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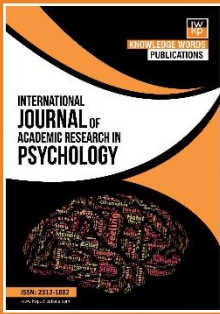
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The Malay version of the Revised-Suicide Ideation Scale (R-SIS): An Examination of its Psychometric Properties

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Abstract

The surge prevalence of suicidal behavior among Malaysian attracts attention for prevention and intervention. More recent plates measure suicide behavior per se and predict the tendency of future suicide behavior. However, in Malaysia, such scales were understudied and cause a massive lack of scales and instruments to measure suicidal behavior among Malaysian who was converse in Malay. This study aims to examine the psychometric properties of the translated the Revised-Suicide Ideation Scale (R-SIS) Malay version adapted from the Revised-Suicide Ideation Scale (R-SIS) developed by Rudd (1989). The scales were translated using the back-translation technique once the researcher gets approval for translation from the original author and reviewed by Medical Research Ethics Committee (MREC). The data obtained from a home-to-home survey around Citizen's Housing Project in Kuala Lumpur and Selangor using purposive random sampling. Overall, a sample of 263 adolescents participated by answering two scales measuring suicidal behavior in this study. The data were analyzed using descriptive statistics, correlation, reliability, and factorial analyses. The results yielded excellent reliability of the Malay translated Revised-Suicide Ideation Scale (R-SIS) and moderate concurrent validity with Beck Suicide Ideation (BIS). Meanwhile, the item-total correlation also shows an excellent discriminant validity. The factorial analysis produces only one factor, and the entire items are loaded into one component. This finding suggests that the Malay version of the Revised-Suicide Ideation Scale (R-SIS) is reliable for measuring suicide ideation and is appropriate for predicting suicide tendencies, particularly in Malaysian adolescents. Further studies are required to examine R-SIS Malay version construct among clinical samples.

Keywords: Suicide Ideation, Adolescent, Malaysia, Suicide Scale Reliability, Depression

Introduction

The increment of the suicide rate in Malaysia, mostly among adolescents, needs further attention and prevention. The data from the National Health Morbidity Survey (NHMS) conducted by Institute for Public Health Malaysia (IPHM) in 2017 states that the prevalence of suicidal behavior among Malaysian adolescents increases significantly since 2012. Suicidal ideation increases from 7.9% in 2012 to 10.0% in 2017, suicidal attempts risen from 6.4% in the year 2012 to 6.9% in 2017. Girls are more likely to have suicidal ideation (10.8%), but boys are a higher tendency to attempt suicide (7.0%) (IPHM, 2017). According to more recent research, Ibrahim et al (2019) found that 31.3 percent of adolescents seemed to have suicidal ideation or had attempted suicide. The overall suicide rate in Malaysia was 5.5 per 100 000 population (WHO, 2018).

Past research found that particular ethnicity was related to suicide behavior, such as Japanese, Korean, and Indian. World Health Organization (WHO) (2018) reported Asian countries such as Korea and India to have a much higher prevalence of suicide among other countries in the west. A decade ago, Cai et al (2011) reported Chinese are more likely to suicide (43%), followed by Indians (29%) and Malay (11%) in Malaysia. However, recent research shows that Indian adolescent dominates all three-suicide category (suicide ideation 19.3%, suicide plan 17.0% and suicide attempt 17.9%) followed by Chinese, Sabah and Sarawak Bumiputera and Malay (IPHM, 2017). Even though Indians were repeatedly identified as the most ethnic involved in suicidal behavior worldwide, including Malaysia (Susan & Yeoh, 1992), the suicidal pattern among Malays may be underreported. Hendin et al (2008) and World Health Organization (WHO) (2018) warned that the death committed by suicide among religion-oriented countries might be far lower than the real number due to cultural and religious sensitivity.

Another factor that leads to underreported suicide behavior among Malaysians, especially Malays, is due to stigmatization. A suicidal individual tends to keep it secret and would not tell anybody unless been asked by a medical professional during the clinical interview to diagnose mental disorders such as depression because they are afraid of being judged as seeking attention or having weak faith. IPHM (2017) indicated that depression is a silent epidemic among Malaysian people, and more worrying it is now affected by adolescents. According to Halim et al (2020), the prevalence of depression among adolescents in Klang Valley, Malaysia, has risen to 44.02 percent. However, psychiatric physicians and psychologists face another issue in determining how likely the patient will have another episode of suicidal behavior among depressed patients due to a lack of instruments to measure it.

To our knowledge, there are no original scales developed in Malaysia to measure the suicide behavior that is suits the language, cultural, and religious context in Malaysia. Following these issues, Malaysian mental health professionals rely heavily on suicide scales developed in English and then translated into Malay during clinical interviews with patients, such as the SAD Person Scales (SPS). Recent longitudinal studies reported that SPS failed to predict suicidal behavior accurately (Warden et al., 2014). Also, there was insufficient evidence to support SPS use in the assessment or prediction of suicidal behavior, high reliance on using this scale to assess suicidal behavior among patients could result in a colossal mistake in clinical interpretations (Warden et al., 2014).

This practice may cause the misinterpretation of the item's context, and there is no worse than declaring that particular individuals are highly suicidal. Still, they are not or identifying non-suicidal individual, but there are actually suicidal.

This current study will fill this gap by adopting the existing Revised-Suicide Ideation Scale (SIS) developed by Rudd (1989), translating them into the Malay language, and testing its psychometric properties.

Method

Procedure

Before the data collection, the study protocol was submitted to the Medical Research Ethics Committee (MREC), Ministry of Health Malaysia for ethical review and was approved under NMRR-17-2471-38272 (IIR).

The original author of R-SIS has permitted his scale to be translated. The scale was reviewed and translated into Malay by the author and co-authors. They were conversant in both English and Malay, equally oral and written. The Back-translation technique was used. The final step was reviewed by one of the co-authors who was not involved in the translation process to validate its face validity and confirm that the original and the translated content versions delivered the same meaning. A questionnaire consisting of two measures, namely R-SIS and BSI, was administered together with several demographic questions.

Sample

Adolescents from Selangor and Kuala Lumpur have a higher prevalence of suicidal ideation and involved in suicide attempts (IPHM, 2017). Therefore, we choose Projek Perumahan Rakyat Rejang (Rejang Citizen's Housing Project) and Projek Perumahan Rakyat Pantai Dalam (Pantai Dalam Citizen's Housing Project) in Selangor and Kuala Lumpur as our study's location. We select the non-clinical adolescent population in both states to administer the questionnaire rather than a clinical sample as the scale is intended to be used in screening suicide behavior in the average population. We estimate the total population of the adolescent from both locations were 800 individuals. The sample size was calculated using Krejcie and Morgan (1970) formula and yielded a sample size of 260. The purposive random sampling design was used to select respondents, and we search the potential respondent from home to home. Around 300 adolescents approached; only 263 respondents volunteered to participate. The respondents were explained about the study, and they were given an information sheet to read about the study. Then they signed an informed consent form before answering the questionnaire. All completed questionnaires were stored in the locked office to ensure their safety following Medical Research Ethics Committee (MREC) requirements.

Measures

The Revised-Suicide Ideation Scale was developed by Rudd (1989). This scale consisted of 10 items and took 5 minutes to measure the level of suicide ideation or intention among adolescents and adults in both clinical and non-clinical samples (Luxton et al., 2011). Each item has five Likert options of 1 (never) to 5 (many times). The respondents were required to respond to each statement according to their feelings or behavior over the previous year. This scale showed excellent psychometric properties. In terms of reliability, the internal consistency test showed a Cronbach's alpha of $\alpha = 0.86$ and an inter-item correlation ranging from $r = 0.45$ to 0.74 among college students (Rudd, 1988). The construct validity of this study was found to be correlated with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) with $r = 0.55$, $p < 0.001$ and Beck

Hopelessness Scale (BHS; Beck, Weissman, Lester & Trexler, 1974), $r = 0.49$, $p < 0.001$ (Rudd, 1988). Discriminant validity was also being tested, and mean R-SIS scores for subjects with suicide attempts were compared to all other subjects. The t-test score showed highly significant differences between suicide attempters (Mean, $M = 17.15$) were much higher than for other subjects (Mean, $M = 10.61$), $t(728) = 12.40$, $p < 0.001$. Also, Exploratory factor analysis (EFA) analysis yielded a two-factor solution consistent with finding by Joiner, Rudd & Rajab (1997). The two factors addressed are Resolved Plans and Preparation in items number 10, 4, 3, 1, 9, and 2, which accounted for 17.3% of the variance, and Suicide Desire in items 7, 5, 6, and 8, which accounted for 15.1% of the variance. Both factors demonstrated a good fit to the Confirmatory factor analysis (CFA) data (Luxton et al., 2011). The scores for this scale ranged from 10 (no suicide ideation) to as high as 36 (serious suicide ideation) with a mean of 12.04 and a standard deviation of 3.73. Score 15 or greater used as the cut-off point starter score of minimum suicide ideation among college student and also considered as serious suicidal ideation in a clinical sample (Luxton et al., 2011).

The second measure was The Beck Suicide Ideation Scale (BSI) developed by Beck and Steer (1991). This scale consisted of 21 self-administered items and took 10 minutes to measure a patient's current intensity of specific attitudes, behaviors, and plans to commit suicide. Each item scored using a 3-point Likert scale ranging from 0 to 2. The total score was calculated by summing the first 19 items to yield a total score ranging from 0 to 38. BSI showed high reliability in internal consistency, with Cronbach's coefficient alphas ranging from 0.87 to 0.90 (Beck & Steer, 1991). The concurrent validity for this scale was tested using the Scale for Suicide Ideation and yielded a high correlation coefficient, $r = 0.90$ among psychiatric inpatients and $r = 0.94$ among psychiatric outpatients (Beck, Steer & Ranieri, 1988). Besides, BSI was also found moderately correlated with the Beck Depression Inventory Suicide Item with the correlation coefficient, $r = 0.58-0.69$, Beck Depression Inventory, $r = 0.64-0.75$, and Beck Hopelessness Scale, $r = 0.53-0.62$ (Beck, Steer & Ranieri, 1988). In terms of factor structure, Steer et al. (1993) ran a principal factor analysis among psychiatric inpatients and showed three factors structured BSI. The first factor is the Desire for Death (five-item), Preparation for Suicide (seven-item), and Actual Suicide Desire (four-item). However, Deterrents to Death and Deception or Concealment items did not load into any factor.

We decided to translate the Suicide Ideation Scale into the Malay version rather than BSI for several reasons. Our first intention is to adopt a suicide ideation screening tool rather than a diagnostic instrument, but it can be used in both clinical and non-clinical samples. We found R-SIS fit this requirement. The researcher, enumerator, and the other professionals interested in studying and screen suicide ideation in their patients do not require a license to administer this tool. Thus, it would be beneficial to those who are not well-trained in psychological tools like medical doctors, psychiatric nurses, counselors, and students to fully utilize them. The R-SIS item also is more accessible to comprehend, shorter, and less time-consuming rather than BSI.

Statistical Analysis

The data were analyzed using the IBM Statistical Package for Social Sciences (SPSS) version 24. At the same time, descriptive statistics were used to analyze the demographic profile of the respondents. Factor analysis was performed to explore the factor structure of this scale. A Cronbach's Alpha reliability test and inter-item correlation test were used to examine the internal consistency to measure the stability and the degree that could produce consistent results. Meanwhile, the validity

of this scale was examined using item-total correlation. It means determining the discriminant validity, and bivariate correlation was utilized to investigate the R-SIS concurrent validity.

Results

The demographic profile distribution showed that 54.4% of the respondents were males and 45.6% females. Their age ranged from early to late adolescence, with periods starting from 13 to 24 years old. The ethnic breakdown consisted of 84.4% Malays, 12.9% Indians, 1.9% Chinese, and the other 0.8% originating from Sabah and Sarawak. Most respondents with the highest education level are bachelor's degree (13.7%). Also, 263 respondents, 88.2% of them were Muslims, 9.5% Hindus, 1.5% Christians, and only 0.4% were Buddhist. Another, 87.5% live with their parents, 4.6% live with their parents who live apart, and 7.6% of respondents live with divorced parents. All the respondent was also identified as not married yet.

Table 1. Demographic Profile.

Variable		Frequency	Percentage (%)
Gender	Male	143	54.4
	Female	120	45.6
Age (years)	13-16	95	36.1
	17-20	94	35.7
	21-24	74	28.1
Race	Malay	222	84.4
	Chinese	5	1.9
	Indian	34	12.9
	Sabah & Sarawak	2	0.8
Education	School Drop Out	5	1.9
	UPSR	36	13.7
	PMR	60	22.8
	SPM	72	27.4

(continued)

Table 1. Continued.

Variable		Frequency	Percentage (%)
	Certificate	17	6.5
	Diploma	37	14.1
	Degree	36	13.7
	Degree	36	13.7
	Muslim	232	88.2
	Hindu	25	9.5
Religion	Buddhist	1	0.4
	Christian	4	1.5
	Other	1	0.4
Parent's Marriage	Married	230	87.5
Status	Married but live apart	12	4.6
	Divorced	20	7.6

Note. UPSR=primary school examination; PMR=lower secondary school examination, SPM=upper secondary school examination.

Factor analysis was performed to obtain more information and understanding the instrument's structure. The ten items of the Revised Suicide Ideation Scale were tested using Principal Component Analysis (PCA). Before running the analysis, the data's suitability was assessed, and the correlation matrix showed that all the correlated items were between 0.577 and 0.702. The factor analysis test suitability was conducted and yielded a Kaiser-Meyer-Olkin (KMO) test result of 0.911, approximately to 1, thus confirming that factor analysis could be done. Bartlett's test was also significant (1904.85, $p < 0.01$), and no multicollinearity was found. The PCA result yielded only one component with an eigenvalue of more than 1, which explained 64.30% of the variance and was confirmed by the scree plot, which showed that only one factor was produced. All items are loaded onto this component (refer to Table 2). Our finding shows a contradiction from a previous study that found a two-factor structure (Joiner, Rudd & Rajab, 1997; Luxton et al., 2011).

Table 2. Varimax Rotated Factor Loadings.

Item	Component 1
1	.776
2	.744
3	.790
4	.802
5	.770
6	.833
7	.843
8	.810
9	.821
10	.823

The reliability analysis shows the Malay translated R-SIS has a good alpha Cronbach's coefficient, $\alpha = 0.936$, $p < 0.01$, which is higher than the original R-SIS version, $\alpha = 0.86$ $p < 0.001$. (refer to Table 3). However, we did not perform test-retest reliability to indicate redelivery in the R-SIS Malay Version.

Table 3. Reliability Analysis of the Malay version R-SIS.

Cronbach's Alpha	No. of Items
0.936	10

The inter-item correlation results determined the Pearson correlation coefficients ranging from $r = 0.471 - 0.711$, $p < 0.01$. It was slightly lower than the original version of R-SIS, which recorded the item-total correlation ranged from 0.45 to 0.74 (Rudd, 1989).

Table 4. Internal Consistency of the Malay version R-SIS.

	RSIS 1	RSIS 2	RSIS 3	RSIS 4	RSIS 5	RSIS 6	RSIS 7	RSIS 8	RSIS 9	RSIS 10
RSIS 1	1	.57**	.61**	.59**	.53**	.61**	.58**	.52**	.56**	.68**
RSIS 2		1	.71**	.56**	.47**	.52**	.52**	.48**	.66**	.52**
RSIS 3			1	.52**	.59**	.56**	.58**	.54**	.59**	.64**
RSIS 4				1	.58**	.68**	.69**	.60**	.59**	.60**
RSIS 5					1	.67**	.66**	.61**	.57**	.50**
RSIS 6						1	.71**	.66**	.59**	.66**
RSIS 7							1	.71**	.67**	.61**
RSIS 8								1	.67**	.69**
RSIS 9									1	.67**
RSIS 10										1

Note. RSIS = Revised Suicide Ideation Scale.

The item-total correlation was used to examine the discriminant validity of this scale. The results showed a correlation between the item and the total score ranging from $r = 0.74 - 0.85$, $p < 0.01$, which indicated excellent discrimination.

Table 5. Descriptive item statistics of the Malay version R-SIS.

Item	Item-Total Correlation	Mean	Standard Deviation
1. Saya telah memikirkan pelbagai cara untuk membunuh diri	0.76**	1.26	0.65
2. Saya telah memberitahu seseorang bahawa saya ingin membunuh diri	0.74**	1.33	0.78
3. Saya percaya hidup saya akan berakhir dengan cara bunuh diri	0.79**	1.35	0.86
4. Saya telah melakukan beberapa cubaan untuk membunuh diri	0.80**	1.29	0.78

(continued)

Table 5. Continued.

Item	Item-Total Correlation	Mean	Standard Deviation
5. Saya rasa hidup saya tidak bernilai/tidak bermakna	0.78**	1.48	0.92
6. Hidup saya sangat teruk sehingga saya rasa putus asa/tiada harapan lagi	0.84**	1.54	0.98
7. Saya cuma berharap agar hidup saya akan berakhir	0.85**	1.51	1.02
8. Adalah lebih baik untuk semua orang jika saya mati	0.82**	1.46	0.99
9. Saya rasa masalah saya tiada jalan penyelesaian melainkan saya bunuh diri	0.83**	1.42	1.01
10. Saya sudah hampir untuk mengambil nyawa saya sendiri	0.82**	1.33	0.83

Note. $p =$ significance level.

** $p < 0.01$

To examine the R-SIS concurrent validity, we tested the Malay version of R-SIS with the Beck Scale for Suicide Ideation (BSI). Using bivariate correlation analysis, we found that the R-SIS correlated well with BSI yielding, $r = 0.549$, $p < 0.01$. This correlation suggested that the Malay version of R-SIS has a moderate concurrent validity.

Table 6. Concurrent Validity of the Malay version R-SIS.

	BSI	R-SIS
BSI	1	.549**
R-SIS		1

Note. p = significance level; BSI = Beck scale for suicide ideation; R-SIS = revised-suicide ideation scale

** $p < 0.01$

Discussion

The Malay version of the Revised - Suicide Ideation Scale has undergone various analyses and, ultimately, indicated high reliability and discriminant validity but only yielded a moderate concurrent validity, thereby achieving this research's objective. The factor analysis delivered only one component, measuring the suicide ideation, and confirmed the previous study's findings, such as Rudd (1988). However, other research on R-SIS conducted by Luxton et al. (2011) among a military clinical sample found two factors in both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The first factor was 'ongoing thought or desire,' and the second factor was 'intense thought, plan, courage, and capability to commit suicide.' These two R-SIS factors were consistent with what Joiner et al (1997) found in their clinical sample. Interestingly, one made factor was derived from the non-clinical sample, and two factors were obtained from the clinical selection. Further studies may be required to investigate the differences R-SIS Malay version construct and score in non-clinical and clinical samples.

In terms of reliability and validity analysis, this research found good reliability in both the Cronbach's alpha coefficient analysis and internal consistency analysis and moderate to good discriminant and construct validity, consistent with the previous investigation done by Luxton et al. (2011); Rudd (1989). We suggest that the Malay version of the R-SIS is satisfactory enough for statistical analysis and suitable for use in Malaysia's culture and context. However, these results may be considered as the first step towards introducing the Malay version of R-SIS; psychometrics could be further established with additional research.

Limitation

Several limitations should be acknowledged in this study. We used an adolescent sample derived from a general population, which is also known as a non-clinical sample. As we studied previous papers, it appears that the factor loadings were influenced by whether it was a clinical or non-clinical sample. We can see that the clinical sample produced two factors, while the non-clinical sample only produced one factor. This result may be influenced by other external factors, such as the clinical sample may have previous suicidal ideation or attempt. They made the second factor we found, 'intense thought, plan, courage, and capability become crucial to this sample. In addition to the first limitation, several studies have been conducted on urban and suburban adolescents and youth. However, the sample is chosen in this study only focused on adolescents who live in big cities around Selangor and Kuala Lumpur. Thus, we cannot compare the variation between these two samples because it may produce different or interesting results.

Despite these limitations, there are a few benefits from this study because the adaptation of R-SIS into the Malay version will be useful for other researchers to investigate further suicidal ideation among adolescents and adults, especially in Malaysia. Thus, it can directly impact improving mental

health and quality of life within the Malaysian context. Additionally, this study provides a convenient and valuable tool for early screening of suicide ideation among adolescents and young adults. However, we highly recommended that local researchers develop the instruments to measure suicidal behavior by own without adopting any other measures developed by other research in other countries. It may give different values in terms of language, culture, religion, social, and other psychological traits.

Conclusion

The Malay version of the R-SIS has undergone several analyses to confirm its ability to measure suicide ideation. It has produced trustworthy reliability, which is consistent reliability and validity with other previous studies. These findings are satisfactory for use in future research, especially in Malaysian culture. We hope that the availability of this kind of scale in Malay will support other researchers to study and deepen the knowledge about suicidal ideation in Malaysia. Thus, hopefully, someday, we will be able to offer a path to suicidal individuals and show them a bright future

Declaration of Conflicting Interests

The author(s) declare that there no conflict-of-interest respect to the research, authorship, and/or publication of this article.

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