal of Psychiatry, 35:747-57.	Systematic Review	Literature shows positive correlations with HIV/AIDS and DHS/suicide ideation, attempts and completion, but underlines other factors that are present along with HIV particularly substance abuse. Due to methodological problems it is difficult to compare studies and find consensus
Quintana-Ortiz RA et al (2008).	Suicide attempts among Puerto Rican men and women with HIV/AIDS: a study of prevalence and risk factors.	Ethnicity and Disease, 18(2 Suppl 2):S2-219-24.	A retrospective cohort study	The findings showed a positive correlation between HIV and suicide attempts. Men had higher rates than women.
Jin H et al (2006).	Depression and suicidality in HIV/AIDS in China.	Journal of Affective Disorders, 94:269-75.	Case-control study	Higher rates of suicidality were found among the HIV+ cases.
Kelly B et al (1998).	Suicidal ideation, suicide attempts, and HIV infection.	Psychosomatics, 39:405-15.	Cross-sectional study	The findings indicate increased levels of suicidal ideation in symptomatic HIV-positive men and highlight the role that multiple psychosocial factors associated with suicidal ideation and attempted suicide play in this population. No significant correlation was found for suicide attempts
Carrico AW et al (2007).	Correlates of suicidal ideation among HIV-positive persons.	AIDS, 21:1199-203.	Cross-sectional study	Positive association was found. Independent correlates also associated with the increase risk of suicide ideation among HIV positive persons.

Davis SJ, Koch SD, Mbugua A, Johnson A (2011).	Recognizing suicide risk in consumers with HIV/AIDS	Journal of Rehabilitation, 77(1):14-19	Cross-sectional study	The findings showed a positive correlation between HIV and suicide risk. Depressive symptoms and low life satisfaction were significantly associated with suicide risk.
Keiser O, Spoerri A, Brinkhoff M, Hasse B, Gayet-Agaron A (2010).	Suicide in HIV-Infected Individuals and the General Population in Switzerland, 1988-2008	American Journal of Psychiatry, 167(2):143-150	Cross-sectional study	The findings showed a positive correlation between HIV and suicide risk. Suicide rates tended to be higher in older patients, in men, in injection drug users, and in patients with advanced clinical stage of HIV illness.
Catalan J, Harding R, Sibley E, Clucas C, Croome N, Sherr L (2011).	HIV infection and mental health: Suicidal behaviour – Systematic review	Journal of Psychology, Health and Medicine, 16(5):588-611.	Systematic Review	The findings indicated that suicidality was clearly present in many forms among HIV-positive individuals both before and after HIV diagnosis. This was elevated for HIV-positive groups when compared to HIV negative groups and it was higher in those with specific histories such as drug use, previous abuse and illness staging
Jia CX, Mehlum L, Qin P (2012).	AIDS/HIV infection, comorbid psychiatric illness, and risk for subsequent suicide: a nationwide register linkage study.	Journal of Clinical Psychiatry, 73(10):1315-1321.	Cohort study	Findings should that suicide risk is increased in individuals with AIDS/HIV infection, particularly those with a recent diagnosis, more intensive and frequent hospital care, or comorbid psychiatric illness.

Abbreviation: RCT, randomized controlled trial.
*Oxford Centre for Evidence Based Medicine, levels of evidence: 1A, systematic review of RCTs; 1B, individual RCT; 2A, systematic review of cohort studies; 2B, individual cohort study, low-quality RCT; 2C, ecological studies; 3A, systematic review of case-control studies; 3B, individual case-control study; 4, case series, poor-quality cohort and case-control studies

Methodological limitations

Depression or bipolar disorder: Several studies are present in the medical literature about the association of suicidal behaviour with depression and other mood disorders. The evidence is well established, the main methodological limitations remaining the absence of systematic reviews and meta-analyses on this specific issue.

Schizophrenia: Several studies are present in the medical literature about the association of suicidal behaviour with schizophrenia. The evidence is well established, the main methodological limitations remaining the absence of systematic reviews and meta-analyses on this specific issue.

Epilepsy: Several studies are present in the medical literature about the association of suicidal behaviour, including completed suicide with epilepsy. The evidence is well established, the main methodological limitations remaining the absence of systematic reviews and meta-analyses on this specific issue.

Alcohol use disorders: Several methodological limitations exist in all studies. No systematic reviews with formal meta-analysis have been published. However the existing evidence allows to establish a strong association between alcohol abuse and/or dependence and suicidal behaviour.

Illicit drug use disorders: Several methodological limitations exist in all studies. No systematic reviews with formal meta-analysis have been published. However the existing evidence allows to establish an association between illicit drug useand suicidal behaviour.

Dementia: Many studies did not distinguish between dementia and other organic disorders or cognitive impairment, and did not use standardized or sensitive tools to screen for mild dementia. Many of the studies were conducted with a small sample size.

Children diagnosed with mental disorders: Quality of evidence is low. No systematic reviews of the evidence with formal meta-analysis are available.

Current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss: Several studies are present in the medical literature about the association of suicidal behaviour with loss, interpersonal conflict and intimate partner violence. The evidence is well established, the main methodological limitations remaining the absence of systematic reviews and meta-analyses on this specific issue. Another methodological limitation is in the definition of the examined conditions.

Chronic physical illness or chronic pain: There are little to no studies conducted on suicidal behaviour and chronic illness as a whole, rather more specifically focusing on a particular chronic illness of interest (e.g. cancer). Therefore, this review had to analyze the literature on selected chronic illnesses which

constitutes a limitation for a comparison analyses. Literature substantiates that chronic illness is indeed associated with suicidal behaviour. This evidence is well established, but the main methodological limitations remaining are the absence of systematic reviews and meta-analyses on chronic illness.

Directness (in terms of population, outcome, intervention and comparator)

Depression or bipolar disorder: No studies provide a direct answer to the scoping question. The studied populations mainly comprise depressed and bipolar patients and appear sufficiently homogeneous. The association between major depression and suicide and between bipolar disorder and suicide has been directly established in several cohorts.
The issue of the relationship between antidepressant treatment of patients with depression and suicidality is still very controversial. The evidence globally suggests that antidepressants might have a protective effect towards suicide in adult populations, even though some studies point to an increased risk of suicide. However, the trials do not directly establish the effect of antidepressant treatment on suicide; the outcome events were not collected explicitly in the trials and all results derive from post-hoc analyses using the available data. Also, there are no trials that specifically study the population of suicidal patients diagnosed with depression and antidepressant treatment. Thus, the directness is lower, but it is the best evidence we have.
There is evidence that antidepressant treatment reduces depression and therefore, despite the lack of direct studies focusing on suicidal patients and antidepressant treatment, it can be assumed that it has a positive effect on diminishing suicidality in adults.

Schizophrenia: No studies provide a direct answer to the scoping question. The studied populations mainly comprise psychotic patients and appear sufficiently homogeneous. The association between schizophrenia and suicide has been directly established in several cohorts. Evidence suggests that treatment with clozapine reduces suicide risk in suicidal schizophrenic patients.

Epilepsy: No studies provide a direct answer to the scoping question. The studied populations mainly comprise epileptic patients and appear sufficiently homogeneous. The association between epilepsy and suicide has been directly established in several cohorts. Indirect results exist about an increase of suicidal risk in epileptic patients with co-morbid psychiatric disorders. The influence of antiepileptic treatment on suicidal risk is not clear and the results debated.

Alcohol use disorders: Existing studies don't provide a direct answer to the scoping question. However the well-established existence of an association between alcohol abuse and/or dependence and suicidal behaviour, allows an answer to the scoping question. There is lack of evidence for treatment of **suicidal** patients with alcohol use disorders. However, there is evidence for treatment of patients with alcohol use disorders which is described in the priority condition Alcohol use disorders. We can assume that effective treatment for alcohol use disorders has a positive effect on diminishing suicidal behaviours.

Illicit drug use disorders: Existing studies don't provide a direct answer to the scoping question. However the well-established existence of an association between drug abuse or dependence and suicidal behaviour, allows a positive answer to the scoping question. There is lack of evidence for treatment of **suicidal**

patients with illicit drug use disorders. However, there is evidence for treatment of patients with illicit drug use disorders which is described in the priority condition illicit drug use disorders. We can assume that effective treatment for illicit drug use disorders has a positive effect on diminishing suicidal behaviours.

Dementia: No studies provided a direct answer to the scoping question. The majority of studies which examined the rates of dementia in people who died by suicide indicated that the suicide rate is lower in people with dementia than the general population. However, the evidence suggests that self-harm behaviours, suicidal ideation and suicide attempts are associated with mild cognitive impairment. Due to lack of research in the area and methodological limitations, it is difficult to draw conclusions as to whether there is an association between dementia and suicidal behaviours. High-quality prospective and longitudinal studies are needed to enhance knowledge in this area. There is lack of evidence for treatment of **suicidal** patients with dementia. However there is evidence for treatment of patients with dementia which is described in the priority condition Dementia. We can assume that effective treatment for dementia has a positive effect on diminishing suicidal behaviours.

Children diagnosed with mental disorders: The evidence does not directly answer the scoping question. There is one study on the effects of screening for suicidal risk in the general population of adolescents in school.

Current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss: No studies provide a direct answer to the scoping questions. The association between current loss, interpersonal conflict, intimate partner violence and suicide has been directly established in several studies.

Chronic physical illness or chronic pain: The literature does not provide a direct answer to the scoping question. The study populations mostly comprised of patients of the particular chronic illness in question and focus on the direct correlation to suicidal behaviours. The literature reports an association between chronic illness and suicidal behaviours.
The medical literature overwhelmingly substantiates that cancer is associated with completed suicide and there is a consensus for this. Other studies conducted on the topic have also shown a relationship between cancer and DHS, suicide ideation and suicide attempts, although there is no consensus reached on this claim in the literature. Research studies report diabetes is correlated with suicidal ideation, but is short of reaching a consensus on DHS and completed suicide, although several studies have found positive associations. Chronic pain is reported in the literature to be positively correlated with suicide completion, attempt and ideation. HIV/AIDS is positively related to suicidal ideation, DHS, attempt and completion.
There are no studies conducted on treatment or interventions for persons with chronic illness and suicidal behaviour.
Based on the evidence we do have, there appears to be directness between chronic illness and suicidal behaviour, which often proceed soon after diagnosis of the disease.

Narrative conclusion

Depression or bipolar disorder: There is evidence in the literature that depressive disorders and bipolar disorder are associated with suicidal ideation and suicide attempts. No formal meta-analysis has established the link.
Schizophrenia: There is evidence in the literature that Schizophrenia is associated with suicidal ideation and suicide attempts. No formal meta-analysis has established the link. Specific treatment for suicidal patients with schizophrenia is available.

Epilepsy: There is evidence in the literature that epilepsy is associated with suicidal ideation, suicide attempts and completed suicide. No formal meta-analysis has established the link. The evidence suggests that the association is mediated by the presence of co-morbid psychiatric disorders.

Alcohol use disorders: There is strong evidence in the literature that alcohol abuse and/or dependence are associated with suicidal ideation, suicide attempts and completed suicide. The literature suggests that alcohol use disorders can be considered as an important risk factor for suicide. It has been reported that lifetime mortality due to suicide in alcohol dependence is as high as 18%. In addition, it has been reported that co-morbidity with other psychiatric disorders increases suicidal risk. The data about an association between alcohol use disorders and suicide are confirmed by reports in developing countries.

Illicit drug use disorders: There is strong evidence in the literature that drug abuse and/or dependence is associated with suicidal behaviour. The literature suggests that substance abuse and dependence can be considered as an important risk factor for suicide. Many studies have been performed on specific groups of substance abusers such as prisoners or veterans who are, in turn, high risk groups for suicide. In addition, it has been reported that poly-substance use and co-morbidity with other psychiatric disorders, particularly mood disorders, increases suicidal risk. Data about an association between illicit drug use and suicide in developing countries are scarce.

Dementia: Suicide rates are lower in people with dementia than the general population, however there is evidence in the literature that mild dementia is associated with self-harm behaviours, suicidal ideation and suicide attempts There is only one review in the literature addressing the association. No formal systematic review papers or meta-analysis has established the association.
Studies on the risk factors for suicide in people with dementia tended to lack empirical evidence. However, factors such as mild dementia, a younger age, preserved insight, failure to respond to anti-dementia drugs, mental illness (particularly depression), previous suicidal behaviours, sense of hopelessness, loss of dignity, inability to deal with day-to-day problems, and high premorbid social status may contribute to suicidal behaviours among people with dementia, including Alzheimer ’s disease. Suicidal ideation may be associated with mild dementia but is strongly linked with depression.
Many studies did not find an association between dementia and increased self-harm behaviours. However, some studies observed that there were increased rates of self-harm or suicide attempts among patients with mild cognitive impairment. Furthermore, mild dementia also increased the risk of repetitive self-harm. Impulsivity due to frontal lobe impairment may be related to the link between dementia and self-harm.

Children diagnosed with mental disorders: There is evidence in the literature that psychiatric disorders, particularly depression and substance abuse, are associated with suicidal ideation and suicide attempts in children and adolescents. No formal meta-analysis has established the link. There is evidence that

screening for suicide in the general population of adolescents does not have detrimental effects and, on the contrary, may be beneficial for students with depressive symptoms or previous suicide attempts.

Current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss: There is evidence in the literature that current loss, interpersonal conflict, and intimate partner violence are associated with suicidal behaviour. No formal meta-analysis has established the link. However there is also evidence that these conditions act and are reinforced in relation with other risk factors for suicide.
There is evidence about the association in developing countries where conditions like intimate partner violence are major public health issues.

Chronic physical illness or chronic pain: There is evidence in the literature that chronic illnesses as well as chronic pain are associated with suicidal behaviours. Each chronic illness investigated was correlated with at least one suicidal behaviour, if not multiple suicidal behaviours (DHS, suicide ideation, suicide attempt, and suicide completion). No formal meta-analysis has established these links.

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From evidence to recommendations

Factor	Explanation
Narrative summary of the evidence base	There is epidemiological evidence that depressive disorders and bipolar disorder are associated with suicidal ideation, suicide attempts and completed suicide. There is evidence that schizophrenia is associated with suicide. Specific treatment for suicidal patients with schizophrenia is available. There is evidence that epilepsy is associated with suicidal ideation, suicide attempts and completed suicide. The evidence suggests that the association is mediated by the presence of co-morbid psychiatric disorders. The influence of antiepileptic treatment on suicidal risk is not clear and the results debated. There is strong evidence that alcohol abuse and/or dependence are associated with suicidal ideation, suicide attempts and completed suicide. The literature suggests that alcohol use disorders can be considered as an important risk factor for suicide. It has been reported that lifetime mortality due to suicide in alcohol dependence is as high as 18%. In addition it has been reported that co-morbidity with other psychiatric disorders increases suicidal risk. The data about an association between alcoholism and suicide are confirmed by reports in developing countries. There is strong evidence that drug abuse and/or dependence is associated with suicidal ideation, suicide attempts and completed suicide. The literature suggests that substance abuse and dependence can be considered as an important risk factor for suicide. Many studies have been performed on specific groups of substance abusers such as prisoners or veterans who are, in turn, high risk groups for suicide. In addition it has been reported that co-morbidity with other psychiatric disorders, particularly mood disorders, increases suicidal risk. Suicide rates are lower in people with dementia than the general population, however, there is some evidence that mild dementia is associated with self-harm behaviours, suicidal ideation and suicide attempts. Studies on the risk factors for suicide in people with dementia tended to lack empirical evidence. However,

	factors such as mild dementia, a younger age, preserved insight, failure to respond to anti-dementia drugs, mental illness (particularly depression), previous suicidal behaviours, sense of hopelessness, loss of dignity, inability to deal with day-to-day problems, and high premorbid social status may contribute to suicidal behaviours among people with dementia, including Alzheimer's Disease. Suicidal ideation may be associated with mild dementia but is strongly linked with depression. Many studies did not find an association between dementia and increased self-harm behaviours. However, some studies observed that there were increased rates of self-harm or suicide attempts among patients with mild cognitive impairment. Furthermore, mild dementia also increased the risk of repetitive self-harm. Impulsivity due to frontal lobe impairment may be related to the link between dementia and self-harm. There is evidence that psychiatric disorders, particularly depression and substance abuse, are associated with suicidal ideation, suicide attempts and completed suicide in children and adolescents. There is evidence that screening for suicide in the general population of adolescents doesn't have detrimental effects and, on the contrary, may be beneficial for students with depressive symptoms or previous suicide attempts. There is evidence that current loss, interpersonal conflict, and intimate partner violence are associated with suicidal behaviour. However there is also evidence that these conditions act and are reinforced in relation with other risk factors for suicide. There is also evidence about the association in populations in developing countries. There is evidence that chronic illnesses as well as chronic pain are associated with suicidal behaviours. Each chronic illness investigated as well as chronic pain was correlated with at least one suicidal behaviour, if not multiple suicidal behaviours (DHS, suicide ideation, suicide attempt, and completed suicide).
Summary of the quality of evidence	Depression or bipolar disorder: Quality of the evidence is low and mainly based on observational studies. Schizophrenia: Quality of the evidence is very low due to the very small number of available studies. Epilepsy: Even if many research reports exist, quality of the evidence is low and mainly based on observational studies.

	Alcohol use disorders: Quality of the evidence is low and mainly based on observational studies. Illicit drug use disorders: Quality of the evidence is low and mainly based on observational studies. Dementia: The quality of the evidence is very low. Children diagnosed with mental disorders: Quality of the evidence is low and mainly based on observational studies. Current interpersonal conflict, current intimate partner violence or physical or sexual abuse, or current loss: Quality of the evidence is low and mainly based on observational studies. An established definition of what is intended for the studied conditions does not exist. Chronic physical illness or chronic pain: Quality of the evidence is low and mainly based on observational studies.
Balance of benefits versus harms	No harm is reported in asking questions about suicide.
Values and preferences including any variability and human rights issues	Potential benefit of asking about suicidal thoughts, plans and acts of self-harm is the possibility to implement intervention strategies for subjects at risk for suicide. It has been reported that suicidal behaviour in subjects with alcohol use disorders occurs more frequently in the presence of co-morbidity with other psychiatric disorders. It has been reported that suicidal risk in subjects with drug abuse or dependence is highly increased in the presence of co-morbidity with mood disorders, and in poly-substance-users. Some studies observed an increased risk of suicidal behaviours in case of co-morbidity of mild dementia with other psychiatric disorders and a number of risk factors such as relatively young age, previous suicidal behaviours, preserved insight and high premorbid social status. For loss, interpersonal conflict, and intimate partner violence the evidence suggests that suicidal risk is higher when these risk factors are combined between each other or when they are associated with another priority

	condition. Suicide bereavement in particular increases suicide risk. Patients living with chronic illness or chronic pain undergo significant physical and mental challenges.
Costs and resource use and any other relevant feasibility issues	Basic training of half a day to break the taboo of asking questions about suicidality. Booster doses of training for sustainability of three hours per year. Resources for training should include the WHO publication "Preventing Suicide: a resource for primary health care workers".

Recommendation(s)

Non-specialist health care providers should ask individuals over 10 years of age suffering from depression, bipolar disorder, schizophrenia, epilepsy, alcohol use disorders, illicit drug use disorders, dementia, children diagnosed with mental disorders, or individuals who present with chronic pain or acute emotional distress associated with current interpersonal conflict, recent loss or other severe life event, about thoughts or plans of self-harm in the last month or acts of self-harm in the last year at initial assessment and periodically as required.

Strength of recommendation: STRONG