Indonesian Version of the Risk-Taking and Self-Harm Inventory for Adolescents: Validation and Psychometric Testing

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ABSTRACT: Self-harm in adolescents is becoming an issue of increasing concern, especially due to increased exposure to content on social media that can influence their behaviour. Adolescents who are experiencing emotional distress often use self-harm as a coping mechanism to deal with stress, anxiety, or feelings of helplessness. The development of an Indonesian version of this instrument is necessary to provide a valid and reliable measurement tool appropriate to the local cultural context in identifying tendencies towards self-harm and risk-taking behavior in the adolescent population in Indonesia. The aim of this research is to develop an Indonesian of the risk-taking and self-harm inventory for adolescents (SHIA). A sample of N = 446 participants was approached through an online survey created using google forms, a free online survey tool. Data were collected from various universities in Indonesia, 84 male students (18.8%) and 362 female students (81.2%). SHIA-18, with four aspects, namely: 1) mutilation, (2) self-harm, (3) overdose, and (4) suicide attempts. Data were analysed using a Rasch model approach. The findings of this research produced the SHIA-18 which has satisfactory psychometric properties as a valid and consistent tool for assessing the level of self-harm in adolescent, consisting of 18 items. The tool demonstrated strong internal consistency and measurement properties, and its performance was found to be invariant across gender.

INTRODUCTION

Self-harm in adolescents is an issue that is increasingly receiving attention, especially due to increased exposure to content on social media that can influence their behaviour (Erwinda & Kurnaedi, 2024; Udam et al., 2024). The deliberate, direct, and socially intolerable destruction or alteration of body tissue that occurs in the absence of suicidal intent is referred to as non-suicidal self-injury (NSSI; Nock, 2009). Adolescents and young adults exhibit comparatively frequent NSSI behaviour, such as cutting, scratching, hitting, or burning themselves (Grandclerc et al., 2016). In studies conducted on adolescents in population-based settings, the lifetime prevalence rates vary from 3% to 27.6% (Barrocas et al., 2015; Brunner et al., 2014; Moran et al., 2012). In Portugal, research that employed convenience samples of adolescents determined that DSH had lifetime prevalence rates ranging from 7.3% to 30% (Carvalho et al., 2017; Duarte et al., 2020; Guerreiro et al., 2017). Two independent systematic reviews showed lifetime prevalence of 17.2% and 18% in adolescents, respectively (Calvete et al., 2015; Heath et al., 2016), which is comparable to the 16.9% observed by (Duarte et al., 2019). Self-harm behavior in adolescents is also a significant issue in Indonesia, characterized by an increasing tendency for adolescents to engage in self-harm in

response to psychological pressure, academic stress, and the influence of social media content; however, national prevalence data is still limited, so broader and more systematic research is needed to understand the scope and underlying factors.

This behaviour is first observed between the ages of 12 and 14 (S. Kim et al., 2022), and its prevalence increases during adolescence (Barrocas et al., 2015). According to research, approximately 10–23% of adolescents in the general population report engaging in NSSI behaviours (Barrocas et al., 2015; Hawton et al., 2012). Nevertheless, the clinical population's prevalence of NSSI among hospitalised adolescents is approximately 30%-50% (Hamza et al., 2012). It is well-established that girls exhibit NSSI at an earlier age than boys and are at a greater risk of developing self-harm behaviours during adolescence (Andover et al., 2007; Prinstein et al., 2008). Over the duration of its development from adolescence to early adulthood, NSSI experiences a decline. Nevertheless, the behaviour is maintained by approximately 20% of adolescents for a period exceeding five years, and it frequently evolves into a chronic and malignant practice that persists into maturity (Barrocas et al., 2015).

Individuals who frequently engage in NSSI and employ multiple NSSI methods to inflict greater physical harm tend to exhibit higher levels of psychological impairment, including various psychiatric disorders, risk-inducing behaviours, and suicidality (Klonsky & Olino, 2008; Whitlock et al., 2008). Researchers have discovered robust correlations between NSSI and mental health issues, such as anxiety, depression, and borderline personality disorder (Valencia-Agudo et al., 2018). However, repetitive NSSI may eventually result in suicide attempts, despite the fact that it commences as deliberate self-harm without the intention of demise. It is well-established that individuals who engage in NSSI employ NSSI behaviour to manage stressful social situations and negative emotions. Furthermore, they develop a desensitisation to the pain associated with self-harming, a pattern that is associated with suicidality, and they experience negative reinforcement (e.g., decreased anger or sorrow; Fox et al., 2017; C. L. Kim et al., 2018).

As a result, the prevention and treatment of NSSI in adolescents are contingent upon the early detection of the condition. The prevalence of NSSI among adolescents in Asia is increasing at an accelerated pace. In a recent nationwide comprehensive enumeration survey, 7.9% of middle school students and 6.4% of high school students in South Korea reported a history of NSSI behaviour (Kim et al., 2018). In Korea, empirical studies have demonstrated that approximately 12.4%–20% of middle school pupils reported engaging in self-injurious behaviour (Lee, 2016). For the past two decades, a diverse array of instruments has been created to evaluate self-harm behaviours. However, there are only a handful of peer-reviewed and validated self-injury measures. Self-Harm Inventory (Sansone et al., 1998) is a valid self-report measure that was the first and is still extensively used to evaluate self-harm behaviours. It detects borderline personality disorder with a success rate of 87.9% and comprises 22 binary items. Another prevalent NSSI assessment is the Deliberate Self-Harm Inventory (DSHI; Gratz, 2001). It is composed of 17 items that examine the explicit behavioural aspects of NSSI, including the method, frequency, and duration of NSSI behaviours during the respondent's lifespan. The multidimensional aspects of NSSI are assessed by several other measures, while the SHI and DSHI concentrate on NSSI behaviours. The Functional Assessment of Self-Mutilation (FASM) for instance, inquiries about the method, frequency, and treatment of NSSI, as well as the motivations for self-harm (Lloyd et al., 1997).

In addition, the Inventory of Statements About Self-Injury (ISAS) assesses the function of self-injurious behaviours and the respondent's statements regarding self-injury (Klonsky & Glenn, 2009). For a variety of factors, these self-report measures are not always the optimal choice for evaluating self-harm behaviours among adolescents, despite their high psychometric soundness rate (Borschmann et al., 2012). First and foremost, the majority of the aforementioned inventories have been validated using young adult samples. However, certain items (such as those in the SHI on "reckless driving" and "unsafe sexual relationships") are not suitable for use with adolescents in the

Asian countries. Currently, there is no validated measure to assess self-injury behaviour in Indonesian adolescents. Second, although these measures are intended to assess NSSI behaviour, some of them do not explicitly correspond to observable behaviours. In contrast to assessing self-injury behaviour explicitly, certain items of the SHI (items 11, 12, 14, 15, 17, and 20) probe interpersonal, occupational, and religious aspects of these behaviours. Given the possible disparity in self-harm behaviours between Asian and Western cultures, along with the absence of reliable assessment tools for specific self-harm behaviours in Asia, it is imperative to create items that accurately represent self-harm behaviours in Eastern countries. The aim of this research is to develop an Indonesian of the risk-taking and self-harm inventory for adolescents (SHIA).

METHODS

Procedures and Participants

After obtaining approval from the Educational Assessment Association, Serang, Indonesia (Ethical approval number 086/EA/AAP/XII/2024) regarding to the research procedures and questions, an online survey link was created using Google Forms, a free online survey tool. An email containing the link to the survey was sent to all potential participants, and they were informed that their participation was completely voluntary. Data were collected from various education sectors totalling 446 adolescents, consisting of Schools and Universities in Indonesia, 84 male adolescents (18.8%) and 362 female adolescents (81.2%).

Scale Development

The development of an Indonesian version of the Self-Harm Inventory for Adolescents (SHIA-18) was guided by a theoretical framework (Vrouva et al., 2010). An extensive literature review was conducted to assess various aspects of self-harm inventory for adolescents. A total of 32 related items were identified in four aspects, namely: (1) mutilation, (2) self-harm, (3) overdose, and (4) suicide attempts. After removing items with similar content or expression, 25 items were retained for further evaluation. Experts including, therapists, health psychologists, psychiatrists, and general practitioners validated the 22 items, thereby eliminating 3 items based on their recommendations. Furthermore, 22 revised items were submitted to various experts such as health education, counseling, social psychologists, and educators for review. A total of 4 additional items were removed based on feedback from the second validation expert. A five-point Likert scale was used to assess whether students understood the item descriptions, the answers from SHIA are always, often, sometimes, rarely, and never. Additionally, telephone-based cognitive interviews were conducted with the same respondents to explore their thoughts on each scale item and response. The results indicated that no further changes were necessary. Based on these several stages, 18 items were used to carry out the trial.

Data and Statistical Analysis

In the course of this investigation, the Rasch model was utilised as the method of analysis. This technique, which is sometimes referred to as the Rasch Model or Measurement, was initially presented by George Rasch, a Danish mathematician, in the year 1960 (Bond et al., 2020). The Item Response Theory (IRT), which investigated the connection between the characteristics of the items being analysed and the capabilities of the respondents, served as the foundation for the analysis (Waugh, 2012). In addition, Rasch analysis offers more comprehensive diagnostic information for scale expansion (Boone, 2016), which is an additional benefit that contributes to the process of establishing reliable psychometric estimates in the context of SHIA-18. For the purpose of determining whether or not the data that was seen corresponded to the Rasch expectations (Boone et al., 2014; Sumintono, B., & Widhiarso, 2015; Syahputra et al., 2022), the computer programme Winstep, version 5.5.0, and its user guide (Linacre, 2021) were utilised throughout the process. In

order to determine the overall fit of the SHIA-18, as well as its diagnostic rating scale, targeting, Unidimensionality, and local independence assumptions, as well as item measurements, fit indices, and measurement precision, an analysis was performed.

Data cleaning

Prior to analysis, suspicious responses that indicated carelessness (e.g., responding 'Very Severe' to all items despite reverse wording) were eliminated.

Reliability

Investigate reproducibility of measure locations for items and persons.
- Reliability should be at least 0.70
- Strata should be at least 2

Dimensionality

Investigate whether scale is unidimensional
- The percentage of explained variance by the measure above 40%
- The first unexplained variances are less than 2 eigenvalues

Item Bias
Investigate whether items have different probabilities of endorsement from persons of the same ability level across gender
- Significant probability Rasch-Welch test and DIF contrast of more than 0.43

Person response

Investigate the quality of person response
- Fit statistics (Outfit MNSQ) less than 2 to identify mis fitting person
- SE Logit

Item properties

Investigate the quality of items
- Fit statistics (Outfit MNSQ) fall between 0.5 to 1.5
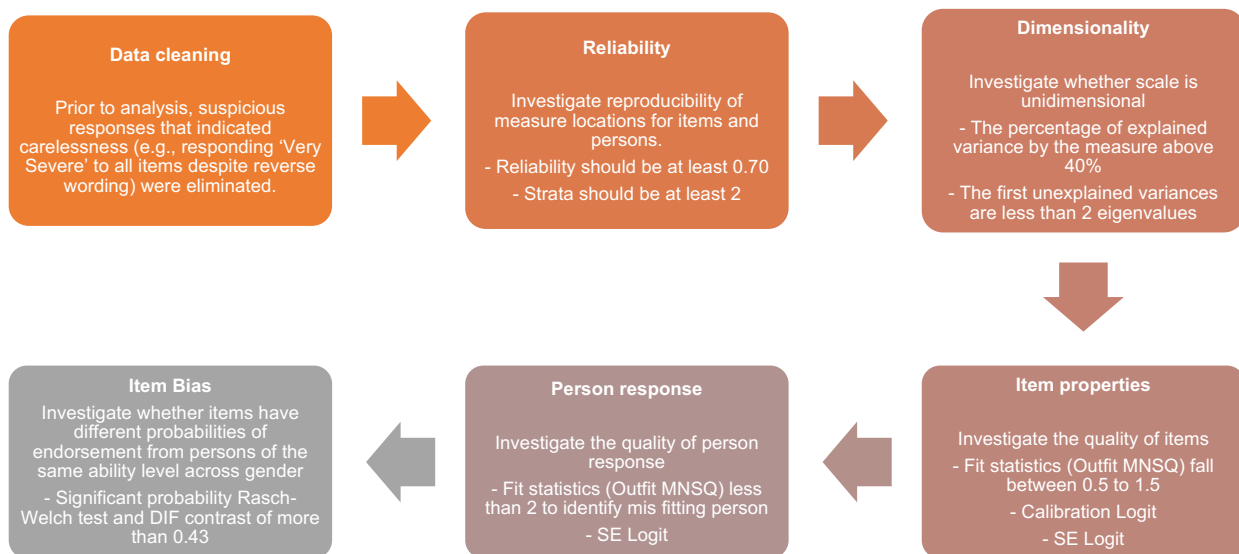- Calibration Logit
- SE Logit

Figure 1. Data analyses flow.

RESULTS AND DISCUSSION
Results of Rasch measurement model

The findings of the Rasch analysis for SHIA-18 are presented in Table 1. The person reliability index (0.79) indicates that there is a good level of consistency between individuals, when compared to the item reliability index (0.99), which indicates that the score is excellent. The tool was also shown to have 'excellent' internal consistency, which indicated that it had a high level of dependability, according to Cronbach's alpha coefficient, which was 0.81. The values for person Separation (1.92), as well as Item Separation (12.08), are presented in Table 1. These numbers demonstrate that SHIA-18 is able to differentiate between different degrees of person ability that are concealed attributes and changes in item distribution. Tennant et al. (2011) found that the results demonstrate that this scale is capable of providing a summary of the range of a person's competence, which can range from low to extremely high and reflects the capacity to frame effective questions, regardless of how easy or complex they are.

Table 1. Summary statistics of person and item (I = 18, N = 446).

	Reliability	Separation index	Mean measure*)	Infit MNSQ/ZSTD	Outfit MNSQ/ZSTD	Cronbach's alpha	Raw variance
Person	0.79	1.92	-1.15	1.00/-0.01	1.01/0.10	0.81	44.7%
Item	0.99	12.08	0.00	1.06/0.32	1.01/0.01		

*) Measure in Logit.
**) Computed through Principal Component Analysis (PCA).

This investigation demonstrates that SHIA-18 is an appropriate and trustworthy instrument for determining the amount of self-harm that students engage in. It was clear that this was the case because the distribution among the various responders and item components was satisfactory. Additionally, the average value of the item and person measures is presented in Table 1, with the average value for the person being -1.15 logit scale. According to the results of this

study, the average ability of those who fill out this scale tends to have a low degree of self-harm on average.

Table 2. The summary of item measure (I = 18, N = 446).

Item	Infit Mean	Outfit Mean	Calibration Logit	SE Logit	PT Measure Correlation
1. Pernahkah Anda dengan sengaja menyayat kulit Anda	.96	.86	.09	.06	.56
2. Pernahkah Anda dengan sengaja membakar diri Anda dengan benda panas (misalnya rokok)	1.13	1.23	1.30	.11	.33
3. Pernahkah Anda dengan sengaja menggigit diri sendiri hingga kulitnya terkelupas	1.14	1.12	.20	.07	.42
4. Pernahkah Anda dengan sengaja membenturkan kepala ke sesuatu atau memukul atau meninju diri sendiri hingga menimbulkan memar	.83	.86	-.61	.05	.61
5. Pernahkah Anda dengan sengaja mencegah penyembuhan luka atau memencet area tubuh Anda hingga mengeluarkan darah	1.16	1.19	-.68	.05	.41
6. Pernahkah Anda dengan sengaja menggores, menggosok, atau menggaruk kulit hingga kulit Anda terkelupas atau mengeluarkan darah	1.08	1.13	-.43	.05	.43
7. Pernahkah Anda dengan sengaja menggosokkan benda tajam (misalnya amplas) atau meneteskan benda beracun (misalnya asam) ke kulit Anda	1.27	1.07	1.47	.12	.30
8. Pernahkah Anda memaksakan bagian tubuh yang cedera untuk bergerak dengan tujuan melukai diri sendiri	.92	.86	.26	.07	.59
9. Pernahkah Anda dengan sengaja mencabut rambut Anda	1.11	1.27	-1.21	.05	.32
10. Pernahkah Anda membuat diri Anda kelaparan untuk menyakiti atau menghukum diri sendiri	.95	.97	-1.01	.05	.59
11. Pernahkah Anda memaksakan diri makan terlalu banyak untuk menyakiti atau menghukum diri sendiri	1.39	1.30	.43	.07	.40
12. Pernahkah Anda menjalin persahabatan atau hubungan dengan seseorang yang berulang kali sengaja menyakiti perasaan Anda	1.18	1.25	-1.00	.05	.40
13. Pernahkah Anda mencoba membuat diri Anda menderita dengan memikirkan hal-hal buruk tentang diri Anda	.85	.84	-1.42	.05	.59
14. Apakah Anda pernah mengalami overdosis	1.24	.94	1.11	.10	.43
15. Pernahkah Anda berpikir serius untuk melukai salah satu bagian tubuh Anda	.73	.69	-.29	.06	.69
16. Pernahkah Anda berpikir serius untuk bunuh diri	.88	.79	-.29	.06	.67
17. Pernahkah Anda mencoba bunuh diri	.89	.70	.81	.08	.55
18. Pernahkah Anda dengan sengaja melukai diri sendiri dengan cara-cara tersebut di atas sehingga mengakibatkan rawat inap atau cedera yang cukup parah sehingga memerlukan perawatan medis	1.43	1.10	1.25	.11	.37

Unidimensional and Local Independence

The Rasch principal component analysis unveiled compelling insights into the data. It revealed that SHIA-18 accounts for a substantial portion of the variance, explaining 44.7% (Table

1) of the total variation with an eigenvalue of 14.53. This surpasses the predetermined threshold of 40%, signifying a robust explanatory power of SHIA-18 in the observed phenomena. Furthermore, the analysis indicated minimal unexplained variance in the subsequent contrasts. Specifically, the first contrast exhibited less than 15% unexplained variation, amounting to 7.2% with an eigenvalue of 2.35. Similarly, the second, and third contrasts demonstrated minimal unexplained variation, standing at 5.2% (eigenvalue 1.69), and 3.8% (eigenvalue 1.24) respectively. These results strongly support the assumption of Unidimensionality, suggesting that the SHIA-18 construct adequately captures the underlying structure of the data. The discovery, along with the satisfactory infit and outfit values, offers data that supports the unidimensional nature of the SHIA-18. Furthermore, all SHIA-18 items are considered to be locally independent, as none of the standardized residual correlations between the items were found to be greater than 0.7 (Linacre, 2017).

Model Data Fit

The comprehensive analysis presented in Table 2 reveals that across 18 items, the infit and outfit values consistently adhere to the optimal range of 0.5 to 1.5 logits, with all corresponding standard error (SE) logit values range from 0.05 to 0.12. Specifically, the infit values span from .83 to 1.39, while the outfit values range from .84 to 1.30. These robust findings strongly indicate that the application of the Rasch model effectively captures the underlying structure of the data, substantiating its appropriateness for further examination and interpretation. These findings suggest that the Rasch model is a good fit for the data.

Person Measure and Wright Map

The individual measurements are intended to assess students' SHIA-18 levels and the results are presented in Table 3. Based on the Rasch calculations obtained, the top and bottom 5 responses from the 446 respondents in this study are shown in Table 3. The highest person size response was female (person code 227F = 1.57 logit; S.E = 0.36) which showed the highest SHIA-18 level. Meanwhile, male with person code 253M had the lowest SHIA-18 level (-2.91 logit; S.E = 0.66).

Table 3. The summary of person measure (I = 18; N = 446).

Person	Infit Mean Square Residual	Outfit Mean Square Residual	Calibration Logit	SE Logit
227F	1.34	1.54	1.57	.36
51F	1.46	1.38	1.21	.33
12M	.95	.82	.91	.31
105F	.63	.57	.91	.31
35F	2.37	2.50	.82	.30
253M	.66	.39	-2.91	.66
440M	1.10	.58	-2.57	.53
426M	1.01	.44	-2.57	.53
313F	.99	.50	-2.57	.53
20F	.70	.72	-2.57	.53

M = Male; F = Female

The item-person map, utilizing the Andrich thresholds, visually displays the level of difficulty for items and the ability of individuals on a measurement scale for polytomous items. The left side represents the measures of individuals, with "#" symbolizing groups of three people and each "." representing a one or two person. On the right side, the item difficulties are depicted (refer to Figure 2). The average of the individual measurements is shown by the symbol 'M' to the left of the central line, whereas the mean of the item logits is represented by 'M' to the right. The symbols 'S' and 'T' represent one and two standard deviations from the means, respectively.

For example, I0007 has a higher logit value compared to the other 17 items, meaning that I0007 is the most difficult item for students to answer, as for I0007, "*Pernahkah Anda dengan sengaja menggosokkan benda tajam (misalnya amplas) atau meneteskan benda beracun (misalnya asam) ke kulit Anda?*." Apart from that, I0013 is the item that is easiest for students to answer, as for I0013, "*Pernahkah Anda mencoba membuat diri Anda menderita dengan memikirkan hal-hal buruk tentang diri Anda?*". In addition, the item separation index of 12.08 indicates good variability of SHIA-18 items along the measurement scale. A split reliability of 0.99 indicates a high level of confidence in replicating item placement within measurement error for other samples. The person separation index of 1.92 suggests that the SHIA-18 may be sensitive in differentiating athletes of different levels. In addition, person separation reliability was 0.79, indicating a high level of confidence in replicating individual assignment within measurement error. Figure 2 also illustrates that subjects and items are well separated.
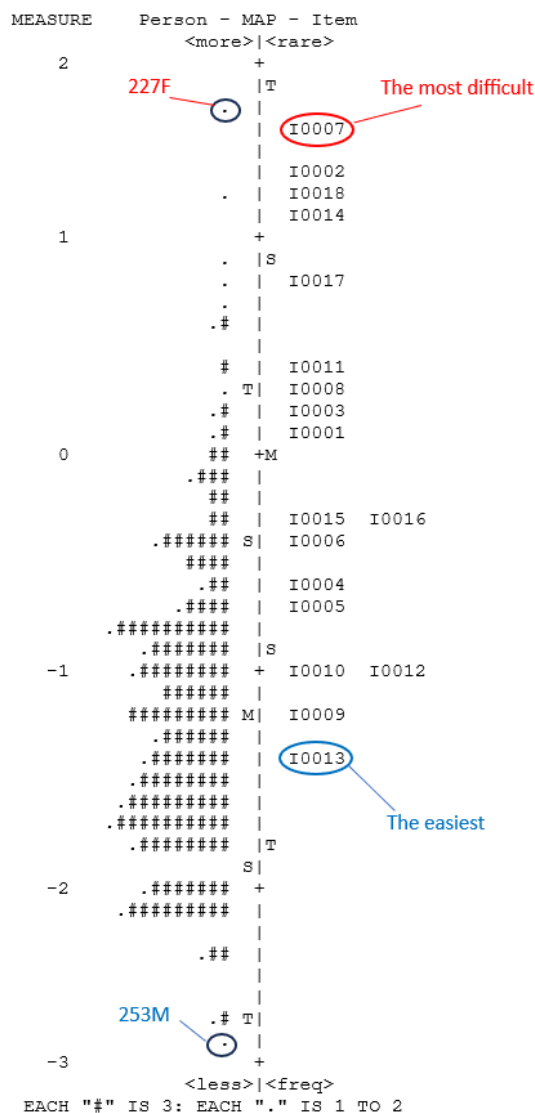

Figure 2. Wright map Person and Item.

DIF Analysis

DIF analysis obtained significant results especially in respondent subgroups. In this instrument development research, DIF analysis was conducted on the Gender aspect, 7 out of 18 SHIA-18 items showed DIF (prob <0.05) namely I0002 (0.00 - *Pernahkah Anda dengan sengaja membakar diri Anda dengan benda panas (misalnya rokok)?*), I0004 (0.00 - *Pernahkah Anda*

dengan sengaja membenturkan kepala ke sesuatu atau memukul atau meninju diri sendiri hingga menimbulkan memar?), I0005 (0.00 - *Pernahkah Anda dengan sengaja mencegah penyembuhan luka atau memencet area tubuh Anda hingga mengeluarkan darah?*), I0008 (0.03 - *Pernahkah Anda memaksakan bagian tubuh yang cedera untuk bergerak dengan tujuan melukai diri sendiri?*), I0009 (0.01 - *Pernahkah Anda dengan sengaja mencabut rambut Anda?*), I0010 (0.00 - *Pernahkah Anda membuat diri Anda kelaparan untuk menyakiti atau menghukum diri sendiri?),* and I0013 (0.00 - *Pernahkah Anda mencoba membuat diri Anda menderita dengan memikirkan hal-hal buruk tentang diri Anda?*).

It is important to interpret the results of DIF analysis with caution as the presence of DIF does not directly deem an item "unfair" to different subgroups of respondents (Boone et al., 2013). From a measurement perspective, items with DIF have different ways of defining their performance between male and female groups. Therefore, Linacre (2022) proposed evaluating the strength of the "effect size" through Contrast estimation to help determine whether differences in subgroup responses to an item are significant (Chang et al., 2019; Zhu & Aryadoust, 2019, 2022). The results of the Contrast analysis on the 5 items with DIF are presented in Table 4. The results showed that none of the 6 items had an effect size greater than SHIA-18 Contrast (>0.64 logits). Therefore, retaining all 5 items will not result in a decrease in measurement accuracy.

Table 4. Results of DIF Contrast Analysis on SHIA-18 items (I = 15 N = 1035).

Aspect (code)	Code Items						
Gender	**P5**	**P7**	**P8**	**P10**	**P11**	**P13**	**P15**
Male (M)	-.28	-.30	-.31	-.22	-.26	.44	.48
Female (F)	.28	.30	.31	.22	.26	-.44	-.48

Discussion

This study used advanced psychometric testing methods to understand the psychometric properties of SHIA-18 in the Indonesian population. Finally, Rasch analysis showed that the reliability of the Indonesian SHIA-18 had satisfactory psychometric properties without any DIF symptoms in gender. However, when viewed from gender differences, the mean measure of women (-1.11 logit) was higher than that of men (-1.36 logit). These findings suggest that Asian females are at an increased risk of engaging in self-harm behaviour, similar to those in Western countries. The majority of research findings indicated that female adolescents and young adults were 1,5 to 3 times more likely to intentionally injure themselves than their male counterparts (Whitlock et al., 2011). In the same vein, females demonstrated a higher level of endorsement for nearly every item in the SHSI. Significant gender disparities were also observed at the individual item level. Three items (Item 1, intentionally cut the skin; Item 3, intentionally biting yourself until your skin peels off; and item 7, intentionally rubbing a sharp object (e.g. sandpaper) or dripping a poisonous object (e.g. acid) onto the skin) were discovered to have significant gender differences in their endorsement among the final 10 items of the SHIA. The three items that were endorsed more frequently by the girls shared the practice of self-cutting, which is consistent with the results of previous research.

This research has shown that girls prefer to use self-harm methods related to cutting, scratching, and the sight of bleeding (Syahputra et al., 2024; Whitlock et al., 2011). Boys endorsed only one method slightly more than the others: item 4, "Bang my head against a wall, desk, etc." This was also in accordance with prior research, which indicated that males have a preference for self-injury (Whitlock et al., 2011; Whitlock & Selekman, 2014). The most frequently employed self-harm methods (such as hitting and banging their head) were less severe in terms of the risk involved among both boys and girls. However, the girls reported that cutting and carving on their bodies with a knife was the third most frequent method of self-harm, in contrast to the scratching method reported by the boys. Consequently, the females not only appeared to endorse self-harm

behaviours more frequently, but they also employed more lethal methods to harm themselves in comparison to the boys. However, the current research does not have the capacity to conduct additional investigations into the gender disparity that has been observed. In the college-going population, Whitlock et al. (2011) observed comparable gender differences in the frequencies and forms of NSSI behaviours. Additionally, they observed variations in the function and initial motivations for NSSI. Female college students were substantially more likely than their male counterparts to experience an overwhelming need to use NSSI as a form of self-control to regulate their affective states. It was also reported that women were either upset or hoped that someone would detect their self-injury (Whitlock et al., 2011). It is clear that individuals with an NSSI history employ avoidant coping strategies substantially more frequently than their peers who do not engage in self-harm, as evidenced by the findings of (Kim et al., 2022).

Implications

This study has important implications in the fields of counseling, education, and psychological intervention. SHIA-18 as a valid and reliable measurement tool can be used by therapists and counsellors to detect the level of self-harm in adolescents, allowing for more appropriate interventions in preventing such behaviour due to trends on social media. In the context of education, lecturers and educators can utilize this scale for research and learning related to adolescent mental health. In addition, these findings can be the basis for the development of evidence-based prevention policies and programs to reduce the risk of self-harm among adolescents. Furthermore, this study opens up opportunities for the development of more comprehensive instruments to understand the risk and protective factors related to self-harm in adolescents.

Limitations and Further Research

The limitations of this study include several aspects that need to be considered. First, the use of online surveys via Google Forms can cause bias in participation, especially for those who have limited internet access or are less comfortable filling out questionnaires online. Second, although Rasch analysis provides in-depth diagnostic information, this approach still has limitations in capturing the psychological complexity that may influence self-harm behaviour. Third, although the SHIA-18 scale has been validated by various experts, this validation process can still be expanded with a wider trial to ensure its reliability and validity in various populations.

CONCLUSION

The findings of this research produced the SHIA-18 which has satisfactory psychometric properties as a valid and consistent tool for assessing the level of self-harm in adolescent, consisting of 18 items. This unidimensional measuring tool was found to have strong psychometric characteristics and was independent of ender. This recommendation underscores the importance for therapists, counsellors and lecturers in Indonesia to use the SHIA-18 scale in their clinical practice and education. This scale serves as an effective assessment tool in identifying and understanding the level of adolescent self-harm due to social media trends. By using this scale regularly, professionals can design appropriate and effective interventions to help individuals prevent adolescent self-harm from being affected by social media content.

REFERENCES

Andover, M. S., Pepper, C. M., & Gibb, B. E. (2007). Self-Mutilation and Coping Strategies in a College Sample. *Suicide and Life-Threatening Behavior*, *37*(2), 238–243. https://doi.org/10.1521/suli.2007.37.2.238

Barrocas, A. L., Giletta, M., Hankin, B. L., Prinstein, M. J., & Abela, J. R. Z. (2015). Nonsuicidal Self-

Injury in Adolescence: Longitudinal Course, Trajectories, and Intrapersonal Predictors. *Journal of Abnormal Child Psychology*, *43*(2), 369–380. https://doi.org/10.1007/s10802-014-9895-4

Bond, T. G., Yan, Z., & Heene, M. (2020). Applying the rasch model: Fundamental measurement in the human sciences. In *Applying the Rasch Model: Fundamental Measurement in the Human Sciences*. Psychology Press. https://doi.org/10.4324/9780429030499

Boone, W. J. (2016). Rasch analysis for instrument development: Why,when,and how? *CBE Life Sciences Education*, *15*(4), rm4. https://doi.org/10.1187/cbe.16-04-0148

Boone, W. J., Staver, J. R., & Yale, M. S. (2013). *Rasch analysis in the human sciences*. Springer.

Boone, W. J., Yale, M. S., & Staver, J. R. (2014). Rasch analysis in the human sciences. In *Rasch Analysis in the Human Sciences*. Springer. https://doi.org/10.1007/978-94-007-6857-4

Borschmann, R., Hogg, J., Phillips, R., & Moran, P. (2012). Measuring self-harm in adults: A systematic review. *European Psychiatry*, *27*(3), 176–180.

Brunner, R., Kaess, M., Parzer, P., Fischer, G., Carli, V., Hoven, C. W., Wasserman, C., Sarchiapone, M., Resch, F., Apter, A., Balazs, J., Barzilay, S., Bobes, J., Corcoran, P., Cosmanm, D., Haring, C., Iosuec, M., Kahn, J. P., Keeley, H., … Wasserman, D. (2014). Life-time prevalence and psychosocial correlates of adolescent direct self-injurious behavior: A comparative study of findings in 11 European countries. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *55*(4), 337–348. https://doi.org/10.1111/jcpp.12166

Calvete, E., Orue, I., Aizpuru, L., & Brotherton, H. (2015). Prevalence and functions of non-suicidal self-injury in Spanish adolescents. *Psicothema*, *27*(3), 223–228. https://doi.org/10.7334/psicothema2014.262

Carvalho, C. B., da Motta, C., Sousa, M., & Cabral, J. (2017). Biting myself so I don't bite the dust: Prevalence and predictors of deliberate self-harm and suicide ideation in azorean youths. *Revista Brasileira de Psiquiatria*, *39*(3), 252–262. https://doi.org/10.1590/1516-4446-2016-1923

Chang, Y. J., Liang, W. M., Yu, W. Y., & Lin, M. R. (2019). Psychometric Comparisons of the Quality of Life after Brain Injury between Individuals with Mild and Those with Moderate/Severe Traumatic Brain Injuries. *Journal of Neurotrauma*, *36*(1), 126–134. https://doi.org/10.1089/neu.2017.5499

Duarte, E., Gouveia-Pereira, M., Gomes, H. S., & Sampaio, D. (2020). How Do Families Represent the Functions of Deliberate Self-Harm? A Comparison between the Social Representations from Adolescents and Their Parents. *Archives of Suicide Research*, *24*(sup1), 173–189. https://doi.org/10.1080/13811118.2018.1545713

Duarte, E., Gouveia-Pereira, M., & Sampaio, D. (2019). Social representations about the functions of deliberate self-harm from adults and adolescents: A qualitative study. *Trends in Psychology*, *27*(4), 879–894. https://doi.org/10.9788/TP2019.4-05

Erwinda, L., & Kurnaedi, N. (2024). Age-Based Analysis of Self-Harm Behaviors Among Instagram Users. *Bulletin of Counseling and Psychotherapy*, *6*(3).

Fox, K. R., Toole, K. E., Franklin, J. C., & Hooley, J. M. (2017). Why Does Nonsuicidal Self-Injury Improve Mood? A Preliminary Test of Three Hypotheses. *Clinical Psychological Science*, *5*(1), 111–121. https://doi.org/10.1177/2167702616662270

Grandclerc, S., De Labrouhe, D., Spodenkiewicz, M., Lachal, J., & Moro, M. R. (2016). Relations between nonsuicidal self-injury and suicidal behavior in adolescence: A systematic review. *PLoS ONE*, *11*(4), e0153760. https://doi.org/10.1371/journal.pone.0153760

Gratz, K. L. (2001). Measurement of deliberate self-harm: Preliminary data on the deliberate self-harm inventory. *Journal of Psychopathology and Behavioral Assessment*, *23*(4), 253–263. https://doi.org/10.1023/A:1012779403943

Guerreiro, D. F., Sampaio, D., Figueira, M. L., & Madge, N. (2017). Self-Harm in Adolescents: A Self-Report Survey in Schools from Lisbon, Portugal. *Archives of Suicide Research*, *21*(1), 83–99.

https://doi.org/10.1080/13811118.2015.1004480

Hamza, C. A., Stewart, S. L., & Willoughby, T. (2012). Examining the link between nonsuicidal self-injury and suicidal behavior: A review of the literature and an integrated model. *Clinical Psychology Review*, *32*(6), 482–495. https://doi.org/10.1016/j.cpr.2012.05.003

Hawton, K., Saunders, K. E. A., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *The Lancet*, *379*(9834), 2373–2382. https://doi.org/10.1016/S0140-6736(12)60322-5

Heath, N. L., Joly, M., & Carsley, D. (2016). Coping self-efficacy and mindfulness in non-suicidal self-injury. *Mindfulness*, *7*(5), 1132–1141.

Kim, C. L., Lee, S.-H., & Chang, H. (2018). Influence of Non-Suicidal Self-Injury on Suicide Attempt among Depressed Patients. *Korean Journal of Clinical Psychology*, *37*(4), 465–478. https://doi.org/10.15842/kjcp.2018.37.4.001

Kim, S., Seo, D. G., Park, J. C., Son, Y., Lee, J. H., Yoon, D., Kim, J. W., Yoo, J. H., & Lee, J. S. (2022). Development and validation of the Self-Harm Screening Inventory (SHSI) for adolescents. *PLoS ONE*, *17*(2 February), e0262723. https://doi.org/10.1371/journal.pone.0262723

Klonsky, E. D., & Glenn, C. R. (2009). Assessing the Functions of Non-suicidal Self-injury: Psychometric Properties of the Inventory of Statements about Self-injury (ISAS). *Journal of Psychopathology and Behavioral Assessment*, *31*(3), 215–219. https://doi.org/10.1007/s10862-008-9107-z

Klonsky, E. D., & Olino, T. M. (2008). Identifying Clinically Distinct Subgroups of Self-Injurers Among Young Adults: A Latent Class Analysis. *Journal of Consulting and Clinical Psychology*, *76*(1), 22–27. https://doi.org/10.1037/0022-006X.76.1.22

Lee, W. K. (2016). Psychological characteristics of self-harming behavior in Korean adolescents. *Asian Journal of Psychiatry*, *23*, 119–124. https://doi.org/10.1016/j.ajp.2016.07.013

Linacre, J. M. (2017). Winsteps Rasch measurement computer program [Электронный ресурс]. *Beaverton, OR*.

Linacre, J. M. (2021). *A User's guide to WINSTEPS MINISTEP rasch-model computerprograms (3.91. 0)(2006)*. In winsteps.com.

Linacre, J. M. (2022). *A User's Guide to WINSTEPS MINISTEP Rasch-Model Computer Programs*. In winsteps.com.

Lloyd, E. E., Kelley, M. L., & Hope, T. (1997). Self-mutilation in a community sample of adolescents: Descriptive characteristics and provisional prevalence rates. *Poster Session at the Annual Meeting of the Society for Behavioral Medicine, New Orleans, LA.*

Moran, P., Coffey, C., Romaniuk, H., Olsson, C., Borschmann, R., Carlin, J. B., & Patton, G. C. (2012). The natural history of self-harm from adolescence to young adulthood: A population-based cohort study. *The Lancet*, *379*(9812), 236–243. https://doi.org/10.1016/S0140-6736(11)61141-0

Nock, M. K. (2009). Understanding nonsuicidal self-injury: Origins, assessment, and treatment. In *Understanding nonsuicidal self-injury: Origins, assessment, and treatment.* American Psychological Association. https://doi.org/10.1037/11875-000

Prinstein, M. J., Nock, M. K., Simon, V., Aikins, J. W., Cheah, C. S. L., & Spirito, A. (2008). Longitudinal Trajectories and Predictors of Adolescent Suicidal Ideation and Attempts Following Inpatient Hospitalization. *Journal of Consulting and Clinical Psychology*, *76*(1), 92–103. https://doi.org/10.1037/0022-006X.76.1.92

Sansone, R. A., Wiederman, M. W., & Sansone, L. A. (1998). The self-harm inventory (SHI): Development of a scale for identifying self-destructive behaviors and borderline personality disorder. *Journal of Clinical Psychology*, *54*(7), 973–983. https://doi.org/10.1002/(SICI)1097-4679(199811)54:7<973::AID-JCLP11>3.0.CO;2-H

Sumintono, B., & Widhiarso, W. (2015). *Aplikasi Model Rasch untuk Penelitian I lmu-ilmu sosial (edisi revisi)*. Trim Komunikata.

Syahputra, Y., Evitarini, A., & Sugara, H. (2024). Gender Differences and the Role of Social Media in Self-Harm Behavior among Primary School Students. *KONSELOR*, *13*(3), 297–306.

Syahputra, Y., Sandjaja, S. S., Alizamar, Afdal, & Erwinda, L. (2022). Using Rasch Model To Understand Psychometric Properties of Junior Students Aggressive Behavior Inventory (J-Sabi). *Jurnal Psikologi*, *15*(2), 253–268. https://doi.org/10.35760/psi.2022.v15i2.6064

Udam, M., Oktara, T. W., Justitia, D., Putri, U. N., Karisma, S. P., Fajri, N., Muhazir, M., & Erwinda, L. (2024). Smartphone and Self-Harm: A study of TikTok Use as a Risk Factor. *Bulletin of Counseling and Psychotherapy*, *6*(3).

Valencia-Agudo, F., Burcher, G. C., Ezpeleta, L., & Kramer, T. (2018). Nonsuicidal self-injury in community adolescents: A systematic review of prospective predictors, mediators and moderators. *Journal of Adolescence*, *65*, 25–38. https://doi.org/10.1016/j.adolescence.2018.02.012

Vrouva, I., Fonagy, P., Fearon, P. R. M., & Roussow, T. (2010). The risk-taking and self-harm inventory for adolescents: Development and psychometric evaluation. *Psychological Assessment*, *22*(4), 852–865. https://doi.org/10.1037/a0020583

Waugh, R. (2012). Applications of rasch measurement in education. In *Applications of Rasch Measurement in Education* (Vol. 2). Springer Science & Business Media.

Whitlock, J., Muehlenkamp, J., & Eckenrode, J. (2008). Variation in nonsuicidal self-injury: Identification and features of latent classes in a college population of emerging adults. *Journal of Clinical Child and Adolescent Psychology*, *37*(4), 725–735. https://doi.org/10.1080/15374410802359734

Whitlock, J., Muehlenkamp, J., Purington, A., Eckenrode, J., Barreira, P., Baral Abrams, G., Marchell, T., Kress, V., Girard, K., Chin, C., & Knox, K. (2011). Nonsuicidal self-injury in a college population: General trends and sex differences. *Journal of American College Health*, *59*(8), 691–698. https://doi.org/10.1080/07448481.2010.529626

Whitlock, J., & Selekman, M. D. (2014). Nonsuicidal self-injury across the life span. *The Oxford Handbook of Suicide and Self-Injury*, 47–58.

Zhu, X., & Aryadoust, V. (2019). Examining test fairness across gender in a computerised reading test: A comparison between the Rasch-based DIF technique and MIMIC. *Studies in Language Assessment*, *8*(2), 65–90. https://doi.org/10.58379/nvft3338

Zhu, X., & Aryadoust, V. (2022). An investigation of mother tongue differential item functioning in a high-stakes computerized academic reading test. *Computer Assisted Language Learning*, *35*(3), 412–436. https://doi.org/10.1080/09588221.2019.1704788