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Scale for assessment of lethality of suicide attempt

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ABSTRACT

Background: Lethality of suicidal attempt provides useful information regarding the behavior. There is a perceived need for a clinically useful scale that can be easily adapted to various methods and circumstances of attempt.

Aims: The study intended to develop and test utility of a scale for measuring lethality that can reflect overall clinical observation taking into account various indicators of lethality and which can be used across clinical scenarios involving different methods.

Settings and Design: Cross-sectional study in a hospital.

Materials and Methods: The scale for assessment of lethality of suicide attempt (SALSA) has two components: The first component has four items indicating seriousness of the attempt and its likely consequences and the second component is the global impression of lethality. All the items are scored from 1 to 5, higher scores suggestive of increased lethality. SALSA was used to evaluate lethality of 82 consecutive suicide attempters; and it was compared with lethality of suicide attempt rating scale (LSARS) and risk-rescue rating scale.

Statistical Analysis: Chi-square, *t*-test, analysis of variance, Cronbach's alpha, binary logistic regression.

Result: There was significant correlation of SALSA score with that of LSARS ($r: 0.89$) and risk score of risk-rescue rating ($r: 0.93$, $P < 0.001$); and negative correlation with rescue score ($r: -0.569$; $P < 0.001$). Internal consistency reliability of SALSA was high (Cronbach's alpha: 0.94). Lethality scores of SALSA differentiated known groups with different lethality, e.g. deceased and survived; attempters with different levels of medical intervention: In-patient only, intensive care, ventilator support. SALSA score significantly predicted the lethal outcome (odds ratio: 3.2, confidence interval: 1.12-8.98).

Conclusion: SALSA is a useful instrument for assessment of lethality of suicidal behaviors during clinical evaluations considering the ease of administration, its ability to differentiate clinical groups with known variations of lethality and clinical outcomes.

Key words: Attempted suicide, lethality, reliability, scale, suicide, validity

INTRODUCTION

Lethality is considered as the degree of danger to life resulting from a self-injurious behavior.^[1] This is an important

parameter in the assessment of patients who have self-harmed themselves, not only for the physical implications, but also for contributing to greater understanding about the self-harm behavior. The lethality has been used in studies involving suicide, suicide attempt, and self-harm subjects;^[2-5] and its clinical implications have been highlighted.

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Reported clinical correlates of lethality vary widely and include intent to die, hopelessness,^[5-7] males with bipolar disorder,^[8] problems with sharing of feelings with others,^[9,10] use of alcohol,^[11] etc. In a study of suicide attempters patients who wished to change compared to those who wished to die were reported to have low lethality attempts.^[12] Compared to first attempters, patients with multiple attempts tended to show higher lethality.^[13] A review of 81 studies about differential characteristics of people involved in suicide and parasuicide reported that the lethality of the method used in the people prone to suicide was often higher in their previous parasuicidal acts.^[14] This suggested an increased risk of death in future attempts in people with higher lethality in the current attempts.

The concept of lethality is essential to the assessment of suicide risk; yet operational definitions of lethality for purposes of its measurement have been loose and varied. Lethality is the possibility or degree to which any biological change that could have endangered the life of the suicide attempter. However, the final outcome, death or survival, depends upon various factors that can influence the degree of the lethality of an attempt. Lethality assessment mainly focuses actual lethality of the method used and the circumstances surrounding the attempt. Circumstances of the attempt influence the degree of lethality; it determines the chance of rescue (rescuability) from the situation. Often, depending upon the situation, a range of effort may be needed to rescue/remove the person from the situation to a safer or medical facility. Lethality can also be indicated by severity of physical consequences (symptoms, signs, disability etc.) of the act and degree of medical intervention needed. Assessment of lethality should ideally take into account all these factors.

A number of scaling measures have been published in the literature, with no relative consensus.^[1,15,16] Lethality of suicide attempt rating scale (LSARS) uses the relative lethality of an extensive table of drugs.^[15,16] The psychometric studies show the scale to be of at least equal-interval, possibly even ratio measurement level. The scale gives reference and examples on physical injury and lethal doses of the ingested substance which makes the scale more appropriate for clinicians; although the authors suggested that the scale can be used reliably by nonmedical personnel with no prior training. The methods and substances used for attempts vary so widely in different places and periods that these factors may restrict its use in areas where these information or accurate account of an attempt is not available.

We intended to develop and test utility of a new scale for measuring lethality that can describe the seriousness of the attempt and reflect overall clinical observation taking into account various indicators. It was envisaged that the new scale would be useful across cultures and setups, which can be used in different clinical scenarios involving various methods.

MATERIALS AND METHODS

The study was conducted in the Departments of Psychiatry, Forensic Medicine, and Accident and Emergency in a Medical College and Hospital in India. Consecutive patients who were brought to the hospital with alleged history of suicide and attempted suicide, within a period of 1 year, were taken up for the study. Information was collected from accompanying family members, friends, and hospital case records; along with through interview of the surviving patients. Informed consent from the patient or family members (in case of deceased) was taken. Besides demographic data, information that would indicate the severity of attempt, e.g. methods, circumstances surrounding the attempt, manifest symptoms, treatment required, and outcome, etc., were collected. Through the narrative history, (or by psychological postmortem method for those who succumbed) we also collected factors associated with suicide attempt, e.g. suicidal communications like death wish, suicidal ideas, and threats, any expressions of intent to die prior to attempt; suicidal notes, plans or impulsivity regarding attempt; and if they had taken alcohol before the attempt. It was ascertained whether the attempter had chosen a place or time to avoid discovery. We also found out whether the suicide attempter had psychiatric illness, treatment, and admission.

The factors that describe the dangerousness or seriousness of suicide attempt and indicate lethality were discussed amongst the multidisciplinary professionals and the clinical impressions suggesting different degrees of lethality were ascertained. From various items considered for the scale initially, the final version was agreed through a consensus method following discussion among faculties from Departments of Forensic Medicine and Toxicology, Psychiatry, and Medicine. The scale for assessment of lethality of suicide attempt (SALSA) is given in Appendix 1.

The lethality assessed by the new scale (SALSA) was compared with the ratings of LSARS. LSARS is an 11-point scale starting from 0.0, that is, death is an impossible result of the suicidal behavior to 10.0, that is, death is almost a certainty; and provides with descriptive “anchors” for the points.^[15,16]

Risk and rescue factors associated with the suicide attempt were studied by risk-rescue rating scale.^[17] Risk factors included were: The agents used, level of consciousness, lesions, toxicity, reversibility, and treatment required. Rescue factors studied were: Locations, person initiating rescue, and probability of discovery, accessibility for rescue and delay until discovery. They were rated on a three point scale and referred in five grades of risk or rescue.

The statistical analysis of the data was performed using the SPSS software package (Version 17.0. Chicago: SPSS Inc). Statistical measures used included Cronbach's alpha, correlation, Chi-square tests, Student's *t*-test, analysis of

variance (ANOVA), and binary logistic regression analysis. The level of significance was kept at the standard 0.05 level.

RESULTS

Sociodemographic characteristics of the sample are given in Table 1, which were not significantly different between those who succumbed to their attempt compared to those who survived. Most of the sample survived (63.4%) the attempt; 11 (13.4%) were brought dead and later 19 (23.2%) more died. Those who died were significantly older (41.9 ± 17.6 years) in age compared to the survivors (30.2 ± 9.5 , $t: 3.9$, $df: 80$, $P < 0.001$). It was observed that around 9 (10.9%) people had taken alcohol before attempt, 17 (20.7%) took precautions to avoid discovery, and 41 (50.0%) attempted impulsively. History of past suicide attempt was there in 9 (10.8%). Only a small proportion (3.7%) used more than one method of suicide.

A minority of the sample had history of psychiatric illness ($n = 16$, 19.5%), psychiatric consultation ($n = 14$, 17.1%), and treatment ($n = 14$, 17.1%); 9 (10.9%) attempters had past history of psychiatric admission. Duration of contact with psychiatric services for most of them (10 out of 14) was 0-5 years. The differences in these parameters between the deceased and survived were not significant.

Factors associated with suicide attempt are given in Table 2. These factors describe the cognitions and communications before attempt, method and the level of medical interventions reflecting the seriousness of the attempt.

Based on global impression of lethality (GIL) item of SALSA, there were 9.8% at subliminal, 28.0% low, 23.2% moderate, 12.2% high, and 26.8% at extremely high degree of lethality. Corresponding figures for the LSARS were similar: Score 5 suggesting 50/50 degree of lethality were present in 23.2%; there were 31.7% below, and rest 45.2% above that threshold. Comparing various categories of lethality on GIL between succumbed and survived attempters, the proportions in percentages were: Subliminal (0.0 vs. 15.4), low (0.0 vs. 44.2), moderate (3.3 vs. 34.6), high (23.3 vs. 5.8), and extremely high (73.3 vs. 0.0) respectively ($P < 0.001$).

Risk categories based on risk-rescue rating in those who succumbed to their attempt were: High moderate ($n = 4$, 13.3%) and high risk ($n = 26$, 86.7%); whereas those of survived were: Low risk ($n = 9$, 17.3%), low moderate ($n = 22$, 42.3%), moderate ($n = 11$, 21.2%), high moderate ($n = 8$, 15.4%), and high ($n = 2$, 3.8%). This distribution was statistically significant ($P < 0.001$). Risk scores of deceased (13.1 ± 0.9) were significantly more ($t: 11.1$, $P < 0.001$) than that of those survived (8.5 ± 2.2).

Similarly, the rescue grades were also significantly ($P < 0.01$) different between those who died and survived;

Table 1: Sociodemographic features

	n (%)		
	Succumbed (n=30)	Survived (n=52)	Total (n=82)
Gender			
Male	22 (73.3)	29 (55.8)	51 (62.2)
Female	8 (26.7)	23 (44.2)	31 (37.8)
Occupation			
Manual laborer	13 (43.3)	12 (23.1)	25 (30.5)
Employee	5 (16.6)	13 (24.9)	18 (21.9)
House wife	6 (20.0)	9 (17.3)	15 (18.3)
Student	2 (6.7)	12 (23.1)	14 (17.1)
Unemployed	4 (13.3)	6 (11.5)	10 (12.2)
Marital status			
Married	21 (70.0)	27 (51.9)	48 (58.5)
Unmarried	9 (30.0)	25 (48.1)	34 (41.5)
Living status			
Living alone	1 (3.3)	3 (5.8)	4 (4.9)
With family	29 (96.7)	49 (94.2)	78 (95.1)
Education			
Nil	2 (6.7)	2 (3.8)	4 (4.9)
School	19 (63.3)	21 (40.4)	40 (48.8)
Preuniversity	3 (10.0)	11 (21.2)	14 (17.1)
Graduation	6 (20.0)	18 (34.6)	24 (29.2)
Religion			
Hindu	26 (86.6)	48 (92.3)	74 (90.2)
Others	4 (13.3)	4 (7.7)	8 (9.8)

Table 2: Factors associated with suicide attempt

	n (%)		
	Succumbed	Survived	Total
Suicidal communication before attempt			
Death wish	14 (46.7)	22 (42.3)	36 (43.9)
Suicidal ideas	13 (43.3)	22 (42.3)	35 (42.7)
Suicidal threat	5 (16.7)	3 (5.8)	8 (9.8)
Suicide note	0 (0.0)	4 (7.7)	4 (4.9)
Precaution taken to avoid discovery*	11 (36.7)	6 (11.5)	17 (20.7)
Alcohol intake before attempt	4 (13.3)	5 (9.6)	9 (10.9)
Intent to die [†]			
No	0 (0.0)	9 (17.3)	9 (10.9)
Yes	12 (40.0)	17 (32.7)	29 (35.4)
Not sure	18 (60.0)	26 (50.0)	44 (53.7)
Attempt type*			
Impulsive	18 (60.0)	23 (44.2)	41 (50.0)
Planned	1 (3.3)	18 (34.6)	19 (23.2)
Not verifiable	11 (36.7)	11 (21.2)	22 (26.8)
Methods of suicide			
Chemicals	23 (76.7)	45 (86.5)	68 (82.9)
Physical	7 (23.3)	7 (13.5)	14 (17.1)
Medical intervention [‡]			
Nil (brought dead)	11 (36.7)	0 (0.0)	11 (13.4)
In-patient care only	2 (6.7)	23 (44.2)	25 (30.5)
Intensive care	4 (13.3)	12 (23.1)	16 (19.5)
Ventilator support	13 (43.3)	17 (32.7)	30 (36.6)

* $P < 0.01$; [†] $P = 0.054$; [‡] $P < 0.001$

the proportions in different grades were least rescuable (10.7% vs. 0.0%), low moderate (10.7% vs. 1.9%), moderate (46.4% vs. 26.9%), high moderate (28.6% vs. 48.1%), and most rescuable (3.6% vs. 23.1%) respectively. Individuals who survived the attempt had higher rescue scores (12.5 ± 1.5) compared to that of who succumbed (10.0 ± 3.1) ($t: -4.8$, $P < 0.001$).

Psychometric properties

Validity

Validity of the SALSA was evaluated using different methods as follows. Content validity for the scale was established by the multidisciplinary panel of experts from medicine, forensic medicine and toxicology and psychiatry through several rounds of discussion on revised items. Agreement was reached on the item composition by the consensus method.

Concurrent validity was computed using Pearson correlations between SALSA, LSARS scores and risk score of risk-rescue rating. There was a significant correlation between SALSA and LSARS (Pearson Correlation: 0.89, $P < 0.001$). Correlation between SALSA and risk score of risk-rescue rating was 0.93 ($P < 0.001$). In addition, concurrent validity was further established by significant negative correlation with the rescue score of risk-rescue rating ($r: -0.569$; $P < 0.001$).

Reliability

We used internal consistency reliability test to measure the reliability of SALSA. Internal consistency is the degree in which the items on the measure consistently assess the same construct. Results across the items within SALSA were assessed by Cronbach's alpha. It was found that the reliability coefficient for SALSA was 0.94.

Comparison of known groups

We compared known groups which are expected to have differences in the lethality to determine whether SALSA could distinguish between these groups, as a measure of assessing the discriminant validity. This was analyzed by performing *t*-test and ANOVA comparing SALSA scores between groups defined by clinical and suicidal act related variables with a probability of differences in lethality. The average score of SALSA for the whole sample was 16.1 ± 5.6 with a range of 6-25. Between the survived and succumbed groups it was expected that the deceased group would have significantly higher scores compared to the survived group. Lethality scores of SALSA differentiated the deceased (22.0 ± 2.4) and survived (12.6 ± 3.8) with the former having significantly higher score ($t: 12.2$, $P < 0.001$). Similarly the LSARS also significantly differentiated the deceased (7.9 ± 1.6) and survived (4.5 ± 1.7) ($t: 8.7$, $P < 0.001$).

Attempts of individuals with intent to die was associated with higher lethality (17.1 ± 5.8 vs. 10.0 ± 3.3 , $t: -3.47$, $P < 0.01$) compared to those without. Attempters who had taken precautions to avoid discovery had higher SALSA score compared to those who did not (20.5 ± 5.2 vs. 14.9 ± 5.2 , $t: -3.945$, $P < 0.001$). Interestingly impulsive attempts were more lethal (17.0 ± 5.4) compared to planned ones (12.0 ± 4.1) ($t: -3.57$, $P < 0.01$).

Considering the level of intervention received by the attempters there was a distinct difference in the SALSA scores in different categories; in-patient only: 11.1 ± 3.8 ,

intensive care: 16.0 ± 7.9 , and ventilator support: 18.3 ± 3.1 ; along with those received no care as they were brought dead 23.5 ± 1.8 ($F: 31.8$, $P < 0.001$). Although the SALSA scores of males compared to females, attempters who used physical compared to chemical methods, and those with the death wish, suicidal ideas and threats compared to those who did not have these were more, these differences did not reach statistical significance. LSARS had a similar result in all the above groups as that of SALSA, except on the methods; attempts using chemical methods had lower scores (5.4 ± 2.0) compared to the physical methods (7.5 ± 3.0 , $t: -3.2$, $P < 0.01$).

Predictability of lethal outcome was assessed for SALSA score using binary logistic regression analysis. Assessment using age (people who died were significantly older), risk score from the risk-rescue rating and SALSA suggested that amongst these, SALSA score significantly predicted the lethal outcome (odds ratio [OR]: 3.2; 95% confidence interval [CI]: 1.12–8.98; $P < 0.05$). Similar assessment involving LSARS did not find it significantly predicting the lethal outcome (OR: 1.16, CI: 0.51–2.65, $P = 0.72$); rather risk score from risk-rescue rating contributed significantly (OR: 7.87, CI: 2.01–30.77, $P < 0.01$).

DISCUSSION

The study tried to validate a new scale to measure the lethality of suicide attempts taking into account global impressions about various aspects that indicate the severity of the attempt. The sample of the study consisted of the suicide attempters who were brought to a medical college hospital and included a wide range of attempts with various degrees of severity as observed from the need for interventions and outcomes. The sample profile resembled as that reported in most studies in the region.^[2,3,18,19] The new scale was compared with related scales suggesting lethality and risks involved in the attempts.

Assessment of lethality revealed that the degree varied widely in the suicide attempts. Medical seriousness in the study sample could be relatively high considering various factors such as the study site being a tertiary, referral medical center, distance travelled by the patients with resultant delay in getting intervention (which could impact upon the outcome).^[2] Higher lethality was associated with attempters who succumbed to their attempt, who tried to avoid discovery and had intent to die. It was interesting to observe that the impulsive attempts were associated with higher lethality compared to planned attempts, which is in contrast to the reported observations that lethal suicidal acts often involve planning.^[20] Although impulsivity or planning of the attempt could not be ascertained in a considerable proportion, the study results suggested that impulsive attempts could be serious. It has been reported that impulsive attempts were associated with a similar

level of lethality as premeditated attempts and their significance should not be minimized.^[21]

Psychometric properties

Significant correlation with related scales on lethality and risk validates the SALSA. The validity is also reemphasized by significant negative correlation of SALSA with the rescue score of risk-rescue rating scale. The reliability measured by Cronbach's alpha suggested excellent level of internal consistency of SALSA. Although values equal to or >0.70 were considered acceptable or satisfactory,^[22] values 0.9 or more are considered excellent.^[23]

Scale for assessment of lethality of suicide attempt scores could differentiate clinical groups which are expected to have different level of lethality, e.g. those who died and survived. The SALSA scores significantly differentiated the attempters with different level of need for medical interventions. It was found that intent to die was associated with higher lethality which has also been reported in various studies.^[24-27] SALSA score was also found to have predictive value for the outcome of suicide attempt.

The range of SALSA scores in this study was wide (6-25) suggesting the variations of degrees of lethality that are observed in clinical set ups. The attempts included various methods, situations and outcomes which resembled the usual range of suicidal attempts. As the principles of assessment remain the same, SALSA can be expected to be relevant for suicide attempters in any set up. However, it would be better to evaluate the utility of this scale in different facilities for example primary and secondary medical care set ups.

Description of the scale for assessment of lethality of suicide attempt

The SALSA is modeled to be a short, global impression scale taking into account various factors that can affect the outcome of the self-harm or suicidal behavior. The scale is expected to be relevant across various self-injurious behaviors described with terminologies like self-harm, intentional self-harm, deliberate self-harm, parasuicide, attempted suicide, and suicide considering that it assesses the dangerousness of the act irrespective of the intention to die.

There are two components of the SALSA: The first component has four items (method of suicide attempt, rescuability, physical consequences and medical intervention need) which are based on history and observations; and which indicate degree of seriousness in these areas and the possible outcome of the suicide attempt. The other component is comprised of the item GIL which is based on the overall impression of the rater about the lethality of attempt. All the items are scored from 1 to 5; the rater should choose

the score that fits best. The total score of the scale range from 5 to 25, higher scores indicating higher lethality. There is no cut off point of the scale.

Method of attempt

Method of suicide attempt is the primary contributor of the lethality. Type of method used does not automatically suggest the scores in this item; the rater should also determine the severity of the method employed. For example not only the type of substance that is used for overdose, but also the quantity. The rater has to determine how likely that the used method will result in death. Score 1 is conceptualized as attempt being not lethal, recovery is certain. Score 2 is described as death is unlikely, but possible as a secondary complication. At score 3, the method has possibility of death in the middle order; score 4 suggests that the death is likely; and at score 5, death is the usual outcome of the method and the survival chance being minimal to nil.

Rescuability

Rescuability often determines outcome. The rater should consider both internal and external milieu surrounding the attempt. The internal milieu includes health status, existing illness, age etc.; whereas the external milieu deals mostly the circumstances around the attempt, chance of discovery and the availability of help from others. Degree of external effort needed to rescue the attempter should also be considered. Attempts in public places, within the easy reach of accessible medical intervention or attempter seeking timely help themselves can be viewed as highly rescuable (score 1); whereas attempts without the plausibility of discovery, in remote situations are considered to have low rescuability (score 5). Moderate rescuability (score 3) would have a 50/50 chance of rescue. Raters can grade the rescuability depending upon the individual circumstances surrounding the attempt.

Physical consequences

Manifest physical symptoms often suggest the severity of the attempt. At the lowest score (1), the symptoms are not there or they are nonspecific to the method of attempt; symptoms specific to the method are scored for various degrees of mild (2), moderate (3), severe (4), and extremely severe (5). Number of symptoms, their nature and the indication of threat to life should be considered while deciding the grades. As a guide, organ failures are characterized as extremely severe.

Medical intervention need

This item reflects what is needed to treat the physical consequences of suicide attempt. It may be highlighted that the need for medical intervention is not what is available; as what is available may be inadequate; and what is needed may not be available sometimes. Although the interventions that have been provided for treating the consequences of attempt can be a major source of information to decide the level of intervention, the focus remains on the need. The rater has to

decide the level of intervention need from multiple sources of information including that of the method and severity of the attempt and the manifest symptoms. The gradations of the need for intervention are described as: (Score 1) no medical intervention is required or observation only; (score 2) first aid; (score 3) medical intervention specific to the method of suicide at the level of emergency care; (score 4) further care as in-patients which may involve admission to specialized units, and (score 5) intensive care. Attempts needing life support measures; or vigorous, often immediate, medical interventions are coded as score 5.

Global impression of lethality

Global impression of lethality of suicidal behavior is given in five grades: Subliminal, low, moderate, high, and extremely high. At the lowest "subliminal" level (score 1) of lethality suggests that death impossible to highly improbable as a result of the attempt. At low level (score 2) death is improbable; it is not the usual outcome of the attempt, but it may be possible as a secondary complication or factors other than the suicidal behavior. Moderate level of lethality (score 3) is conceptualized where probability of death is in the middle order. High lethality (score 4) suggests chance of death is high and it is the usual/likely outcome of the suicidal act; whereas, at extremely high level of lethality (score 5), chance of survival is minimal and death is considered as almost certain. These levels of lethality can be used independently as an ordered categorical degree of severity.

Use of the scale

The SALSA can be completed following usual clinical assessment of suicide attempt. It is a clinician rated scale. It is expected that clinicians with the information about the method of attempt, situations surrounding it, health risks associated with intentional self-harm or suicidal behavior and the intervention needs would be able to complete the assessment.

Scale for assessment of lethality of suicide attempt provides a clinically meaningful range of outcomes, suggesting that the scores will be reflective of different degrees of self-harm behavior presented by the patients in various set ups. In many situations making exact inference about the medical seriousness becomes difficult based solely on the suicide method, e.g. unavailability of detail information about the suicide method, exact quantity of ingested substance, when multiple substances or methods have been employed, etc., In these circumstances SALSA is expected to be especially helpful as it takes overall impressions from various factors.

LIMITATIONS

There are a few limitations of the study that may be considered. The sample size was relatively small. Although there are only five items in the questionnaire, and there is great variability about the appropriate sample size in this kind of studies,^[28,29] a larger sample size would have been

ideal. The information regarding the psychiatric illness was gathered from the family members or surviving attempters as a history. As there was no scope for diagnostic assessment, the proportions with these histories may not reflect the exact prevalence.

CONCLUSION

It appears that SALSA is a valid and reliable instrument and will be useful for assessment of lethality of suicidal behavior during usual clinical evaluations considering the ease of administration, its ability to differentiate clinical groups with known variations of lethality and clinical outcomes. Its scores and categories can describe the range of presentations of lethality that are observed in suicidal behaviors.

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REFERENCES

1. Beck AT, Beck R, Kovacs M. Classification of suicidal behaviors: I. Quantifying intent and medical lethality. *Am J Psychiatry* 1975;132:285-7.
2. Kar N. Lethality of suicidal organophosphorus poisoning in an Indian population: Exploring preventability. *Ann Gen Psychiatry* 2006;5:17.
3. Kar N. Profile of risk factors associated with suicide attempts: A study from Orissa, India. *Indian J Psychiatry* 2010;52:48-56.
4. Denning DG, Conwell Y, King D, Cox C. Method choice, intent, and gender in completed suicide. *Suicide Life Threat Behav* 2000;30:282-8.
5. Haw C, Hawton K, Houston K, Townsend E. Correlates of relative lethality and suicidal intent among deliberate self-harm patients. *Suicide Life Threat Behav* 2003;33:353-64.
6. Goldney RD. Attempted suicide in young women: Correlates of lethality. *Br J Psychiatry* 1981;139:382-90.
7. Nasser EH, Overholser JC. Assessing varying degrees of lethality in depressed adolescent suicide attempters. *Acta Psychiatr Scand* 1999;99:423-31.
8. Zalsman G, Braun M, Arendt M, Grunebaum MF, Sher L, Burke AK, *et al.* A comparison of the medical lethality of suicide attempts in bipolar and major depressive disorders. *Bipolar Disord* 2006;8:558-65.
9. Levi Y, Horeish N, Fischel T, Treves I, Or E, Apter A. Mental pain and its communication in medically serious suicide attempts: An "impossible situation". *J Affect Disord* 2008;111:244-50.
10. Horeish N, Levi Y, Apter A. Medically serious versus nonserious suicide attempts: Relationships of lethality and intent to clinical and interpersonal characteristics. *J Affect Disord* 2012;136:286-93.
11. Bhattacharjee S, Bhattacharya A, Thakurta RG, Ray P, Singh OP, Sen S. Putative effect of alcohol on suicide attempters: An evaluative study in a tertiary medical college. *Indian J Psychol Med* 2012;34:371-5.
12. Unni KE, Rotti SB, Chandrasekaran R. An exploratory study of the motivation in suicide attempters. *Indian J Psychiatry* 1995;37:169-75.
13. Reynolds P, Eaton P. Multiple attempters of suicide presenting at an emergency department. *Can J Psychiatry* 1986;31:328-30.
14. van Egmond M, Diekstra RF. The predictability of suicidal behavior: The results of a meta-analysis of published studies. *Crisis* 1990;11:57-84.
15. Smith K, Conroy RW, Ehler BD. Lethality of suicide attempt rating scale.

- Suicide Life Threat Behav 1984;14:215-42.
16. Berman AL, Shepherd G, Silverman MM. The LSARS-II: Lethality of suicide attempt rating scale-updated. *Suicide Life Threat Behav* 2003;33:261-76.
 17. Weisman AD, Worden JW. Risk-rescue rating in suicide assessment. *Arch Gen Psychiatry* 1972;26:553-60.
 18. Ramdurg S, Goyal S, Goyal P, Sagar R, Sharan P. Sociodemographic profile, clinical factors, and mode of attempt in suicide attempters in consultation liaison psychiatry in a tertiary care center. *Ind Psychiatry J* 2011;20:11-6.
 19. Banerjee S, Chowdhury AN, Schelling E, Brahma A, Biswas MK, Weiss MG. Deliberate self-harm and suicide by pesticide ingestion in the Sundarban region, India. *Trop Med Int Health* 2009;14:213-9.
 20. Dombrowski AY, Szanto K, Siegle GJ, Wallace ML, Forman SD, Sahakian B, *et al.* Lethal forethought: Delayed reward discounting differentiates high- and low-lethality suicide attempts in old age. *Biol Psychiatry* 2011;70:138-44.
 21. Spokas M, Wenzel A, Brown GK, Beck AT. Characteristics of individuals who make impulsive suicide attempts. *J Affect Disord* 2012;136:1121-5.
 22. Anastasia A. Validity: Basic concepts. In: *Psychological Testing*. New York: Macmillan Publishing Company; 1990. p. 139-57.
 23. Kline P. *The Handbook of Psychological Testing*. 2nd ed. London: Routledge; 1999.
 24. Zhang J, Xu H. Degree of suicide intent and the lethality of means employed: A study of Chinese attempters. *Arch Suicide Res* 2007;11:343-50.
 25. Kumar CT, Mohan R, Ranjith G, Chandrasekaran R. Characteristics of high intent suicide attempters admitted to a general hospital. *J Affect Disord* 2006;91:77-81.
 26. Rapeli CB, Botega NJ. Severe suicide attempts in young adults: Suicide intent is correlated with medical lethality. *Sao Paulo Med J* 2005;123:43.
 27. Brown GK, Henriques GR, Sosdjan D, Beck AT. Suicide intent and accurate expectations of lethality: Predictors of medical lethality of suicide attempts. *J Consult Clin Psychol* 2004;72:1170-4.
 28. Tinsley HE, Tinsley DJ. Uses of factor analysis in counselling psychology research. *J Couns Psychol* 1987;34:414-24.
 29. DeVellis RF. *Scale Development: Theory and Applications*. Chapel Hill, USA: SAGE; 2003.

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Appendix 1: Scale for assessment of lethality of suicide attempt

A. Method of attempt

1. No or questionable seriousness: nonlethal, recovery certain
2. Mildly serious: Death is unlikely, but possible as a secondary complication
3. Moderately serious: Possibility of death is in middle order
4. Highly serious: Death is likely
5. Extremely serious: Death is the usual outcome; survival chance is minimal to nil

B. Rescuability

1. High: Most easily rescuable
2. High moderate: More chance of rescue
3. Moderate: Chance of rescue 50/50
4. Low moderate: Less chance of rescue
5. Low: Chance of rescue minimal or nil

C. Physical consequences

1. No or nonspecific symptoms
2. Mild symptoms
3. Moderate symptoms
4. Severe symptoms
5. Extremely severe symptoms, organ failures

D. Medical intervention need

1. Medical intervention not required or observation only
2. First aid
3. Emergency care
4. In-patient care, specialized units
5. Intensive care, life support

E. Global impression of lethality

1. Subliminal: Death impossible to highly improbable
2. Low: Death improbable
3. Moderate: Death probable
4. High: Death highly probable
5. Extremely high: Death extremely probable to almost certain