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Revised version of Attitude towards Safe Driving Scale (ASDS-23/SaringSikap-23)

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Abstract

Occupational therapists usually use assessment and screening forms that can identify the problems faced by the person. In the field of driving rehabilitation, the initial assessment is essential, where patient safety and readiness for on-road tests will be determined. Many assessments are available; however, the local instrument was found to be more sensitive and reliable in assessing local drivers. There were a series of publications and reports related to ASDS previously; however, this re-evaluation of the Attitude towards Safe Driving Scale (ASDS-23/SaringSikap-23) is done to report the latest developments in the development of the instrument.

Keywords: Human factors; Occupational therapist; Drivers attitude; Driving rehabilitation

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1.0 Introduction

The latest proposal by certain parties to automatically upgrade the motorcycle vehicle license conditions (B2 to B) has invited various questions which revolve around the competence and safety of the rider. As we already know, driving requires the highest abilities and behavior in operating a vehicle. This driving involves the eye-hand-foot coordination component. Failure of any part will lead to road accidents. In relation to that, any proposal that can affect driving skills and style needs to be evaluated and studied in depth.

Driving plays an important role in our life as people travel from one place to another place by using several mode transportations such as personal or public transportation. This makes traveling become a very important aspect in the quality of life (QOL). As an occupational therapist, we were involved in educating, promote, evaluate, modify and rehabilitate people to become an Independence

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individual since driving can be part of the important component in the occupational performance area. This topic is relevant to the occupational therapist with regards to the profession itself as a health prevention, health promotion, and health education.

Road traffic accident has become a great issue and health problem worldwide. Currently ranked eight, it has been estimated that by 2030 road traffic accident will become the fifth leading cause of death in the world. According to World Health Organization, (2007), over 1.2 million people die annually on the world's road and between 20 and 50 million sustain non-fatal injuries due to road traffic crash. Based on research conducted by the University of Michigan, "Malaysia was ranked as the top of 25 most dangerous countries in the world road accident", with estimated that 30 fatalities per 100,000 individual. Besides, the number of the road accident and fatalities are an increase compared with last year in 2014 with 1557 people involve in the road accident, and 1696 were killed (Royal Malaysian Police, 2007). This high number of the road accident is quite worrying as this death and injury will give the negative impact on the family, community and also the country. These numbers of injuries keep arising every year and had become a frightening issue in health and may contribute to significant effect on people quality of life (Wan Ahmad Kamal, Masuri, Dahlan, & Md Isa, 2015).

The main function of road transport system is to help and improve people mobility from one place to another. However, this system comes with a significant risk. Ministry of Works, Malaysia highlights four approaches in their Road Safety Program. To improve the road safety, the following engineering approaches are utilized: accident preventions (proactive action), accident reduction (reactive action), road maintenance and building new roads (Mustafa, 2006). Promoting efficient patterns of land use, improving public transportation systems by providing less exposure and safe route to susceptible road users can help to eliminate the road accident (Worley, 2006). Road crashes cause death and disabilities which contributes to significant financial and psychological burden to our society. This public threat perhaps will increase public awareness where RTA is a serious public issue, and at the same time, it is a global public health burden. This phenomenon shows a very clear picture where human behavior plays major roles in contributing to a road accident. Accident and injuries will usually contribute to significant burden to our society and reduce their quality of life (QoL). It is suggested that behavior is the primary concern in planning intervention strategy where it can be prevented through behavior change (Prentice-Dunn, 2004). The question is how many people are aware of this risk? How many people are aware that the threats are severe? According to Weinstein, Lyon, Sandman, & Cuite the most crucial stage in prevention strategy is to make people pay attention, become aware and take serious steps toward a risk (1998).

The outcomes of this study will give benefits to the people and country so that the accidents rate can be decreased and save more life. RTA will give a huge impact to the individual and communities that include socio life, economic and also may cause damage to the property. The impact of the road traffic accident to the person may be fatal or non-fatal injuries that may lead to disability. Road traffic accident will cause a lost to country due to the government need to spend the money for the cost of treatment and rehabilitation for the injured person. Therefore, a proactive measure needs to take account to reduce the rate of road traffic accident. This present study will identify the prevalence use of text messaging while driving among young adults and their risk perception towards that's behavior.

2.0 Literature review

Driving is one of the most critical activities of daily living that involves the active eye, hand, and foot coordination. Drivers that is not proficient or fail to organize and interact with their vehicle and surrounding environment may lead to road traffic injury (RTI) (Masuri, Md Isa, & Mohd Tahir, 2012). This interaction could play a major role in preventing and predicting future studies. The majority of road traffic accidents were caused by human error. This made the drivers' error as an important human component that needs to be further investigated. These road injuries and fatalities have become a great concern for the Malaysian government. This scenario may be due to rapid development in Malaysia (Mohamad Ghazali Masuri, Akehsan Dahlan, Ajau Danis, & Khairil Anuar Md Isa, 2015a). This rapid development contributed to the increasing number of vehicle on the road that could potentially increase the possibilities of RTA. There were many causes of an accident either it is due to primary or secondary factors. Factors such as speeding, using a mobile phone and not wearing a seat belt are considered as a contributing factor for injury and fatality (Md Isa et al., 2012).

RTA frequently involves multi-level society, and this has become a demanding community issue where more serious participation is needed to improve driver's attitude in the future. RTA has a significant impact on quality of life and financial burden to the government and Malaysian society. The number of road traffic accidents among young adult is an alarming issue in Malaysia. Malaysian governments through relevant agencies have worked very hard to enforce all relevance acts related to it. One of the prime government objectives is to ensure safer Malaysian drivers in the future. To date, there were still a limited number of local research and evidence supporting the elements of driver's attitudes and behavior analysis had been conducted.

Many studies have proven that attitudes rarely present the synchronize behavior. Attitudes can be presented either in a positive or negative form. Even though attitude and behavior were not usually straightforward, and they are sensitive according to the social situation, but, attitude assessment can be used to predict future behavior (Iversen, 2004). Understanding of human attitudes relates to driving behaviors were very critical to developing more appropriate planning and intervention in reducing the prevalence of RTA. At present, there was limited evidence available to justify which human components were needed to be addressed. Previous study shows that, different factors such as socio-demographic issues (Al-Naggar, Bobryshev, & Mohd Noor, 2013), socioeconomic status (Masuri, Md Isa, & Mohd Tahir, 2012), age/gender (Scott-Parker, Watson, King, & Hyde, 2012), education level (Masuri et al., 2012) and living status (Al-Naggar et al., 2013) brought significant effects on driving behaviour. Speeding behavior among young adult in Malaysia frequently involves stimulation from our society. This behavior has become a demanding community issue where more serious community participation is needed to improve the future of young drivers. It is important to understand that, the stimulation that involves which contributed to risk-taking behavior among young drivers is usually beyond our control. It was a little unfair to depend solely only on the government to improve the drivers' behavior and their quality of life. Public participation such as parents, teachers and the most

important thing; participants circle of friends, is to a large extent were needed in shaping a better future in the road and transportation system in Malaysia. A deeper understanding of the young drivers' behavior is needed to enhance the plan for preventive measures. For example the study on the differences of the belief among the high and low intended to speed by (Forward, 2009) and (Horvath, Lewis, & Watson, 2012). Similarly, a study finding on the belief influencing drivers' hands-free and hand-held mobile phone use (White, Hyde, Walsh, & Watson, 2010; Zhou, Wu, Patrick Rau, & Zhang, 2009).

By promoting safe behavior on the road for changing the views of the driver, it was predicted to have the capability to prevent RTA. Also, the result of this study could provide a good insight into the government, related agencies, and mass media to promote better road safety in future. Moreover, the other implication of this research was it can help Government to plan a more cost-effective campaign. The slogan such 'first class facility, this class mentality' should be changed to suit the status of developing the country by the year 2020. This evaluation could be used in screening and re-evaluation process of licensing in Malaysia. This evaluation also will be able to help the government in producing a better road society in the future. In summary, the current study concluded that correct stimulation while driving could help drivers to change their intention to speed. This behavior changes is important where it will be able to reduce the potential for accident (Masuri, Abang Mustafa, Dahlan, & Md. Isa, 2016) and has an indirect effect on saves people life and increase the quality of life. According to (Scott-Parker et al., 2012), individual aged 25 years old and below were considered as young drivers that frequently novices that are new to the driving experiences. A previous study had reported the percentage of young adult driver age between 17 and 24 commit traffic violations. The age group of the driver that strongly support the traffic violation countermeasure and moderate view toward traffic rule compliance was an older driver that aged 65+ (Vardaki & Yannis, 2013). Speed over the limit was found to be one of the major causes of this accident. With regards to speeding behavior, there were many human components that usually become significant variables that need to be investigated. It created a lot of debates among society. However, there has been limited to work on this issue in Malaysia.

3.0 Methodology

This study was specifically focusing on the young adult from all over Malaysia which had multiple socio-demographic backgrounds. A cross-sectional study was conducted (online survey). Each respondent was asked to fill in four pages of the ASDS-46 questionnaire. The questionnaire consists of two sections. Section 1 of the questionnaire consists of 22 demographic data that should be fulfilled by the respondent. The demographic data includes gender, age, faculty, and course, the level of education, driving licensed held (month), type of licensed, lifetime mileage, average minutes driving per week, frequency involves in a traffic accident and the rate of participation in speeding behavior for the past three months. Section 2 of the questionnaire contains 46 questions. These 46 items cover all of the main and sub-themes that were discovered during previous research.

4.0 Result

A total of 240 respondents have participated in this survey. A total of 65 (27.1%) male and 175 (72.9%) female, from around Klang Valley had voluntarily taken part in this study. Most of the participation aged range from 18-22 (69.2%) years old, followed by 23-27 years old (28.2%) and 2.1% were from 28-32 years old. Table 1 shows the demographic data of the respondents.

Table 1. Demographic data

Characteristic (N=240)	Frequency (percentage)
Gender	
Male	65 (27.1)
Female	175 (72.9)
Age	
18-22	166 (69.2)
23-27	69 (28.2)
28-32	5 (2.1)
Marital status	
Single	228 (95.0)
Married	11 (4.6)
Others	1 (0.4)
RTA offences (Yes answer) Speeding	
Against red light	112 (46.7)
Safety belt	97 (40.4)
Mobile phone	74 (30.8)
Carelessness	88 (36.7)
Double line	73 (30.4)
Overtaking queue	43 (17.9)
Signaling	16 (6.7)
Emergency lane	30 (12.5)
No respect to other drivers	13 (5.4)
Not wearing helmet	7 (2.9)
All offences	37 (15.4)
	5 (2.1)

Race	
Malay	226 (94.2)
Chinese	4 (1.7)
India	5 (2.1)
Others	5 (2.1)
Education level	
Foundation	3 (1.3)
Diploma	55 (22.9)
Degree	178 (74.2)
Master	2 (0.8)
Others	2 (0.8)
Working status	
Working	24 (10.0)
Student	214 (89.2)
Others	2 (0.8)

4.2 Computation formula and cut off value

The table below explains the new findings regarding the calculation formula and setting the risk rate. Out of the nine new domains formed, the questions in domain eight (D8) are negative questions. To avoid any confusion, ASDS23 maintains the original question number like ASDS46 before. Users only need to refer to the existing data (ASDS46) and use this latest cut-off formula only. In addition, the retention of these numbers will simultaneously help the process of transformation and analysis of old data to new data will be easy and fast.

Domain	Questions (Original ASDS46)	Cut-off (risk)
D1: Susceptibility	Q2 + Q3.	Low < 8 > High
D2: Severity	Q5 + Q6.	Low < 6 > High
D3: Barriers	Q7 + Q8.	Low < 6 > High
D4: Efficacy	Q15 + Q16 + Q17.	Low < 12 > High
D5: Action	Q19 + Q20.	Low < 8 > High
D6: Benefits	Q23 + Q24.	Low < 8 > High
D7: Control	Q35 + Q36.	Low < 8 > High
D8: Confidence	Q39 + Q40 + Q41 + Q42 + Q45 + Q46.	High < 14 > Low
D9: Guilty	Q43 + Q44.	Low < 8 > High

4.3 New domain classification

This review has found that there are nine domains of attitudes that can be measured. Here is a basic explanation of these domains. The setting of the domain name is based on the patterns of the questions that are in the domain group.

4.3.1 D1: Susceptibility

Susceptibility refers to the degree to which an individual or a system is prone or vulnerable to a particular condition, influence, or external factor. It often describes the likelihood or ease with which someone or something can be affected or influenced by certain factors. Risk assessment: Susceptibility is often considered in risk assessments to evaluate the potential impact of hazards on individuals, communities, or infrastructure. Assessing susceptibility helps identify vulnerable areas or populations that may require additional protection or mitigation measures. In psychology, susceptibility may refer to a person's tendency to be influenced or persuaded by others, including their susceptibility to certain biases, social pressures, or manipulation.

4.3.2 D2: Severity

Severity refers to the extent or seriousness of something, often in terms of the impact or consequences it has. It is a measure of the degree of harm, damage, or intensity associated with a particular event, condition, or situation. With regards to risk assessment, severity is considered in risk assessments to evaluate the potential consequences of various risks. It helps assess the magnitude of potential harm or loss and prioritize risk management efforts accordingly.

4.3.3 D3: Barriers

Barriers refer to obstacles, hurdles, or impediments that prevent or hinder progress, communication, access, or interaction. They can exist in various domains, including personal, social, cultural, organizational, and physical contexts. One of the important aspect under this domain is an attitudinal barriers. Attitudinal barriers refer to negative attitudes, prejudices, or stereotypes held by individuals or groups that hinder effective communication, collaboration, or social interaction. These barriers can be based on factors such as race, gender, age, religion, or disability.

4.3.4 D4: Efficacy

Efficacy refers to the ability or effectiveness of something to produce the desired result or outcome. It is a measure of how well a particular intervention, treatment, or approach achieves its intended purpose. Efficacy is often used to evaluate the success or effectiveness of various actions or interventions in achieving their intended goals. In psychology, efficacy refers to an individual's belief

in their ability to successfully execute specific tasks or behaviors. It is often associated with self-efficacy, which is the belief in one's own competence and capability to achieve desired goals. The ASDS23 tries to measure individual or self-efficacy of the respondent towards safe driving practice. Self-efficacy refers to an individual's belief in their own ability to successfully accomplish a specific task, achieve a goal, or handle challenging situations. It is a concept introduced by psychologist Albert Bandura as part of his social cognitive theory. Self-efficacy beliefs play a significant role in motivation, behavior, and personal development.

4.3.5 D5: Action

Action refers to the process of taking steps or engaging in activities to achieve a specific goal, bring about a desired change, or address a particular situation. It involves actively doing something rather than remaining passive or idle. Actions can be physical, verbal, or mental, depending on the context. Taking action is essential for achieving personal and professional goals, driving change, and making a positive impact. It requires motivation, planning, and a willingness to step out of one's comfort zone. While actions may not always lead to immediate or guaranteed success, they are crucial for progress and realizing desired outcomes. Action is a vital human component in making decision and putting commitment. Taking action often involves making decisions and committing to a course of action. It requires assessing options, weighing potential outcomes, and choosing the most appropriate path forward. Action may involve overcoming obstacles, challenges, or resistance that stand in the way of progress. It requires perseverance, resilience, and adaptability to navigate through difficulties.

4.3.6 D6: Benefits

Taking action and engaging in activities can bring about a wide range of benefits. In driving activities, benefits may be translated in the form of a driver's profit on the behavior they take. For example, cutting the line and speeding (usually related to breaking the rules of the road) will bring them a 'profit' i.e.: cutting the Q and driving over the speed limit will reach the destination earlier. However, there is also a good side under this domain where respondents can choose to maintain their good attitude and at the same time can provide universal benefits in the form of avoiding being involved in accidents.

4.3.7 D7: Control

Control refers to the ability to influence, manage, or direct the behavior or functioning of oneself, others, or a situation. It involves having power or authority over certain aspects and being able to determine or shape the outcome or course of events. Control can be exerted in various domains, including personal, social, organizational, or environmental contexts. In driving, making decision and have a self-control towards driving behavior is important. Self-control, also known as self-discipline or self-regulation, refers to the ability to control and manage one's own thoughts, emotions, and behaviors in order to achieve long-term goals or adhere to desired standards. It involves exerting conscious effort to resist immediate gratification or impulsive actions in favor of more beneficial outcomes or behaviors in the future. Developing self-control is a skill that can be strengthened and enhanced through practice and conscious effort. Strategies such as goal setting, creating routines, developing mindfulness, managing stress, seeking social support, and breaking tasks into manageable steps can all help in improving self-control and achieving desired outcomes. It's essential to strike a balance between control and flexibility, recognizing that certain factors are beyond our control. Developing self-awareness, practicing effective communication, fostering collaboration, and respecting the autonomy and agency of others are important aspects of maintaining healthy and balanced control in various contexts.

4.3.8 D8: Confidence

Confidence refers to a state of self-assurance, belief in one's abilities, and a positive perception of oneself. It is a psychological characteristic that influences how individuals think, feel, and behave in different situations. Confidence is not necessarily about being flawless or having all the answers, but rather about having faith in one's competence and being able to handle challenges or uncertainty with a sense of self-assuredness. Confidence can be cultivated and developed through various strategies, including building skills, setting and achieving goals, seeking support and feedback, celebrating accomplishments, and adopting positive self-talk and affirmations. Developing confidence requires self-awareness, self-acceptance, and consistent practice to strengthen self-belief and overcome self-doubt. In driving activity, person behind the wheel is fully responsible for each and every action that they take. All this action has strong correlation with their confidence. Self-confidence refers to a belief in one's own abilities, qualities, and worth. It is an internal sense of assurance and trust in oneself, which can positively impact thoughts, emotions, behaviors, and interactions with others. Self-confidence is essential for personal growth, resilience, and overall well-being. Building self-confidence is a lifelong journey that involves self-reflection, self-acceptance, setting and achieving goals, celebrating successes, and challenging self-limiting beliefs. Developing self-confidence requires taking action, facing fears, learning from failures, and surrounding oneself with positive and supportive people. With practice and persistence, individuals can strengthen their self-confidence and enjoy the benefits it brings to various aspects of their lives.

4.3.9 D9: Guilty

Feeling guilty typically refers to experiencing a sense of remorse, regret, or responsibility for a perceived wrongdoing or violation of one's own moral or ethical standards. Guilt is often accompanied by negative emotions such as shame, self-blame, and a desire for forgiveness or reconciliation. Feeling guilty can prompt self-reflection and introspection. It can lead individuals to evaluate their choices, consider the consequences of their actions, and take responsibility for their behavior. It's important to recognize that guilt, when appropriately addressed, can serve as a moral compass and guide individuals toward personal growth and ethical behavior. However, excessive or

prolonged guilt may have negative effects on mental well-being, and seeking support from trusted individuals or professional help can be beneficial in managing and resolving overwhelming feelings of guilt.

5.0 Discussion

There is no denying that the attitude of humans is constantly changing over time. There are too many environmental factors that are sometimes beyond the scope of the driving activity that contributes to the current risk behaviour. However, this study developed a first-of-its-kind method where individual driving factors can be fully measured. Future studies will focus on the development of norm tables based on different age group and other sociodemographic data. Undoubtedly, the type of sociodemographic factors are among the things that need for further attention. In addition, the process of transferring raw data into the calculator manually is also a process that can increase errors, especially when extensive data is involved. This study believes that digitizing this program will save time, money, and manpower. In addition, the chance of error can be immediately reduced.

6.0 Conclusion, limitations & recommendations

This latest study is one of the efforts to strengthen the study's findings and listen to industry practitioners' feedback. There are some shortcomings that this study would like to be mentioned here. Assessment involving human attitude often involves a complex and challenging process. As mentioned above, the risk factors may change over time. In order to obtain the accuracy of the results, the assessment may require frequent repeat assessments. In addition, the way information is entered into the analysis table makes it possible for errors to occur, especially involving large data. This study believes that both of these limitations will be resolved with the digitization of this program. Therapist can conduct assessments more often, easily, and quickly. It will indirectly give valid and sensitive current results.

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Paper Contribution to Related Field of Study

As mentioned earlier, this revised edition is an updated version of the previous publication. The findings of this recent study show significant changes in terms of domain and items related to driver's attitude. The recent cut-off table is also open to constructive comments and criticism. Researchers desire to see the positive effects of the results of this study. Occupational therapist in Malaysia should take proactive action related to driving rehabilitation issues in return to work program. Everybody is welcome to share their input for further improvement.

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