Published in final edited form as:
J Neurosci Nurs. 2014 August ; 46(4): 241–248. doi:10.1097/JNN.0000000000000062.

Suicide prevention in neurology patients: Evidence to guide practice?

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Abstract

Objective—This article is an overview of the neurological diagnoses with highest attempt in suicide. The most common risk factors in suicidal ideation in neurology patients are identified, as well as the description of ways to assess and implement treatment of patients with suicidal ideation, including the recommendations for patients with specific neurological diagnosis. A guideline development is needed to address suicide concerns in these patients.

Methods—A literature search was conducted to find published studies and patient guidelines that were relevant to suicidal ideation, assessment, and treatment in neurology patients.

Results—Information found was not always exclusively for neurology patients. Findings often discussed psychiatric patients. The neurological diagnosis most associated with suicidal ideation includes multiple sclerosis, epilepsy, and Parkinson's disease. The most common risk factors for suicidal ideation are hopelessness, depression, and social isolation. As treatment factors, a therapeutic relationship, treatment for depression, assurance of patient safety, and specific interventions for suicidal prevention were identified to provide health care professionals in neurology ways to address suicidal issues for patients with neurological diagnoses. Three protocols highlighted staff prevention activities.

Discussion—Since patients with neurological disorders experience suicidal ideation with a greater risk of suicide, particularly in multiple sclerosis, epilepsy, and Parkinson's disease, the potential risk for suicide requires active assessment, monitoring, and intervention by nurses and health professionals to address this clinical issue. The assessments available require further

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psychometric testing for reliability and validity with patient use. There is a need for more research to develop a guideline/protocol exclusively for neurological patients.

Keywords

Suicide; Neurology; Risk factors; Assessment; Intervention

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Suicidal ideation and suicide attempts in hospitals are sentinel events that occur for many different reasons. Suicide overall rates range from as low as 3.2 per 100,000 in Greece, 11.3 per 100,000 in the United States, 13.0 per 100,000 in Germany, and as high as 34.3 per 100,000 in the Russian Federation (New South Wales Department of Health, 2010). Attention to the risk potential of suicide related to medical illnesses is an increasing concern for health care providers and organizations. An increased risk of suicide is associated with a disabling diagnosis or chronic medical condition (Lynch, Howard, El-Mallakh, & Mathews, 2008). Special diagnostic procedures or a change in health status may require the patient to be hospitalized. Within the last five years, the clinic for neurology at the University Medical Center Freiburg had four suicide deaths. For physicians and nurses in acute care, it is not a daily practice to work with patients with suicidal ideation and requires further attention.

The University Medical Center in Freiburg, Germany intends to develop and implement a Suicide Prevention Guideline for patients in neurology. Whereas guidelines for mental health facilities are in place, limited guidelines or protocols exist for acute care or neurology patients. Thus, an integrative literature review was conducted to obtain insight on knowledge about suicidal ideation, suicide attempt, and suicide in neurology patients. The ultimate goal in reviewing the literature is to increase knowledge on suicide risk factors, assessment, and treatment in non-psychiatric areas to develop a clinical guideline to prevent suicide in neurology. This article will give an overview of the neurological diagnoses with the highest attempt in suicide, the most common risk factors in suicidal ideation, the assessment and treatment of a suicidal patient in non-psychiatric clinical areas, and provide recommendations for patients with specific neurological diagnosis.

Methods

For this integrative literature review, PubMed and CINAHL were used as databases. Additional protocols were found using national and government websites. The research question for the review was, “What interventions are helpful in neurology patients to prevent suicide attempts?” To examine literature to address the question, the following keywords were used: “Neurology AND suicide,” “Clinical AND neurology AND suicide,” “Suicide AND medical setting,” “Suicide attempt AND Neurology,” and “Practice Guidelines AND Suicide.” The search was limited to articles that were peer reviewed research articles, clinical trials, meta-analysis, and practice guidelines. The search was limited to articles published within 2001–2011 and for practice guidelines within the last five years to ensure that it reflects current knowledge and practice. Articles were limited to the English language. Aside from neurology, “medical setting” also was searched to explore the knowledge of suicide risk of the inpatient setting.

One hundred thirty-four articles were initially examined based on title and abstract. Thirty-two articles and three protocols were useful in the 134 articles reviewed. At closer review, only eighteen articles of the one hundred thirty-four addressed the research question. Table 1 lists the number of articles and protocols used from the different database sources.

Results

Information describing the increase of suicide in specific neurological diseases, as well as risk factors of suicide in medical setting, was reviewed in the final selected eighteen articles that met the inclusion criteria. In addition, protocols addressing the assessment and treatment of patients who become suicidal provided information about developing a suicide prevention guideline.

Neurological Diseases with Highest Attempt in Suicide

Multiple sclerosis has been linked to increased suicide risk (Arciniegas & Anderson, 2002; Feinstein, 2002; Lynch et al., 2008). Suicide is also often reported to be common in persons with epilepsy (Bell, Gaitatzis, Bell, Johnson, & Sander, 2009), accounting for 10% of all epilepsy deaths. Suicidal ideation is increased in Parkinson's disease, but suicide plans and attempts are not (Kummer, Cardoso, & Teixeira, 2009). Arciniegas and Anderson (2002) mentioned that the decrease in suicide attempts in people with Parkinson's disease may be related to the effects of bradykinesia, akinesa, bradyphrenia, and apathy.

Risk Factors for Suicidal ideation in Neurology

An important factor to prevent suicide is to recognize the signs and symptoms of impending suicide (Gonda, Fountoulakis, Kaprinis, & Rihmer, 2007). "The risk of attempted or completed suicide in neurological illness is strongly associated with depression, feelings of hopelessness, and social isolation" (Arciniegas & Anderson, 2002, p.457). In dealing with the neurological conditions and symptomatology present, a patient may view suicide as the only good outcome to the unreasonable quality of life they perceive (Arciniegas & Anderson, 2002). Several emotional and situational factors contribute to patients with neurological factors considering suicide. The risk factors of hopelessness, depression, and social isolation for patients with neurological disorders are elaborated further.

Hopelessness

Hopelessness is a core element in suicidal ideation and recognized as a key predictor of suicide, if not equal to or more powerful than depression alone (Caine & Schwid, 2002; Gonda, et al., 2007). People with hopelessness begin to imagine death as positive solution to the negative future they perceive to be ahead of them (New South Wales Department of Health, 2004a) as they face dealing the neurological challenges of these conditions. Caine and Schwid (2002) comment that instilling hope in a patient is very important; for without the positive future view, the pain and distress of the moment feel for many like it will last forever.

Depression

Suicidal ideation is a core symptom of major depression, and the two are highly associated (Kostic et al., 2010). Hopelessness associated with depression greatly increases suicide risk (Lynch et al., 2008). Among persons who generally commit suicide, 90% suffer from a diagnosable psychiatric illness and in particular depression. About 15% of patients with severe major depression eventually die from suicide (Gonda et al., 2007). Major depression is a common psychiatric problem that is diagnosed in multiple sclerosis patients (Caine & Schwid, 2002; Feinstein, 2002; Fredrikson, Cheng, Jiang, & Wasserman, 2003). Although a common problem in patients with multiple sclerosis, depression is usually underdiagnosed and overlooked by primary care physicians (Brønnum-Hansen, Stenager, Nylev Stenager, & Koch-Henriksen, 2005; Wallin, Wilken, Turner, Williams, & Kane, 2006). Arciniegas and Anderson (2002) report that depression affects 40% to 50% of patients with Parkinson's disease. Depression is the most important risk factor for suicidal behavior (Kostic et al., 2010).

Social Isolation

Arciniegas and Anderson (2002) identified also that suicide in neurological illness, and in general, are associated also with social isolation and relatively impoverished social supports. Social isolation can be measured by time spent alone as compared to time spent with other people (Cutcliffe & Barker, 2004). However, a change in the amount of time a person spends alone should be countered with the recognition that not all people who spend time alone are considered at risk for suicide (Cutcliffe & Barker, 2004). At the same time, a move toward social isolation is worthy of attention to evaluate the reasons and determine risk levels.

Assessment of Suicide Risk

Suicide risk assessments are performed to inquire about suicidal thoughts and are not able to predict changes throughout a patient's hospital stay (Lynch et al., 2008). Assessment is a continuing process occurring from the person's first presentation to a health service through to the provision of treatment leading to discharge (New South Wales Department of Health, 2004b). The monitoring of the potential and presence of suicidal risk requires an ongoing attention by health professionals working with patients with these neurological conditions.

Screening of Suicide Risk

The prevention of suicide among patients with neurological illness first and foremost begins with the risk detection of suicidal ideation (Arciniegas & Anderson, 2002). The New South Wales Department of Health (2004b) states in the *Suicide Risk Assessment and Management Protocol for General Hospital Wards* that screening for suicide risk as a preliminary assessment should be conducted by the appropriate health professionals, prior to being referred to specialized mental health services or other professionals. The *Nurses Global Assessment of Suicide Risk* (NGASR) is used for suicide screening in Australia (2004). This instrument has not had comprehensive psychometric testing and the reliability and validity are unknown (Lynch et al., 2008), but has wide usage in their clinical environment. Arciniegas and Anderson (2002) and New South Wales (2004b) provides a list of suicide

risk assessment questions. In table 2, both suicide assessment documents are compared. There are similarities in the screening questions, but the New South Wales tool presents more screening questions. When a clinician observes evidence of hopelessness, depression or social isolation or when patients offer or affirm the presence of suicidal ideation, the clinicians should further assess the nature of the patient's suicidal thoughts (Arciniegas & Anderson, 2002) and refer for follow-up. Figure 1 highlights the process of risk screening from risk detection until either continued monitoring or comprehensive suicide risk assessment of a patient.

Comprehensive Suicide Assessment Protocols

The *Nurses' Global Assessment of Suicide Risk* (NGASR) offers a number of variables to assess risk related to suicide (Cutcliffe & Barker, 2004; Lynch et al., 2008). Fifteen variables are assessed and each variable has its own value. The variables assessed are (See Table 3): presence/influence of hopelessness, recent stressful life event, evidence of persecutory voices/beliefs, evidence of depression/loss of pleasure, evidence of withdrawal, warning of suicidal intent, evidence of a plan to commit suicide, family history of serious psychiatric problems or suicide, recent bereavement or relationship breakdown, history of psychosis, widow/widower status, prior suicide attempt, history of socio-economic deprivation, history of alcohol and/ or alcohol misuse, and the presence of terminal illness (Cutcliffe & Barker, 2004). The intent of the NGASR was to raise nurses' awareness of the range of variables that appear to be associated with increased risk of suicide (Cutcliffe & Barker, 2004). Major topical variables in the assessment include hopelessness, depression/ loss of interest or pleasure, and bereavement (Cutcliffe & Barker, 2004). The identified variables present are then scored based on the value (see table 3), and scored at the appropriate risk level. The levels of risk are scored from a low level of risk to a very high level of risk. A score of 5 or less equals a low level of risk, a score between 6 and 8 equals intermediate level of risk, a score between 9 and 11 equals high level of risk, and a score of 12 or more equals a very high level of risk (Cutcliffe & Barker, 2004). The higher level of risk, the more aggressive the intervention that needs to be instituted.

The New South Wales Health Department created a *Framework for Suicide Risk Assessment and Management* for their health staff to use (New South Wales Department of Health, 2004a) as a framework for developing a comprehensive eleven-item suicide risk assessment that explores distress, meaning/motivation (meaning of recent events/ motivation to harm self), mental states (hopelessness, despair, anger), history of suicidal behavior, current suicidal thoughts, and intent/lethality, presence of a suicide plan, access to means and knowledge, safety of other, coping potential or capacity. The questions are followed by assignment of a risk level of low, medium, or high. Although the patient is placed in a risk level, New South Wales Department of Health (2004a) uses the assessment only as a guide and advises that it should not replace essential clinical decision-making and practice.

Treatment of Suicidal patients

Therapeutic relationship

Suicidal ideation can be better assessed if healthcare professionals develop a respectful, therapeutic relationship with their patients (Lynch et al., 2008; New South Wales Department of Health, 2004a). The development of a therapeutic alliance, which begins during the initial assessment process at admission and continues throughout hospitalization encourages patients to divulge information vital in determining suicidal risk factors (Lynch et al., 2008). Patients that have a change in time spent alone should be encouraged to engage in support groups with others that have the same neurological problems diagnosed or with others (Arciniegas & Anderson, 2002). Family members, significant others, and close friends should be included in care when appropriate (Arciniegas & Anderson, 2002; Lynch et al., 2008; New South Wales Health, 2004a).

Patient Safety Physical and Environmental Risk Factors

Providing patient safety is very important. Lynch (2004) states root causes of inpatient suicides include inadequate patient assessments at admission, inadequate staffing levels, insufficient staff orientation and training, infrequent patient observations, and inadequate communication between providers. Inpatients on medical floors tend to commit suicide by jumping from heights (Ballard et al., 2008). Studies suggest documented assessments in structures most commonly used in suicide should be performed in order to decrease suicide factors in the physical environment (Lieberman, Resnik, & Holder-Perkins, 2004). A suicidal patient should never be left alone. If possible the patient should have a roommate, a family member sit with them, placed in room's closest to the nursing station, or assigned a staff to close watch (Lieberman et al., 2004). Depending on level of dangerousness determined, active safety precautions to protect them from suicide attempts may be required to be instituted.

Treatment of Depression

Proper treatment of depression in itself significantly reduces the risk for suicide. Antidepressive agents are one of the first line formally approved treatments for major depression (Gonda et al., 2007), in addition to psychotherapy. Arciniegas and Anderson (2002) articulate that treatment for depression should be undertaken using a medication appropriate to the patient's neurologic or medical condition. They also advocate that emphasis should be placed on supportive intervention, counseling, and reduction of other modifiable suicide risk factors during the early weeks of antidepressant treatment. Gonda et al., (2007) states the judicious concomitant use of benzodiazepines in the first weeks of treatment may significantly speed the patient response at least in patients with major depressive disorder. This recommendation is equivocal in some circumstances and should be considered carefully. It is essential always to evaluate medications used with consideration for the neurological conditions involved.

No Suicide Contract

The literature describes a no suicide contract (NSC) as a suicide prevention intervention that consists of a verbal or written agreement between staff and a patient, indicating that the patient agrees to not kill or harm himself or herself (Lynch et al., 2008). Caution is warranted with this intervention, because NSC's do not hold as viable in courts, because they are not a legal agreement, research results of their efficacy are equivocal as well, and they do not "protect" clinicians from litigation in the event that a suicide occurs after a patient agrees to a NSC (Lynch et al., 2008). Despite some evidence that NSC do not prevent suicides, clinical use of NSC is reported to be a useful intervention in the treatment of a suicidal patient by some (Lynch et al., 2008). NSCs should only be one part of a comprehensive suicide risk management strategy (Scocco, Toffol, Pilotto, Pertile, & Pavan, 2009). They advocated that NSC's are beneficial in the development of therapeutic alliance in the patient and health professional (Scocco, et al., 2009).

Additional Treatment for Neurology patients

Multiple Sclerosis

According to Wallin, Wilken, Turner, Williams, and Kane (2006) and Feinstein (2002), psychotherapy has been long recognized as an important treatment for depression for patients with multiple sclerosis. Wallin et al. (2006) report that cognitive behavorial therapy (CBT) emphasizes behavorial activation for increasing pleasant activity and social interaction and cognitive restructuring for identifying and challenging maladaptive thoughts and beliefs associated with depression. They described studies where group CBT reduces depression in patients with multiple sclerosis. One study, as cited in Wallin et al. (2006), Mohr used CBT for patients who have physical impairments and fluctuating symptoms successfully by having telephone sessions for 8 weeks.

Epilepsy

People with epilepsy are at increased risk of experiencing suicidal ideation, displaying suicidal behavior, and committing suicide than the general population (Hecimovic, Salpekar, Kanner, & Barry, 2011). They summarized that link may relate to the complex interplay of neurotransmitters involved with suicidal ideation, depression, and epilepsy. It is suggested that early medical treatment with antiepileptic drugs (AEDs) might potentially reduce suicide risk of people with epilepsy, due to the mood stabilizing affects in some compounds (Mula, Bell, & Sander, 2010). It is important that the drug of choice be appropriate to the patient's mental state (Mula, et al., 2010). Although it is recommended to treat the patients with AED's, it should be recognized that some studies (Mula, et al., 2010) have found that AED's could increase the risk of suicide in some groups of drugs.

Parkinson's Disease

In a study in Finland, factors influencing suicide in over 500 hospitalized patients with Parkinson's disease (PD) included being a male with recently diagnosed disease, living in a rural area, having multiple physical illnesses, and having an earlier attempted suicide were at the greatest risk (Mainio, Karvonen, Hakko, Särkioja, & Räsänen, 2009). They recommended for patients with this profile that a psychiatric consult should be ordered as

part of the treatment. Reports for these three conditions all cite increased links to a potential for suicidal symptoms with the clear need for risk identification, screening, comprehensive assessment, and treatment interventions to prevent suicide when symptoms emerge.

Discussion

Suicidal ideation, suicide attempts, and completed suicide are potential risks in neurological disorders. The neurological diagnoses reviewed to have an increase in suicidal ideation are not the only neurological diagnosis where patients are at risk. All patients with neurological disorders should be monitored, screened as necessary for suicidal ideation, and provided with needed treatment. This review of the literature highlights symptoms of risk, protocols for screening, assessment, treatment, and safety monitoring for patients in neurology units. Studies document multiple sclerosis, epilepsy, and Parkinson's disease as neurological conditions with increased risk for suicidal ideation.

Healthcare professionals in neurological settings need to recognize risk factors of suicide as well as how to assess and treat the patient who might become suicidal. Three clinical protocols used in practice in neurological and other medical settings offer guidelines that can be adapted and adopted to individual units. The clinical assessment instruments examined in this literature review have not had reported psychometric testing, but are based on research and assessments traditionally performed in psychiatry and areas at high risk for suicidal behaviors. These clinical instruments, in place in hospital and clinic practices, are helpful to obtain insights into the patients' thoughts and feelings about suicide.

These assessment tools provide guidance to assist the bedside nurse in clinical questioning, but it is suggested that they function in conjunction directly with excellent clinical observation, and ongoing patient assessment for both physical health and psychological health dynamics. Neurological conditions, described in the review, clearly demonstrate the connection to depression, increased stress, and adjustment concerns, as well as cognitive decline and impairments.

Establishment of a quality nurse-patient relationship is central to addressing the problem of suicide in neurological settings. Trained attention to recognizing hopelessness, depression, and social isolation behaviors is critical. Asking open-ended questions to gain trust and establish a caring relationship is essential to discern the subtle mental health responses indicative of the potential for suicidal ideation. Once risk factors are recognized, the implementation of screening, assessment, and treatment interventions, while monitoring for safety is essential to reduce the potential for suicide. A patient's status can possibly change at any time during hospitalization. For this reason, continuous monitoring and regular assessment of patients is required (Lieberman et al., 2004). When assessing patients, family members, significant others, and/or close friends should be included when appropriate.

The therapeutic relationship should be built and kept throughout the inpatient care stay and evaluated prior to discharge. The relationship between the nurse and the patient can uncover important information that aids in the successful care of the patient. It is important that all the healthcare workers involved with the patient communicate with each other, as well as the

family as appropriate. This will ensure that the best of care is given to the patient and allow recognition of patients at risk. Providing patient safety through continuous monitoring, ongoing suicide risk screening/assessment and treatment, especially for depression and interventions related to the specific illness, is important in the care of the neurology patient.

Once suicidal risk is identified, implementation of a screening assessment is the next step. Use of a screening tool such as the one of the New South Wales Department of Health (2004a) or the Nurses Global Assessment of Suicide Risk (NGASR) (Cutcliffe & Barker, 2004) alerts the health care provider to the severity of suicidal risk. These assessments provide a concrete documentation of suicide assessment risk measurement. Although one instrument mentioned offered a scoring scale, it is not recommended to only rely on the score the patient receives. Having a score for the patient may present the healthcare professional with a sense of security, but it should be considered with caution, only as a guide, and with recognition that the situation can change. Consideration that some patients may not feel comfortable or may not be able to communicate with healthcare professionals performing the assessment is part of the responsibility of the health care provider as well. Cutcliffe and Barker (2004) also caution that any attempt at suicide risk assessment needs to be realistic, recognizing the limits to suicide prevention. Attention to the environmental risk factors, e.g. staffing, orientation and knowledge of team members, communication between team members, or continued monitoring play an important role in helping maintain patient safety.

In preparation or adoption of a clinical suicide risk guideline, development of a thorough organizational analysis is needed. To complete the patient safety system, all patient-related information has to be documented in a cohesive manner and with availability for all team members and communicated. Treatment interventions based on the comprehensive suicidal assessment are determined to effect improvement in mood, attention to patient safety, and addressing problematic clinical symptoms and reduction of environmental risks. These clinical activities will aid in a systematic approach for suicide prevention.

Conclusion

The review of suicide risk in patients with neurological conditions was analyzed from 18 articles and three protocols found in the literature search. The presence of hopelessness, depression, and social isolation are key factors in alerting professionals to the possibilities of suicidal ideation in patients with neurological conditions. Screening and assessment of suicidal risk in neurological patients was described using three clinical protocols (New South Wales Health, 2004a; New South Wales Department of Health 2004b; & New South Wales Department of Health, 2010). As a result, a Suicide Risk Detection Tree has been constructed by the authors to support nurses in daily practice. Several treatment factors such as the therapeutic relationship, treatment for depression, assurance of patient safety, and specific interventions for suicidal prevention were identified to provide health care professionals in neurology with guidance from the literature. Hospitals and clinical agencies concerned about suicide in neurology patients are encouraged to establish their suicide guidelines based on information from this review of the literature. More research is needed

to determine the efficacy and effectiveness of these strategies in the prevention of suicide on neurology units.

Acknowledgments

Ms. Lewis would like to thank Dr. Kathy Anderson for bringing the Minority Health International Research Training (MHIRT) Program to Georgia Southern University and allowing her to be a part of this life-changing program, as well as her mentorship/input in writing of this article and in research. She would also like to thank the National Institute for Minority Health and Health Disparities (NIMHD) (NIH) for funding the program, as well as the University Medical Center in Freiburg, Germany for hosting students doing the MHIRT program in conjunction with the Private University of Witten-Herdecke. Thank you to Dr. John Cutcliffe, Dr. David Arciniegas, and the New South Wales Department of Health for granting permission to reproduce information from their articles. Special thanks go to Dr. Johanna Feuchtinger as my research mentor in Freiburg, Germany for helping me along this road to writing with her continued encouragement.

As a Minority Health International Research Training Scholar, Ms. Lewis studied at the School of Nursing at the University Medical Center in Freiburg, Germany for a summer semester. Ms. Lewis' work on this project was supported by “Training in Chronic Illness Research in Georgia and Abroad,” (T37MD001489-07) from the NIMHD, National Institutes of Health, K. Anderson, PI. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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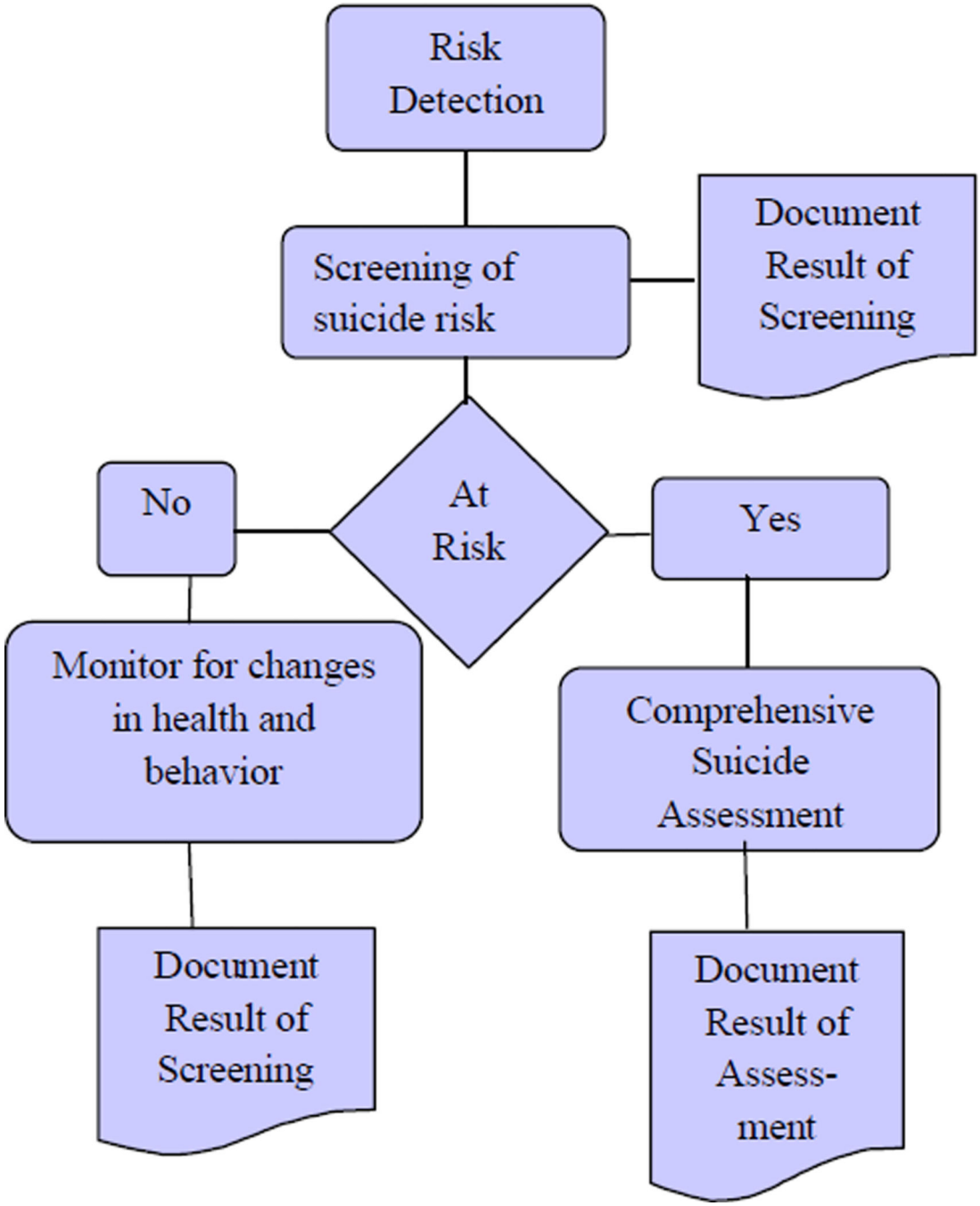

Figure 1.
Suicide Risk Detection Tree for decision-making strategy by health providers. (Constructed by authors).

Table 1

Number of articles and protocols reviewed

Databases	Articles Found	Articles Included
PubMed	65	13
CINAHL	69	5
Total:	134	18
National /Government Sites	Protocols	3

Table 2

Screenings with suicide risk questions

Arciniegas & Anderson, (2002)	New South Wales Department of Health, (2004b)
Do you ever feel that life is no longer worth living?	Have things been so bad lately that you have thought you would rather not be here?
Do you have thoughts of wanting to hurt yourself or to end your own life?	Have you had and thoughts of harming yourself?
Have you ever tried to hurt yourself or end your own life?	Are you thinking of suicide?
	Have you ever tried to harm yourself?
	Have you made any current plans?
	Do you have access to a firearm? Access to other lethal means?

Table 3

The Nurses' Global Assessment of Suicide Risk (NGASR) (Cutcliffe & Barker, 2004)

Predictor Variable	Value
Presence/Influence of hopelessness	3
Recent stressful life event, for example, job loss, financial worries, pending court action	1
Evidence of persecutory voices/beliefs	1
Evidence of depression/ loss of interest or loss of pleasure	3
Evidence of withdrawal	1
Warning of suicidal intent	1
Evidence of a plan to commit suicide	3
Family history of serious psychiatric problems or suicide	1
Recent bereavement or relationship breakdown	3
History of psychosis	1
Widow/widower	1
Prior suicide attempt	3
History of social-economic deprivation	1
History of alcohol and/or alcohol misuse	1
Presence of terminal illness	1
Total	