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Original Research

Reliability and validity of the English and Malay versions of the Driving and Riding Questionnaire: a pilot study amongst older car drivers and motorcycle riders



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ABSTRACT

Objectives: This study aimed to examine the reliability and validity of the English and Malay versions of the Driving and Riding Questionnaire.

Study design: An observational study with a mix-method approach by utilising both questionnaire and short debriefing interviews.

Methods: Forward and backward translations of the original questionnaire were performed. The translated questionnaire was assessed for clarity by a multidisciplinary research team, translators, and several Malay native speakers. A total of 24 subjects participated in the pilot study. Reliability (Cronbach's alpha) and validity (content validity) of the original and translated questionnaires were examined.

Results: The English and Malay versions of the Driving and Riding Questionnaire were found to be reliable tools in measuring driving behaviours amongst older drivers and riders, with Cronbach's alpha of 0.9158 and 0.8919, respectively. For content validity, the questionnaires were critically reviewed in terms of relevance, clarity, simplicity, and ambiguity. The feedback obtained from participants addressed various aspects of the questionnaire related to the improvement of wordings used and inclusion of visual guide to enhance the understanding of the items in the questionnaire. This feedback was incorporated into the final versions of the English and Malay questionnaires.

Conclusion: The findings of this study demonstrated both the English and Malay versions of the Driving and Riding Questionnaire to be valid and reliable.

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Introduction

Background and gap in knowledge

Road traffic accidents are among the top three principal causes of morbidity and mortality globally.¹ A recent published road safety report revealed that fatality rates are the highest among the young drivers (18–20 years) and older drivers (above 65 years).² Although older drivers are considered to be cautious and safe road users, they are at increased risk of fatal and serious injury crashes due to various factors associated with the ageing process. Many older adults experience deterioration in sensory system, physical and cognitive abilities which could potentially influence their driving ability.³ This suggests that the ability to recognise a decline in functional performance that can affect driving ability and adopt appropriate self-regulatory driving practice are important skills required for all older drivers.⁴

The decision to reduce or stop driving or riding is a complex process and multifactorial. Research suggests a number of potential factors, including demographic characteristics,⁵ depression,⁶ cognitive,⁷ visual impairment,⁸ poor health status,⁹ low confidence,¹⁰ and aberrant driving behaviour,¹¹ can influence this outcome. Given there are often large geographical or socio-economic variations between countries, especially between high-income and low/middle-income countries, the transportation preference amongst older road users differ suggesting that any questionnaire developed should address these disparities and ensure that it is appropriate for the particular country context. For example, in Malaysia, the motorcycle is a common mode of transportation and is often preferred since it saves time and is also a cheaper alternative mode of transportation compared to a four-wheeled vehicle.¹²

In Malaysia, a driving licence is required before a person is allowed to drive a motor vehicle of any description on a road under the Road Transport Act 1987. The eligibility age requirements for driving licence are 16 years old and 17 years old respectively for motorcycle and car. There are three major types of driving licence in Malaysia: First, the learner's driving licence is possessed by learners in driving schools. These learners must attend a 6-h session of Safety Driving Theory follow by examination. This type of licence is issued after the candidate passes the exam. These licence holders are permitted to drive under the supervision of a driving school instructor. Before the end of 2 years, licence holders need to undergo different sets of tests to upgrade their driving licence status to probationary driving licence. Licence holders can only upgrade their licence to a full competent driving licence after 2 years of probationary licence.¹³ To our knowledge, there is no specific age restriction and rigid regulation of licencing implemented in Malaysia for older road users and research in this area is still scarce.

To date, there are no studies or instruments developed to identify the determinants of self-regulatory driving or riding behaviour amongst older drivers and riders in Malaysia.

Owing to limited road safety studies relevant to older Malaysian road users particularly for motorcycle riders, a self-reported questionnaire on characteristics and travel patterns was developed to suit both drivers and riders in this study.

Study objectives

Although most of the widely used questionnaires were initially developed in the English language, it was possible to translate these questionnaires into another language.¹⁴ It was important to note that translating from one questionnaire to another may result in unintended changes to the original meaning and validity of items.¹⁵ Therefore, it was essential to translate the questionnaire using a process that incorporated the psychometric properties, including validity and reliability to ensure equivalency between original and translated questionnaires.^{14,15}

Hence, this study aimed to develop and examine the reliability and validity of the English and Malay versions of the Driving and Riding Questionnaire.

Methods

Study materials and development of questionnaire

Driver behaviour questionnaire (DBQ)

The DBQ is a well-researched 50-item instrument developed in the 1990s, and it has widely been used to evaluate driver's behaviour in detecting any human errors, lapses and violations.^{16,17} Lapses (such as forgot where you left your car in a car park) and errors (such as failed to check your rear-view mirror before pulling out or changing lanes) were unintentional behaviours due to failure of planned actions to achieve the intended consequences, whereas violations (such as disregard the speed limit on a residential road) were deliberate behaviours which can be potentially hazardous.¹⁸ In 1995, the DBQ items were further simplified to only 24 items with eight items for each category representing human errors, lapses and violations.¹⁶ Later, studies found that violation was positively associated with rate of road crashes. Hence, the violation scale has further been amended by introducing three additional items pertaining to aggressive violations. The amended version of the DBQ with less items is now known as the extended version of the DBQ with 27 items comprising of four subscales measuring errors, lapses, ordinary violations and aggressive violations using a 6-point Likert scale.¹⁸ The present study utilised the extended version of the DBQ.

Short Geriatric Depression Scale (SGDS)

The Geriatric Depression Scale (GDS) is a self-reported screening scale with 30 items designed specifically to measure depression in older adults.¹⁹ In 1986, the scale was modified by reducing the number of items by half to produce a scale which is simpler and shorter than other existing depression scales.²⁰ The shorter version, known as the SGDS,

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