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RESEARCH ARTICLE

SUICIDE RISK SCREENING SCALES

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Abstract

Introduction: The World Health Organization (WHO) defined suicide as a deliberate act performed by a person who is fully aware of, or hopes for, its fatal outcome. According to the WHO, suicide accounts for 804,000 deaths worldwide and was considered a public health problem. However, suicide could be prevented by well-timed, evidence-based and often inexpensive interventions. In Morocco, the WHO estimated suicide rate of 7.3 per 100,000 inhabitants per year in 2019. However, there was a great lack of scientific and epidemiological data on this subject, hence the importance of early screening and psychometric evaluation.

Objective: The purpose of our work was to provide the clinician with a non-exhaustive list of different scales used internationally to screen and assess suicidal risk.

Method: This review of the literature used the following databases: PubMed; science direct; psychinfo. We used the following key words: scale, suicide risk screening.

Discussion: Of the 9 tools listed above to assess suicidal risk, the two most frequently mentioned and used scales were the: Beck Scale for Suicide Ideation and The Columbia Suicide Severity Rating Scale (C-SSRS), despite the fact that they were not free of charge and had flaws in their structure (Andreotti ET 2020). The MINI suicide risk module (kadri, 2020) was the only validated scale in Arabic, in addition to being brief and free of charge. Other scales are available free of charge, notably the modified SAD PERSON Scale, the DUCHER scale, the suicide probability scale and the P4 screener.

Conclusion: This review allowed us to list the screening scales for suicidal risk, in particular the SIDAS, P4, MINI SR module, DUCHER, BSS, CSSRS. The study helped creating a toolbox that might facilitate the task of clinicians in aim of early diagnosis and appropriate care.

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Introduction:-

The World Health Organization (WHO) defines suicide as "a deliberate act performed by a person with full knowledge of, or expectation of, the fatal outcome." (WHO, 2019)

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According to the WHO, suicide accounts for 804,000 deaths worldwide and is considered a public health problem. However, suicide could be prevented by well-timed, evidence-based and often inexpensive interventions. (WHO, 2019)

In Morocco, there is a great lack of scientific and epidemiological data on this subject, except for some few qualitative studies which evaluate the socio-demographic factors. However, the WHO estimates in 2019 a suicide rate of 7.3 per 100000 inhabitants per year, hence the importance of screening, early psychometric evaluation and adapted care. (National observatory 2016) (WHO, 2019).

The objective of this paper is to provide clinicians with a non-exhaustive helpful list of the different scales used worldwide for the screening and assessment of suicidal risk.

Materials and Methods:

This review of the literature used the following databases: PubMed; science direct; psycinfo. We used the following key words: scale, suicide risk screening.

In our literature search we address nine scales used worldwide.

1. The Mini International Neuropsychiatric Interview (MINI) -Suicide Risk Module

The MINI is a short, structured, hetero-questionnaire diagnostic interview. It was developed jointly by psychiatrists and clinicians from the United States and Europe, for DSM IV and ICD 10 psychiatric disorders. The scale evaluates 19 psychiatric disorders including suicidal risk, with a total administration time of no more than 15 minutes. The scale's very brief suicide risk module, consisting of 6 questions, is sometimes used alone to determine the level of suicidal risk. (Amorim et al P, 1998)

The suicide risk is determined according to the questions and the number of affirmative answers (Amorim P et al, 1998) (Hergueta T et al, 1999).

Key points: Free, accessible scale, validated in Moroccan dialect by a team from the University Hospital of Casablanca (Kadri et. al, 2020)

2. Ducher's RSD suicide risk assessment scale

This is an interview questionnaire that requires a physician or psychiatrist to administer. It allows a direct assessment of suicidal risk (J. Ducher, 2009) and an estimation of its severity.

It includes 11 hierarchical items ranging from: no death ideation; death ideation; suicidal ideation; passive desire to die; active will to die; and finally acting out suicide. (Ducher JL, 2004) (Ducher JL, 2006)

The duration of administration is about ten minutes, translated into several languages including English and French. Various studies have shown, among other results, that the Suicide Risk Assessment Scale (RSD) has a concurrent validity level to the Beck Despair Scale (Ducher JL, 2004) and the Beck Suicidal Ideation Scale (Ducher JL, 2006).

3. The Suicidal Ideation Attributes Scale (SIDAS)

This is a brief, free of charge, online scale allowing the determination of suicidal ideation severity. It is a self-assessment consisting of 5 questions available in English. The scale was intended mainly for an over-18-years old population living in Australia and recruited through an online advertisement on Facebook. The administration of the test takes from 30s to 60s. (Bregje A. 2014)

SIDAS 5-item scale assesses suicidal ideation by: Frequency, controllability, proximity to attempt, distress (level of distress associated with thoughts), interference with daily activities (impact on daily functioning). Each item is rated on a 10-point scale over the past month.

SIDAS total scores are calculated as the sum of the five items, with controllability scored in reverse (10 = 0; 9 = 1...; 0 = 10), with a total scale score ranging from 0 to 50. Higher scores indicate greater severity of suicidal ideation. Overall, the SIDAS appears to be a valid measure for assessing the severity of suicidal ideation via Internet. (Bregje A. 2014)

4. Suicide Probability Scale

The Suicide Probability Scale was developed by Cull and Gill in 1988 as a 36-item self-completed questionnaire. It mainly measures current suicidal ideation (8 items), hopelessness (12 items), negative self-evaluation or low self-esteem (9 items), and hostility (7 items). These 4 subscales were based on current theories for predicting suicidal behavior (Cull J, 1982)

Questions regarding the frequency of emotions and behaviors are scored on a 4-point scale, ranging from 1 "Never or sometimes" to 4 "Most of the time or always." The questionnaire takes 5-10 minutes to administer (Goy M et al, 2011) (Cull J, 1982). It is a quick, accurate, but paying measure.

A 2016 study of 200 security guards and 200 other employees at Ankara University used the SPS and BSI. Factors considered were gender, marital status, income, religious beliefs, personal history of TMS, smoking, and comorbid chronic diseases. The results showed that there were significant differences in SPS scores between the two groups (dogan et al, 2016)

5. Modified SAD PERSONS Scale MSPS and the SAD Person Scale (SPS)

The SAD PERSONS Scale was introduced in 1983 by Patterson et al.

It is a simple mnemonic tool used to assess major risk factors for suicide.

In 1985, Hockberger and Rothstein modified the SPS by adding five additional high-risk characteristics. The letters "SAD PERSONS" represent demographic, behavioral and psychosocial risk factors. (Hockberger RS, 1988) (Brennan J, 2018).

Despite limited evidence, the Modified SAD PERSONS Scale is widely used in clinical settings in a hetero-questionnaire format, with 10 items.

The following parameters are assessed: feelings of depression or despair, absence of rational thought processes, organized suicidal plan or serious suicide attempt, and an affirmative or ambivalent statement regarding future intention to commit suicide. (Hockberger RS, 1988) (Brennan J, 2018).

The assessment time varies between 5 and 10 min, in addition to its free accessibility.

Despite being largely used a study conducted by (katz, c et. All, 2017) Concluded that the SPS failed to predicted suicide in adults seen by psychiatric services in emergency departments.

6. Beck Scale of suicide ideation BSS / Scale of suicide ideation SSI

The BSS scale is the self-administered version of the Scale of suicide ideation SSI.

The Beck scale consists of 21 items that are scored on a suicidal intensity scale ranging from 0 to 2. The scores for the first 19 items are added together to obtain a total score ranging from 0 to 38. It can be completed by the patient himself or herself or by the clinician.

The scale was created in 1979 by Beck et al. in order to measure the desire and current and immediate intensity of suicidal attitudes, behaviors, and plans. (Goy M et al , 2013) It takes about 10 minutes to administer. (Chang BP, 2015)

The scale has been validated in a number of populations, including psychiatric inpatients and outpatients, primary care patients, emergency patients, adolescents, university students, and older adults. It has been translated into several languages including French and Arabic. This scale has a proven internal validity is (Peter D. 2007).

The use of SSI requires special training and professional qualifications. It consists of five items of which 3 assess the will to live or the desire to die, and two items assess the desire to attempt suicide. Positive answer means that the person reports an active or passive desire to die. Moreover, 14 additional items are administered. The validated version is still not free of charge. (Goy M et al , 2013) (Chang BP, 2015)

7. The Columbia-Suicide Severity Rating Scale (C-SSRS)

The Columbia-Suicide Severity Rating Scale (C-SSRS) assesses a range of suicidal ideation and behavior, as well as the intensity of suicidal ideation (Posner et al, 2011).

It is intended to be used by trained individuals, in the form of a clinical interview consisting of four different subscales: suicidal ideation, intensity of suicidal ideation, suicidal behaviors, and lethality (the response considering proven attempts only). The scale contains 6 "yes" or "no" questions in which respondents are asked to indicate if they have had several suicidal ideations or feelings in the past month, and suicidal behaviors in the past 3 months (Posner, 2011) (27).

The administration time is from five to ten minutes. One of the advantages of this scale is its availability in several languages including English but there is chargeable. (Posner 2011).

Several versions of the C-SSRS are used in clinical practice: the Risk Assessment version CSSRSra, the Screen version CSSRSs. There are 2 other versions: the Lifetime/Recent version and the Since Last Visit version in addition to a Self-report Screener CSSRSss version which does not require a screener.

8. Patient Safety Screener (PSS 5 / PSS 3 / PSS 2)

This scale has 3 versions, the oldest of which is PSS5 (The Patient Safety Screener) is a screening tool created by Allen et al. in 2013 as a hetero-questionnaire whose target population was adults at the emergency department. Patients were classified as minimal, low, or high risk for suicide, the completion time is variable, one of the strengths of this scale is its free of charge accessibility. (Allen MH, 2017)

The themes assessed by the initial PSS-5 were: depressed mood and anhedonia, passive and active suicidal ideation, and suicide attempts: the first two Items are from the ninth version of the Patient Health Questionnaire (PHQ-9) and the last three items modelled on the Columbia-Severity Symptom Rating Scale (CSSRS). Since the PSS-5 was designed to be brief, its creators reduced the number of items to make it more easily accepted by clinicians and more effective (Glasgow, Kaplan, Ockene, Fisher, & Emmons, 2012). (Allen MH et al 2017) (Allen H et al, 2016)

Allen et al, found that the items assessing anhedonia and passive ideation showed no significant new cases compared to the combination of the other three items (depression, active ideation, history of TS). {14} Therefore, they created the PSS-3, the passive ideation and anhedonia items were removed. To create the PSS-2, the depression item was also removed, leaving only active suicidal ideation in the past two weeks and history of suicide attempt. (Allen H et al, 2016)

9. P4 screener

The P4 screener is a, free of charge, hetero-questionnaire that assesses patients with four types of questions (4P): previous suicide attempts, suicide plan, likelihood of committing suicide, and preventive factors (Dube et al, 2010). Based on their responses, patients are classified as minimal, low, or high risk for suicide. (Bair MJ, 2010) This instrument is potentially useful in emergency departments, but more research is still needed. (Canturk G, 2016) No psychometric analysis has been yet performed and no validation has been received.

The table contains the above-mentioned scales that are intended for use by clinicians or other health professionals to assess suicide risk. This non-exhaustive list is based on recommendations from the literature and experts in the field of suicide prevention

Table 1:- Summary of the suicide risk screening scales detailed in the current study.

Scale	Suicide Probability Scale	PSS-2	P4 screener	MSPS	BSS
Type of tool	Auto-questionnaire	Hétéroquestionnaire	Hétéroquestionnaire	Hétéroquestionnaire	Auto-questionnaire
Objective/ Items	Current suicidal ideation, hopelessness, negative self-evaluation and hostility	Active suicidal ideation and suicide attempts.	Previous suicide attempts The suicide plans The probability of committing suicide Preventive factors.	Assess the major risk factors for suicide.	Desire and intention to commit suicide.
Targeted Population	Teens and adults 14 years of age and older	Adults in the emergency department	emergency department	Patients who present to the emergency department	Psychiatric inpatients and outpatients, primary care patients, emergency room patients, adolescents, university students and the seniors
Notation	From 1 ("Never or sometimes") to 4 ("Most of the time or always").	It contains 3 questions "yes" or "no" "refused". Positive test: Yes on 2-3 questions.	Patients are classified as minimal, low, or high risk for suicide.	Each item is scored 1 if present, 0 if absent, giving a cumulative score that is interpreted as a level of suicidal risk.	It contains 21 items consisting of three sentences that describe different intensities of suicidal ideation, representing a three-point scale (0 to 2). The total score 0 to 38.
Running time	5-10 minutes	1-3 minutes	-	10 minutes	5-10 minutes
Language/ Translation	English	English	English	English, French	Several languages including French and Arabi
Fees	Chargeable	Free	Free	Free	Chargeable

Table 1 (continued):Summary of the suicide risk screening scales detailed in the current study.

Scale	MINI	RSD	SIDAS	C-SSRS
Type of tool	Hétéroquestionnaire	Hétéroquestionnaire	Auto-questionnaire	Clinical interview
Objective/ Items	Determine the level of suicidal risk.	Determine the presence of suicidal risk and estimate its intensity.	Development of a new, brief, online scale available free of charge to determine the severity of suicidal ideation.	Assess a range of suicidal ideation and behavior, as well as the intensity of suicidal ideation.
Targeted Population	Screening for suicidal behavior and non-suicidal self-harm after discharge from a psychiatric ward.	Determine the presence of suicidal risk and estimate its intensity	People aged 18 and over living in Australia recruited through an online advertisement on Facebook.	The C-SSRS was developed for a National Institute of Mental Health study of adolescent suicide attempters.
Notation	Based on which question and the number of questions answered positively	Unidimensional scale (from 0 to 10)	It is calculated as the sum of the five items, with controllability scored in reverse (10 = 0, 9 = 1, ..., 0 = 10), with the total scale score ranging from 0 to 50. Higher scores indicate greater severity of suicidal ideation.	It contains 6 "yes" or "no" questions in which respondents are asked to indicate whether they have had several thoughts or feelings related to suicide in the past month and behaviors in their lifetime.
Running time	1-3 minutes	1-2 minutes	30-60 seconds	5 minutes
Language/ Translation	English, French, Arabic	English, French	English	English
Fees	Free	Free	Free	Chargeable

Discussion:-

The aim of the study was to provide the clinician a practical kit for a good evaluation in addition to a quick and adequate management.

Of the 9 tools listed above to assess suicidal risk, the only scale translated and validated in Arabic with short passing duration and free of charge use is the module of suicidal risk of MINI (kadri, 2020). Other scales are available free of charge, notably the modified SAD PERSON Scale, the DUCHER scale, the suicide probability scale and the P4 screener.

The two scales most frequently mentioned and used in our research were: the Beck Scale for Suicide Ideation and The Columbia - Suicide Severity Rating Scale (C-SSRS) despite being not free of charge. Although both of them has flaws in their structure (Andreotti ET 2020).

The BSS is among the few assessment tools that have documented predictive validity for suicide deaths as well as indicating moderately high internal consistency, with Cronbach's alpha coefficients ranging from $\alpha = 0.84$ to $\alpha = 0.89.5$ (petter.D 2007)

There is still no single scale considered the gold standard. Hence the need to develop a new tool capable of broadly and comprehensively assessing all psychopathological aspects of suicidality (Instruments to assess suicide 2020).

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