Translation and Validation of the English version of
*Saringan Skala Sikap Selamat© (SaringSikap)*
assessment form

Mohamad Ghazali Masuri¹, Nur Thaqqifah Md Sani¹, Khairil Anuar Md Isa², Akehsan Dahlan¹, Norazmir Md Noor³, Ajau Danis²

Centre for Occupational Therapy Studies, Faculty of Health Science, Universiti Teknologi MARA, Malaysia
Department of Basic Sciences, Faculty of Health Science, Universiti Teknologi MARA, Malaysia²
Centre for Dietetics Studies, Faculty of Health Science, Universiti Teknologi MARA, Malaysia³

**Keywords:**
Attitude assessment; translation and validation; road safety

**ABSTRACT**

There are limited studies on evaluation tools to evaluate the driver's attitude towards safe driving practice among Malaysian drivers. The selection of the correct assessment tool is essential where it will produce valid and reliable results. The occupational therapist involved with driving rehabilitation should use a proper evaluation to identify patient fit to drive status. The main objective of the driving assessment is to ensure safe driving behavior in the driving rehabilitation program towards safe, independent driving. Due to language issues in Malaysia, this instrument uses Bahasa Malaysia as the medium relevant to the Malaysian population. Unfortunately, other collaborators and researchers outside Malaysia could not understand and interpret the result due to language barriers. Due to that, this study was conducted to help international readers have access to this questionnaire later. This study aimed to translate and validate the English version of the Saringan Skala Sikap Selamat© (SaringSikap) assessment form. The SaringSikap assessment form and the English version are also known as Attitude towards Safe Driving Scale © (ASDS). A language expert performed the one-way translation, and a pilot study was conducted among 125 young Malaysian drivers. The reliability of the English version of SaringSikap is found to be acceptable (Cronbach's alpha=0.76). The strength of agreement shown to be moderate (kappa, κ=.553), and scale-level content validity index (CVI) on both average and universal methods are high, 0.95 and 0.83, respectively.

This work is licensed under a Creative Commons Attribution Non-Commercial 4.0 International License.

1. INTRODUCTION

Road traffic accidents have become an alarming concern in Malaysia, with a total of 591,399 cases were reported by Malaysian Transportation Statistics in 2018. Presently, the number of young drivers involved in
road crashes has increased over the years. The figures escalate significantly in developing countries such as Malaysia and have led to significant numbers worldwide. Malaysian Institute of Road Safety Research (MIROS) revealed that fatal road injuries among the young population account for 13.6% in 2007 to 15.5% in 2009 of the total fatality caused by road crashes in Malaysia. Over 400,000 people aged below 25 years die due to accidents yearly, with an average of more than 1000 cases daily. Factors related to the casualties of young drivers are inexperience, lack of ability, and risk-taking behaviors. Consequently, the attitude of young drivers should be the prime concern being that road crashes are becoming the leading cause of mortality among young people. The Saringan Skala Sikap Selamat® SaringSikap or Attitude towards Safe Driving Scale © (ASDS) was developed by [6] to evaluate the attitude of Malaysian drivers towards safe driving. The study showed that ASDS was a reliable and valid tool with Cronbach's alpha value of 0.87 and item and person value using the Rasch model of 0.80. ASDS consisted of 46 questionnaires and was initially developed in the Malay language to help the respondent understand the questionnaire better. However, ASDS has not been translated into any other language besides its original version in the Malay language. This study aimed to summarize the SaringSikap assessment form into the English language to accommodate the non-Malay speakers in young Malaysian drivers and explore the internal consistency, face, and content validity of the English version of ASDS.

1.1 Road traffic accidents among young drivers in Malaysia

Road traffic accidents are defined as an undesirable incident to occur caused by lost driving control until it happens of collision with an object, or causing vehicle crash either causing property damage, injury to the driver, passenger, and the other road users or otherwise [1]. Data from the [14] revealed that 1.35 million people died because of road traffic accidents and left 20 to 50 million injured victims. Road Accidents Statistics from 2007 until 2017 reported 2,079 deaths from 6,740 cases involved drivers aged 16 to 25 years old. The accident rate for inexperienced young drivers well exceeds the accidents and fatality level of older drivers, being up to ten times more likely than the safest age group [10]. The increased rate of crashes among young drivers was caused by their tendency to take risks and lack of experience in driving. Young drivers are also more likely to lose control and cannot detect other vehicles on the road that added equally to their road traffic crashes. Thus, understanding the driving attitude of young Malaysian drivers is crucial in providing a deep insight to further improve road safety in the future.

1.2 Attitude towards Safe Driving Scale (ASDS) in the previous study

[6] developed ASDS to address the uniqueness and sensitive nature of Malaysian drivers. Therefore, the questionnaire was carefully designed in three statistical analysis processes to help the authorities shape a better road society in Malaysia. A study was conducted by [8] among young adults across Malaysia to develop an assessment scale related to the driving attitude. The reliable and valid ASDS–46 questionnaire was carefully designed to understand the ambitious attitude and risky driving behavior of educated young adults. Next, to understand the relationship between the drivers’ perspective with their quality of life, the ASDS was used with WHOQOL-BREF in research by [7]. The result showed a positive correlation between the drivers’ attitude and the psychological domain, which can be further analyzed in further study. A study by [9] on the application of HIRARC on Attitude towards Safe Driving Scale (ASDS) according to the PreSIM model shows encouraging results in evaluating human factors in terms of hazard, risk, and possible RTA control. However, the previous study of ASDS shows that the questionnaire was only available in the Malay language and has never been translated into any other language. Thus, the translated version of ASDS in the English language can be used to assess behavioral changes in young drivers in Malaysia and other countries.

2. METHODOLOGY
The study was conducted in a cross-sectional study design among 125 young Malaysian drivers, preferably with a driving license for more than two years. The ASDS was adapted from a study by [6] consisting of 46 questionnaires in 6 domains (opportunity and space, self-confidence, hope, feeling guilty, barriers, and confidence and preparedness). The 46 items were constructed on a five-point Likert-type scale ranging from strongly disagree (1) to agree (5) strongly. Higher scores on the scale represent a better attitude of the respondents. Data obtained were entered in Statistical Package for Social Sciences (SPSS) version 26 plus an Excel spreadsheet. The summary of the results will be shown as descriptive statistics. There are three processes involved in translating and validating the English version of ASDS: (1) translation, (2) reliability, and (3) validation, as shown in Figure 1.

![Figure 1 Flowchart of translation and validation process of the English version of ASDS](image)

### 2.1 Translation process

The ASDS was translated using a one-way translation method by a language expert with a Master of Education in Teaching English as a Second Language (TESL). The driving attitude scales were purposely translated to suit the young drivers' population in the Malaysian setting. The translated instrument was then distributed in online surveys among 36 young Malaysian drivers to check for wording, language, and understanding of the questionnaire. The respondents were asked to leave comments on any unclear questions before submitting the surveys.

### 2.2 Reliability process

SPSS calculated the value of Cronbach's alpha to measure the internal consistency of the ASDS for the reliability test. A total of 125 young Malaysian drivers with a provisional or open driving license for more than two years participated in this study. A reliability coefficient of .70 or higher is viewed to be acceptable in most research [13].

### 2.3 Face validity

Face validity determines the instrument's appropriateness to evaluate the construct of the interest [2]. Two young Malaysian drivers who speak fluently in English were selected randomly to complete the face
validity form via online surveys. [4] mentioned that face validity tests need to be done among technically untrained respondents. These panels will indicate whether the items of ASDS are objectively structured and can be positively classified under the thematic category. A dichotomous scale of 'Yes' and 'No' was used to examine whether the items are favorable or unfavorable, respectively. They also assess the overall appearance of ASDS and checked if sentences were clear, brief but comprehensive, and no spelling errors. The inter-rater agreement between the two raters was measured using Cohen's kappa (κ). Cohen suggested the Kappa result be interpreted as follows: values ≤ 0 as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as an almost perfect agreement [11].

2.4 Content validity
Content validity proved that the translated tools measured what they were supposed to measure and their suitability and can be related to the study's objective [3]. A total of 10-panel experts are requested to complete the content validity form via online surveys. Content validity is usually undertaken by seven or more experts [2]. These experts will rate whether the items are relevant to the measured domain using a 4-point ordinal scale: 4=highly appropriate, 3=quite relevant, 2=somewhat relevant, and 1=not relevant. The satisfactory level of content validity among experts can be measured using the Content Validity Index (CVI). According to [5], the acceptable CVI values are at least 0.78 for nine experts and more.

3. FINDINGS AND DISCUSSION

3.1 Translation process
The translator takes two weeks to fully translate the ASDS into the English language version, including 21 demographic data and 46 questionnaire items. The English version of the Attitude towards Safe Driving Scale is shown in Appendix 1. Following comments and recommendations from 36 respondents in the pilot study, minor adjustments were made for demographic data: "State the number of accidents you have involved" was changed into "State the number of accidents you have involved in the last 12 months". The English version of ASDS has an equal communicative effect as the original version in the Malay language and is stylistically appropriate, culturally acceptable by young Malaysian drivers.

3.2 Reliability process
The English version of ASDS demonstrated acceptable internal consistency with Cronbach's alpha values of .76. The reliability test indicated that the questionnaires in the domains correlated substantially with each other. The inter-rater agreement among two young Malaysian drivers appears to be moderate with Cohen's kappa (κ)=.553. The percentage of agreement yielded at 55% with p=.000 (which means p<.005), the kappa (κ) coefficient is statistically significantly different from zero. Complementarily, the raters have suggested using simple and easy language and a more significant and appropriate font. Some amendment were made to refine the English version of ASDS, as shown in figure 2.
3.3 Content validity
The scale-level content validity index (CVI) among ten experts based on the average and universal method was revealed to be high with the value of S-CVI/Ave=0.91 and S-CVI/UA=0.83, respectively. These panel experts consist of five Road Safety Department officers and five driving instructors. They would be the best judges of the relevance of question content and construct to driving practice in Malaysia. Thus, it concludes that the English version of the Attitude towards Safe Driving Scale (ASDS) has achieved a satisfactory level of content validity. [12] mentioned that items were significant to the theory being studied if a majority of the panel’s opinions agree.

4. Discussion
The Attitude towards Safe Driving Scale (ASDS) has been utilized in several studies predominantly to understand the attitude of Malaysian drivers. Despite that, no investigation was conducted to translate the ASDS into any other language besides its original Malay version. Hence, this study aimed to summarize the ASDS into the English version to accommodate the English speakers among young Malaysian drivers. The translated version can include more diverse participants in future studies to understand the drivers' attitudes towards the safe driving practice. Compared to the original ASDS, the internal consistency of the English version was found to be lower with Cronbach's alpha value of .76 as opposed to .84 for the Malay version. The reliability test of original ASDS conducted by [8] amongst 75 young novice drivers aged 20 to 24 years old from Universiti Teknologi MARA, Puncak Alam Campus reported high reliability, Cronbach's alpha value is .839 for 46 items. The reliability may vary between the original and translated version of ASDS when it is conducted with different target respondents. Ergo the threats to reliability need to be identified either researcher, environmental, or participant changes to avoid error in studies. [9] used the Rasch model as a construct validity tool in the original version whilst both face and content validity were tested for translational validity in this study. The different types of validity tested between the Malay, and English versions of ASDS will provide the varied ability of the tools to measure what it is supposed to measure. In the Rasch model, the probability of a particular answer is modeled as a function of person and item parameters.

Meanwhile, in translational validity for both face and content validity, the study focus on whether the operationalization is a good reflection of the construct. The face validity test applied in this study is a simple form of validity to test whether the English version of the Attitude towards Safe Driving Scale (ASDS) is supposed to measure the attitude towards safe driving practice among young Malaysian drivers. As a result, Cohen's kappa (κ)=.553 proved moderate inter-rater agreement among two young Malaysian drivers. Meanwhile, the content validity measures whether the English version of ASDS represents all aspects of the safe driving practice in Malaysia. The selection of experts to review and critique the English

<table>
<thead>
<tr>
<th>No.</th>
<th>Raters' comments</th>
<th>Before modification</th>
<th>After modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Words were too small</td>
<td>Font size: Times New Roman, 10</td>
<td>Font size: Times New Roman, 12</td>
</tr>
<tr>
<td>2</td>
<td>Questionnaires were full of words</td>
<td>The surveys include all items in one section</td>
<td>The surveys were divided into three sections; consent, demographic data, and ASDS questionnaires</td>
</tr>
</tbody>
</table>
| 3   | Bold the critical terms in similar questionnaires | - I feel guilty to commit traffic offenses though there are opportunities to commit them 
- I feel guilty to commit traffic offenses though there are changes to commit them | - I feel guilty to commit traffic offenses though there are opportunities to commit them 
- I feel guilty to commit traffic offenses though there are changes to commit them |

**Figure 2** Face validation based on young Malaysian drivers’ comments and modification of English version of ASDS
version of ASDS in content validity is usually based on their expertise in Malaysia's driving system and practice. The outcome of the content validity test showed that the English version of ASDS had achieved a satisfactory level and the scale-level content validity index (CVI) on both average and universal methods is high, 0.95 and 0.83, respectively.

5. Conclusion & Recommendations
This study presents that the English version of the Attitude towards Safe Driving Scale (ASDS) is a reliable and valid tool to measure the attitude of young Malaysian drivers. Nevertheless, it is fundamental for future reliability and validity testing to be implemented to verify the English version of ASDS. Future attitudes studies using the English version of ASDS are highly recommended to explore further the attitude of road drivers in Malaysia and other countries in the future.

6. Acknowledgments
The highest appreciation goes to the Ministry of Higher Education Malaysia (MoHE), Royal Malaysia Police, Research Management Centre (RMC), Universiti Teknologi MARA (UiTM), CoRe Management Science, OPERA RIG. A special thank you to Mrs. Nur Rahimah for translating the questionnaire. To all panel experts and respondents who had participated in this study for their kind cooperation and all staff of the Faculty of Health Sciences UiTM Puncak Alam for continuous support in staff research and development. Thank you to our strategic partners, Ministry of Health, NIOSH Malaysia, DOSH, and our future international collaborators: Tokyo University of Technology, Japan, Honam University, South Korea, and Universiti Indonesia, Indonesia. Lastly, specially mentioned to our beloved friend and research team, Allahyarham Anniz Fazli Ibrahim Bajunid. This study was funded under the Fundamental Research Grant Scheme (FRGS) by MoHE – (600-IRMI/FRGS 5/3 (126/2019).

7. References


