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Kertas Asli/*Original Articles*

Challenges, Attitudes and Skills of Occupational Therapists towards Pre-Driving Assessments Practices in Malaysia

(Cabaran, Sikap Dan Kemahiran Ahli Terapi Cara Kerja Terhadap Amalan Penilaian Pra-Pemanduan Di Malaysia)

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ABSTRACT

A pre-driving assessment usually involves standardised and non-standardised tests to examine the skills for safe driving of people with disabilities. However, it is still unknown to what extent the pre-driving assessments are being practised among occupational therapists in Malaysia. Therefore, this study aims to investigate the association of challenges, attitudes, and skills of occupational therapists towards practising driving rehabilitation and explore the most used pre-driving assessment. A cross-sectional study had been conducted from July to September 2020. The convenient sampling method was used to recruit experienced occupational therapists in driving rehabilitation. A total of 53 therapists had completed an online survey. According to the results, the bivariate correlation between skills and challenges was positive and strong (rs = 0.680, p < 0.05). A multivariate analysis of variance (MANOVA) indicated that workplace variables had a significant effect on the combined dependent variables of challenges, attitudes, and skills, F(3,49) = 4.521 p = 0.007, partial Ƞ² = 0.217. This study found that the most used standardised assessment was the range of motion (n = 39, 73.6 %) and the right and left discrimination (n = 40, 75.5 %). The findings of this study identified that occupational therapists challenges and attitudes are significantly associated with the skills to practice driving rehabilitation. Malaysian occupational therapists working in the government sector reported better skills than those working in the private sector. Furthermore, numerous types of pre-driving assessments were used and vary from setting to setting. This study hopes to benefit occupational therapists and related rehabilitation practitioners towards a holistic understanding of Malaysia's driving rehabilitation practices.

Keywords: Occupational therapy; fitness to drive; off-road assessment

ABSTRAK

Penilaian pra-pemanduan biasanya melibatkan ujian terpiawai dan tak terpiawai untuk memeriksa kemahiran orang kurang upaya untuk pemanduan yang selamat. Walau bagaimanapun, masih belum diketahui sejauh mana penilaian pra-pemanduan dilakukan di kalangan ahli terapi cara kerja di Malaysia. Oleh itu, kajian ini bertujuan untuk mengkaji hubungan antara cabaran, sikap, dan kemahiran ahli terapi cara kerja terhadap amalan rehabilitasi pemanduan serta meneroka penilaian pra-pemanduan yang paling banyak digunakan. Kajian keratan rentas telah dilakukan dari bulan Julai hingga September 2020. Pensampelan mudah digunakan untuk merekrut ahli terapi cara kerja yang berpengalaman dalam rehabilitasi pemanduan. Sebanyak 53 ahli terapi telah menjawab tinjauan dalam talian. Hasil kajian ini menunjukkan korelasi bivariat antara kemahiran dan cabaran adalah positif dan kuat (rs = 0.680, p <0.05). Analisis varians multivariate (MANOVA) menunjukkan pengaruh yang signifikan terhadap gabungan variabel bersandar cabaran, sikap, dan kemahiran antara pemboleh ubah tempat kerja, F (3,49) = 4,521, p = 0,007, partial Ƞ ² = 0,217. Kajian ini mendapati bahawa penilaian terpiawai yang paling banyak digunakan adalah julat pergerakan (n= 39, 73.6%) dan diskriminasi kanan & kiri (n = 40, 75.5%). Penemuan kajian ini telah mengenal pasti bahawa cabaran dan sikap ahli terapi cara kerja secara signifikan dikaitkan dengan kemahiran mempraktikkan rehabilitasi pemanduan. Ahli terapi cara kerja di Malaysia yang bekerja di sektor kerajaan melaporkan kemahiran yang lebih tinggi daripada mereka yang bekerja di sektor swasta. Tambahan pula, banyak jenis penilaian pra-pemanduan yang digunakan dan ia adalah berbeza dari tetapan ke tetapan. Kajian ini berharap dapat memberi manfaat kepada ahli terapi cara kerja dan pengamal rehabilitasi berkaitan ke arah pemahaman holistik mengenai amalan rehabilitasi pemanduan di Malaysia.

Kata kunci: Terapi cara kerja; kecergasan untuk memandu; pra-pemanduan

INTRODUCTION

Driving is considered a part of community mobility included within occupational therapy (OT) practice. A loss in driving privileges is associated with depression, reduced autonomy, decline in social participation, and quality of life (Motta et al. 2014). However, driving is considered a privilege, not a right (Dickerson et al. 2011). Therefore, occupational therapy concerns helping the disabled driver return to driving, ensuring their clients' priorities, and assessing their clients' necessary skills to perform the complex task of driving (Dickerson et al. 2011). Besides that, occupational therapists as health professionals are responsible for conducting a comprehensive screening and evaluation for the driver to be recognised internationally (Asimakopulos et al. 2012). Therefore, it is essential to provide more effective, efficient and client-centred driving assessment and rehabilitation by exploring partnership for general practice between occupational therapists and specialists (Dickerson 2013). Furthermore, as driving can be significant to clients, occupational therapists should have relevant knowledge and skills and be expected to excel in driving fitness to a certain standard in the driving assessment process (Slater 2014).

Occupational therapists have numerous significant challenges to establish driving rehabilitation (Unsworth et al. 2012). For example, in South Africa, occupational therapists face unclear formal guidelines, a lack of specific training for occupational therapists, and a lack of legislation to support the role of occupational therapists in driving rehabilitation (Classen et al. 2018). Another study highlighted that the pitfall in driving rehabilitation was that experienced occupational therapists with more than ten years of experience were not using evidence-based choices of assessment tools (Dickerson 2013). In Australia, the occupational therapist trained in driving assessment was inadequate to supply (Dickerson 2013; Yuen et al. 2012). In Sweden, the researcher also highlighted that the comprehensive driving assessment is not sufficient to provide specialised training; thus, causing the lack of opportunity for occupational therapists to undergo specific driving rehabilitation training (Selander 2012). Furthermore, respondents felt that their involvement in driving assessment was not encouraged in their organisation, or there was no cooperation with driving trainers or assessors. At the same time, there was also a lack of applicable methods to assess mental function for driving fitness (Larsson et al. 2007).

A study on the attitude of occupational therapists in driving rehabilitation had mentioned unsuccessful searches through PubMed in 2014 of any studies about the knowledge and attitudes of occupational therapists to provide advice in fitness-to-drive (Hawley 2015). Contrarily, previous study findings highlighted that occupational therapists feel appreciated while conducting the driving assessment because the demand for driving assessment is of great interest in their organisation (Larsson et al. 2007). Similarly, another study also found that Korean occupational therapists have the desire and good attitude to receive education regarding driving rehabilitation (Shin 2011). Meanwhile, another study stated that most occupational therapists have not yet established the framework, confidence, and language to practice what they know about their patients at risk or having driving potential. Still, occupational therapists have the knowledge and skills to make recommendations appropriate to their training and context (Dickerson & Bédard 2014).

Off-road assessments or pre-driving assessments are performed at the occupational therapy clinic and consist of varieties of standardised and non-standardised assessments, for instance, interview for demographic information, physical capacity (e.g., range of motion, muscle tone, muscle strength), eyesight, sensation, cognitive level and perceptual skills (Korner-Bitensky et al. 2006; Unsworth et al. 2012). Besides that, a detailed assessment of skills and behaviours before entering the vehicle and driving in traffic was required as the perseverance ability of a client's fitness-to-drive (Unsworth et al. 2012). The pre-driving assessment may predict if the driver is a safe or unsafe driver without the need to test them on the road (Korner-Bitensky et al. 2006; Stapleton et al. 2015). Therefore, conducting a pre-driving assessment has allowed therapists to analyse the complicated situations related to the driving task.

There were many types of specific driving assessments used to predict fitness-to-drive, such as Occupational Therapy Driver Off-Road Assessment Battery (OT-DORA) (Unsworth et al. 2011), the Stroke Driver Screening Assessment (SDSA) (Lundberg et al. 2003), and Drive Safe/ Drive Aware (Kay et al. 2009). Standardised assessments are essential in improving the quality and quantity of information for making an accurate decision (Masuri et al. 2015). However, a lack of consistency in the driving assessments of occupational therapists affects the clients with different assessment experiences due to the other therapists who assessed the clients, potentially with different outcomes (Unsworth et al. 2012).

In Malaysia, occupational therapists have the active role and responsibility in providing driving assessment and rehabilitation regarding fitness-to-drive. However, the challenges, attitudes and skills of Malaysian occupational therapists as well as the methods to perform pre-driving assessments towards practising driving rehabilitation were still unknown. A comprehensive driving assessment requires specialised training and selections of many

assessment tools to measure motor, visual, and cognitive skills. Yet, the current pre-driving assessment form used by Malaysian occupational therapists still lacked some components to detect the deficiency of disabled drivers. Furthermore, there is no clear guideline for using this non-standardised assessment form. There is also insufficient local research evidence and a lack of specialised training in the driving rehabilitation and pre-driving assessment field in Malaysia. Therefore, this study aims to identify challenges, attitudes, and skills of Malaysian occupational therapists in driving rehabilitation and explore types of pre-driving assessments used. This study also hopes to overcome and improve the current practice to determine essential components needed for developing standardised driving assessments, guidelines, and procedures for practising in Malaysia.

MATERIALS AND METHODS

STUDY DESIGN AND LOCATION

This study is a cross-sectional study designed to identify the challenges, attitudes, and skills of therapists towards practising driving rehabilitation and investigating the most used pre-driving assessment. Ethical approval was obtained from the Centre for Research and Instrumentation Management, The National University of Malaysia (Universiti Kebangsaan Malaysia, UKM) with the reference number JEP-2020-474. After the participants had read the participant information sheet, they were required to indicate their consent in the google form.

PARTICIPANTS

A convenient sampling method was used to recruit the eligible sample. This survey is part of a prior study that consisted of 175 respondents. The sample size was calculated based on 320 general population using the Krejcie et al. (1970) table, with the 5% precision level. Among 175 respondents, only 53 participants fulfilled the inclusion criteria. The eligible respondents are the occupational therapists who have more than one year of working experience in driving rehabilitation with at least a diploma or bachelor's degree in occupational therapy that had completed the online survey. However, occupational therapists who were currently working outside of Malaysia were excluded from this study. All the participants who voluntarily completed the questionnaire had agreed and provided digital consent to participate in the online survey.

INSTRUMENT

The questionnaire was written in English and consisted of three parts. Part A was developed for collecting data on participant's socio demographic variables such as age, gender, educational level, and working experiences, which included the work position and year of experiences in driving rehabilitation. Part B assessed the perception of occupational therapists towards driving rehabilitation in Malaysia. This part consists of twenty items that were grouped into three constructs: challenges (eight items), attitudes (six items), and skills (six items). It is designed to assess the likelihood of a decision, and items are presented on a ten-level Likert scale (1 = totally disagree to 10 = totally agree). Part C was to rate the most used standardised and non-standardised assessments. The participants were asked to indicate the usage frequency for thirty-one types of standardised and non-standardised assessments while conducting the pre-driving assessment. Each item of usage frequency is presented on a four-level ordinal scale (1 = not used, 2 = rarely used, 3 = frequently used, 4 = used all the time). This questionnaire was estimated to be completed around 10–20 min. In this study, the validity and reliability of the questionnaire had been measured with the Content Validity Index (CVI) and Modified Kappa. The criteria of clarity and relevancy of the questionnaire were identified with the I-CVI score of > 0.830 (0.864–1.00) for each item, S-CVI/Ave was 0.972 and S-CVI/UA was 0.838, which had met the satisfactory level of content validity (Lynn 1986; Polit et al. 2007). The modified kappa score min value was identified as 0.812, and the max value was 1, the evaluation criteria for kappa that was above 0.740 was considered excellent (Zamanzadeh et al. 2015).

PROCEDURE

First, the questionnaire was produced by searching the literature review and a team of researchers. Then, the content validity were examined with six experts who worked as clinicians and lecturers from the Occupational Therapy program. The comments from the content validity phase were used to modify the items in the questionnaire. The first draft of the questionnaire had been piloted with three occupational therapists who worked at the hospital and had more than five years of experience in driving rehabilitation to check for face validity and test for feasibility. The questionnaire was then revised by making amendments based on feedback from the feasibility and face validity phase. Four items in the questionnaire had been removed, and six items had been modified and rephrased. Finally, an online survey via google form was

ready to be distributed to all Malaysian occupational therapists with a consent form attached to the online survey of participants to indicate the agreement for their voluntary and willingness to participate in this study.

DATA COLLECTION

Data collection was conducted using a questionnaire. After acknowledging the provided information sheet, the respondents need to provide consent before answering the questionnaire that had been converted into an online survey. The survey link was distributed through online platforms (e.g., Facebook & WhatsApp groups) to forward the link or questionnaire to occupational therapists. The collected data from the respondents were assured to be private and confidential. Raw data showed that there were 195 occupational therapists that had answered the online survey of this study. However, only forty-five surveys were completed after four weeks, while eight surveys were completed within six weeks after being reminded via WhatsApp and email. Hence, 53 (27.17 %) participants were recruited and accepted for final analysis after screening for their eligibility while 142 respondents that were not eligible and had not answered thoroughly were rejected in this study.

DATA ANALYSIS

For this study, part A in the questionnaire was about socio-demographic data, and the respondent characteristics were reported as frequencies and percentages. Part B in the questionnaire was to identify the challenges, attitudes, and skills of occupational therapists towards driving rehabilitation in Malaysia. The twenty items of challenges (eight items), attitudes (six items), and skills (six items) were reported to obtain the mean, standard deviation and Spearman's Correlation test to examine the relationship of challenges, attitudes and skills. Meanwhile, a Multivariate Analysis of Variance (MANOVA) was performed to compare challenges, attitudes, skills of occupational therapists based on education level, work position and work settings. Lastly, part C of the questionnaire required respondents to nominate the most used standardised and non-standardised pre-driving assessments. Therefore, a descriptive analysis was to identify the highest rating assessment. All the statistical analysis and descriptive analysis for part A to part C in the questionnaire used the IBM SPSS Statistics (SPSS) version 26.

RESULTS

SOCIO-DEMOGRAPHIC DATA

The socio-demographic data for 53 respondents are shown in Table 1. Most of the respondents were female (n = 36, 67.9 %) and graduated with bachelor's degree (n = 34, 64.2 %). A total of 86.6 % (n = 46) respondents were working in the government sector (hospital⁄health clinic/ rehabilitation centre). Respondent's driving rehabilitation experiences ranged from 1 year to 25 years (M = 4.32, SD = 4.471). More than half of the respondents (n = 31, 58.5 %) have a background of 1 to 3 years of experience; only one respondent indicated the highest 25 years of experience in driving rehabilitation. The result of this study demonstrated that car and motorcycle were the highest types of pre-driving assessment provided by respondents (n = 28, 52.8 %). Meanwhile, respondents age (M = 37.3, SD = 9.103) ranged from 25 to 56 years old. The number of years they graduated as an occupational therapist ranged from 1–31 years (M = 13.91, SD = 8.598).

RELATIONSHIPS OF CHALLENGES, ATTITUDES AND SKILLS OF OCCUPATIONAL THERAPIST TOWARDS PRACTICING DRIVING REHABILITATION IN MALAYSIA

Table 2 outlines the twenty items of challenges (eight items), attitudes (six items), and skills (six items) that were reported for the mean and standard deviation and the item with the highest score in each domain was facilities that supported driving rehabilitation are limited in Malaysia (M = 8.25, SD = 1.870), occupational therapy has a bright future in driving rehabilitation (M = 8.98, SD = 1.474), I know how to conduct the off-road driving assessment (M = 7.32, SD = 2.119), respectively. The Spearman's Correlation test was used in this study to examine the relationship of challenges, attitudes, and skills towards practising driving rehabilitation.

Table 1. Socio-demographic Data of Respondents

Socio-demographic Data	Frequency	Percent (%)
Gender		
Male	17	32.1
Female	36	67.9
Educational level		

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Diploma	12	22.6
Bachelor's Degree	34	64.2
Master's Degree	7	13.2
Work Position		
Management	23	43.4
Regular therapist	30	56.6
Work Setting		
Government sector	46	86.8
Private sector	7	13.2
Years Of Experiences In Driving Rehabilitation		
1-3 years	31	58.5
>4 years	22	41.5
Type Of Driving Assessment Provided		
Car	19	35.8
Car & motorcycle	28	52.8
Car, lorry & motorcycle	6	11.3
	Mean	**SD**
Age	37.3	9.103
Years graduated as an occupational therapist	13.91	8.598
Years of experiences in driving rehabilitation	4.32	4.471

Table 2. Occupational Therapists' Challenges, Attitudes, and Skills towards Practicing Driving Rehabilitation

	Item	Means	SD
	Challenges		
A1	Public awareness of the occupational therapist's roles in driving rehabilitation is minimal.	7.51	2.241
A2	Driving rehabilitation is time-consuming.	6.58	2.429
A3	Currently, available driving assessment tools are unsuitable for Malaysian settings.	6.57	2.005
A4	To set up driving rehabilitation is costly.	7.87	2.094
A5	There is an insufficient number of occupational therapists who can practice driving rehabilitation.	7.70	1.967
A6	Facilities that support driving rehabilitation are limited in Malaysia (e.g. parking lot, driving school & accessibility).	8.25	1.870
A7	The practice guideline to guide driving rehabilitation in Malaysia is limited (e.g. standard operating procedure & clinical practice guideline).	7.98	1.759
	Attitudes	8.08	1.910
B1	I am interested in doing driving rehabilitation.	7.62	2.203
B2	I am confident to practice driving rehabilitation.	8.87	1.520
B3	I like to help patients to be able to drive.	8.74	1.619
B4	I am willing to spend time learning about driving rehabilitation.	8.98	1.474
B5	Occupational therapy has a bright future in driving rehabilitation.	7.11	2.127
B6	Spending my own money to go for driving rehabilitation-related workshops is worthwhile.	8.08	1.910
	Skills		
C1	My knowledge is sufficient to practice driving rehabilitation.	6.09	2.078
C2	I know how to conduct the off-road driving assessment.	7.32	2.119
C3	I know how to conduct the on-road driving assessment.	5.45	2.531
C4	I can make the right decision regarding fitness to drive.	7.23	1.694
C5	I have good clinical reasoning to apply driving rehabilitation.	7.13	1.840
C6	I have received specific training/s related to driving rehabilitation.	4.98	2.098

Table 3 outlines that the result of the bivariate correlation between the skills (M = 42.28, SD = 7.201) and the challenges (M = 38.21, SD = 10.093) were positive and strong (rs = 0.680, p < 0.05). However, only weak correlations (rs = 0.298, p < 0.05) can be observed between skills (M = 42.283, SD = 7.201) and attitudes (M = 31.434, SD = 5.918).

Table 3. Relationship of Challenges, Attitudes and Skills of Occupational Therapist in Malaysia

Variables	Skills (42.283 ± 7.201)
Challenges (38.21 ± 10.093)	rs=0.680, p = 0.000*
Attitude (31.434 ± 5.918)	rs=0.298, p = 0.030*

Note: All n=53
Above indicated (Mean score ± SD)
The correlation between Challenges and Abilities is significant.
The Spearman's correlation coefficient rs (53) =0.680, p<0.005.

CHALLENGES, ATTITUDES AND SKILLS OF OCCUPATIONAL THERAPISTS TOWARDS DRIVING REHABILITATION BASED ON EDUCATION LEVEL, WORK POSITION AND WORK SETTINGS

A Multivariate Analysis of Variance (MANOVA) was used to compare the challenges, attitudes, and skills of occupational therapists towards driving rehabilitation based on the socio demographic factor of education level, work position and work settings. As shown in Table 4, the work setting variables had a significant effect on the combined dependent variables of challenges, attitudes and skills, $F(3,49) = 4.521$, $p = 0.007$, partial $\eta^2 = 0.217$.

Table 4. Comparison of Challenges, Attitudes, and Skills of Occupational Therapists towards Driving Rehabilitation Based on Education Level, Work Setting and Work Position

Variables	Challenges	Attitudes	Skills	*F*	*p*	η^2
Educational Level						
Diploma (n=12)	30.17 ± 7.802	40.92 ± 9.424	35.25 ± 8.730	0.804	0.569	0.047
Bachelor's Degree (n=34)	31.50 ± 5.615	42.47 ± 6.757	38.09 ± 10.472			
Master's Degree (n=7)	33.29 ± 3.352	43.71 ± 5.407	43.86 ± 9.227			
Work Setting						
Government Sector (n=46)	31.00 ± 6.015	42.33 ± 7.495	39.61 ± 8.699	4.521	0.007*	0.217
Private Sector (n=7)	34.29 ± 4.608	42.00 ± 5.292	29.00 ± 14.189			
Work Position						
Management (n=23)	31.83 ± 5.686	40.17 ± 8.716	37.09 ± 11.421	1.598	0.202	0.089
Clinician (n=30)	31.13 ± 6.169	43.90 ± 5.397	39.07 ± 9.051			

Significant difference in challenges, attitudes, and skills between the government and private sector
Significant difference among the different Work Setting, p=0.008 Government Sector 39.61 ± 8.699, Private Sector 29.00 ± 14.189*

STANDARDISED AND NON-STANDARDISED PRE-DRIVING ASSESSMENTS

The types of standardised and non-standardised assessments to assess driving ability are listed in Table 6. This study had found that the most used standardised assessment was the Range of Motion (n = 39, 73.6 %), followed by the Manual Muscle Testing (n = 30, 56.6 %) and Basic Activity Daily Living (BADL) (n = 28, 52.8 %). The specific standardised pre-driving assessment with high predictive value was found to be used all the time by less than 30 % of the respondents in this study. It includes driving simulator (n = 12, 22 %), Trail Making Test A & B (n = 11, 20.8 %), Stroke Driver Screening Assessment (n = 10, 18.9 %), and Drive Safe/Drive Aware (n = 2, 3.8 %). For the non-standardised pre-driving assessment, it is important to note that more than 60 % of respondents used all the time which includes the right and left discrimination test (n = 40, 75.5 %), sensory test (n = 37, 69.8 %), car component recognition test (n = 36, 67.9 %), transfer ability (n = 35, 66 %), and knowledge about traffic light (n = 34, 64.2 %).

Table 6. Standardised and Non-standardised Assessments used by Occupational Therapist in Malaysia

Type of Assessment	Not Use, n (%)	Rarely Use, n (%)	Frequently Use, n (%)	All The Time Use, n (%)
Standardised Assessment				
Range of motion (neck, upper & lower limb)	0(0)	1(9)	13(24.5)	39(73.6)
Manual muscle testing (MMT)	0(0)	7(13.2)	16(30.2)	30(56.6)
BADL (e.g.: Modified Barthel Index)	1(1.9)	8(15.1)	15(28.3)	28(52.8)
Dynanometer & pinch gauge	0(0)	8(15.1)	18(34.0)	27(50.9)
Visual acuity (e.g.: Snellen eye chart etc.)	6(11.3)	11(20.8)	11(20.8)	24(45.3)
Montreal cognitive assessment (MOCA)	2(3.8)	6(11.3)	21(39.6)	24(45.3)
Mini mental state examination (MMSE)	6(11.3)	12(22.6)	13(24.5)	22(41.5)
Modified ashworth scale (MAS)	5(9.4)	13(24.5)	20(37.7)	15(28.3)
IADL (e.g. Lawton IADL Scale)	5(9.4)	14(26.4)	19(35.8)	14(26.4)
Trunk symmetrical - Berg's Balance Scale or etc	2(3.8)	20(37.7)	19(35.8)	12(22.6)
Driving simulator	20(37.7)	11(20.8)	10(18.9)	12(22.6)
Trail making test A & B	11(20.8)	14(26.4)	17(32.1)	11(20.8)
Stroke driver screening assessment (SDSA)	18(34.0)	10(18.9)	15(28.3)	10(18.9)
Chessington occupational therapy neurological assessment battery (COTNAB)	8(15.1)	16(30.2)	21(39.6)	8(15.1)
Loewenstein occupational therapy cognitive assessment (LOTCA)	11(20.8)	19(35.8)	17(32.1)	6(11.3)
Rivermead perceptual assessment battery (RPAB)	20(37.7)	20(37.7)	10(18.9)	3(5.7)
Bells test	28(52.8)	20(37.7)	3(5.7)	2(3.8)
Drive safe/drive aware (DSDA)	32(60.4)	11(20.8)	8(15.1)	2(3.8)
Motor free visual assessment test (MVPT)	34(64.2)	12(22.6)	6(11.3)	1(1.9)
Non-Standardized Assessment				
Right & left discrimination	1(1.9)	2(3.8)	10(18.9)	40(75.5)
Sensory (e.g. pain, numbness, tactile etc.)	1(1.9)	2(3.8)	13(24.5)	37(69.8)
Car component recognition	0(0)	2(3.8)	15(28.3)	36(67.9)
Transfer ability	0(0)	4(7.5)	14(26.4)	35(66.0)
Knowledge about traffic light (e.g. color discrimination & light changing sequence)	2(3.8)	5(9.4)	12(22.6)	34(64.2)
Road sign recognition	3(5.7)	9(17.0)	15(28.3)	26(49.1)
Problem solving skills (e.g. driving scenario)	2(3.8)	5(9.4)	21(39.6)	25(47.2)
Pre-driving assessment form (e.g. SOP Hand & stroke)	5(9.4)	9(17.0)	13(24.5)	24(45.3)
Proprioception	4(7.5)	7(13.2)	19(37.7)	22(41.5)
Roundabout direction	4(7.5)	7(13.2)	20(37.7)	22(41.5)

DISCUSSION

This study aims to examine the association between the challenges, attitudes and skills of Malaysian occupational therapists towards practising driving rehabilitation. In Table 3, the highest mean of the challenges construct was that facilities supporting driving rehabilitation are limited in Malaysia (M = 8.25, SD =1.870). These findings were consistent with a qualitative study that reported some of the barriers to implement the driving program are difficulty gaining support within the organisation, struggling to gain funding buying proper equipment, and limited staffing issues to sustain driving rehabilitation programs (Stav et al. 2006). Meanwhile, this study showed that the highest mean for the attitudes construct was occupational therapy has a bright future in driving rehabilitation. The role of the occupational therapists is exclusive and to promote and improve driving rehabilitation to a more developing and dynamic field (Dickerson et al. 2011). For the highest mean of the skills construct, respondents reported they were competent to conduct the pre-driving assessment. Competency of pre-driving assessment is divided into general and specialised areas indicating that occupational therapists should be equipped with graduate education and expertise training (Korner-Bitensky et al. 2006).

The relationship between skills and challenges was strong, while the relationship between skills and attitudes was weak and positive. These findings have suggested that therapists can successfully overcome the challenges and maintain positive attitudes; hence, they may surpass their current ability as a part of their learning growth (Bennett et al. 2003; Kolb 2014). This study also found that the work setting variables have significant effects on the combined dependent variables of challenges, attitudes and skills. These findings were consistent with the study by Larsson-Lund et al. (2019), indicating that occupational therapists must be proactive and face challenges at the community level to promote justice in the workplace by providing the right to meaningful employment to all populations.

Furthermore, the skills scores for occupational therapists working in the government sector were statistically significantly higher than those working in the private sector. Consistent with earlier findings, Jones et al. (2016) discovered that one of the advantages of working at a public hospital allows the driver rehabilitation specialists (DRS) to easily access the patient's electronic medical file so DRS can understand the patient's background well. On the other hand, the DRS working in private practice feel that they do not always obtain enough medical information, but working in the private sector gives them greater independence and possibly higher income than public hospital-based programs (Jones et al. 2016). Undeniably, the occupational therapists with a Bachelor's Degree from the private sector scored higher in Work Self-Determination Index (W-SDI) and have higher work motivation than those in the public sector (Chai et al. 2017). Nevertheless, the respondents in a study had mentioned that public sector employees are competent and efficient along with excellent treatment and care by the multi-disciplinary team interventions, although surrounded by resource limitations (Maseko et al. 2018). Ultimately, occupational therapists working in the government or private sectors could significantly improve skills in driving rehabilitation.

The second objective of this study is to investigate the most used pre-driving assessment in Malaysia. The highest standardised pre-driving assessment used all the time by respondents was the Range of Motion (n = 39, 73.6 %), followed by the Manual Muscle Testing (n = 30, 56.6 %) and Basic Activity Daily Living (BADL) (n = 28, 52.8 %). Similar to the study of Dickerson et al. (2014), most driving evaluators assessed the range of motion, muscle strength, and muscle tone as these assessments were essential and are routine components of occupational therapy practice. Moreover, standardised assessments will enlighten the process. Still, they should not be used exclusively or separately to decide on fitness-to-drive as occupational therapists require many procedures to assess the client's performance (Stapleton et al. 2015). Therefore, the practice of assessment tools should be based on research evidence to obtain accurate and reliable information to protect the service (Doucet et al. 2013).

Surprisingly, the well-known specific driving assessments such as Driving Simulator (n = 12, 22 %), Stroke Driver Screening Assessment (n = 10, 18.9 %), and Drive Safe\Drive Aware (n = 2, 3.8 %) showed low response rates of being used by respondents. These findings were consistent with the study of Stack et al. (2018), who identified that occupational therapists used a non-specific driving assessment that is existing and convenient to get in the area for evaluating fitness-to-drive. There is a need for further studies on why the clinician's lack of practice in specific driving assessment may be considered a deficiency of practicality and face validity (Korner-Bitensky et al. 2006). A comprehensive driving assessment should be easy to handle, produce and apply on a particular client group (Korner-Bitensky et al. 2006). In this study, only 12 (22 %) respondents used the driving simulator even though it has been proven to have good fitness-to-drive. The reason for not using the driving simulator as one of the pre-driving assessments is the simulator illness effect, budget, and inadequate evidence (Dickerson 2013), which are the same reasons Malaysia does not buy and supply to all medical facilities.

Additionally, Trail Making Test A&B was only used by 11 (20.8 %) respondents. Still, it had been well-known for high predictive value (Devos et al. 2011), especially Trails B had the best sensitivity and specificity value to assess the fitness-to-drive (Gibbons et al. 2017). However, a study stated that a person who spends more than 2 minutes completing the Trail Making Test A&B might risk being unfit to drive, but this cut-off score still lacks evidence to predict the fitness-to-drive (Duncanson et al. 2018). Furthermore, another study mentioned that even occupational therapists utilised the most reliable and valid equipment to re-evaluate driving fitness after stroke. However, the permanent gap still exists for application of knowledge to research evidence into clinical practice (Cammarata et al. 2017). Therefore, it is essential to choose the most suitable pre-driving assessment that suits the client's condition in making decisions for fitness-to-drive.

Interestingly, the right and left discrimination test (n = 40, 75.5 %), sensory test (n = 37, 69.8 %), car component recognition test (n = 36, 67.9 %), transfer ability (n = 35, 66 %), and knowledge about traffic light (n = 34, 64.2 %) were the highest non-standardized pre-driving assessments used by more than 60 % of respondents in this study. It is parallel to the study of Stack et al. (2018) that stated the best practice to advise fitness-to-drive is by using functional observation-based assessments. Some research that

supported these findings identified that occupational therapists selected assessments based on the target area and the important components that may affect the driving task (Cammarata et al. 2017; Korner-Bitensky et al. 2006). It is important to use more performance-based assessments to assess fitness-to-drive as occupational therapy focuses on the analysis of performance on each person's occupation (Dickerson 2013).

The result of this study has shown that respondents practised various types of standardised and non-standardised pre-driving assessments. According to Dickerson et al. (2014), although occupational therapists practiced the universal assessment tools, they can support making clinical judgments. First, to decide fitness-to-drive. Second, decrease workload by sharing outcomes of data collected from the driving rehabilitation specialist. Lastly, to define the suitable type and duration of a referral for a comprehensive driving evaluation. These findings are in line with previous studies, indicating that a comprehensive driving assessment on a client requires specialised training and selections of many assessment tools used to measure motor, visual, and cognitive function that depends on the client's skills, environment and occupation (Anstey et al. 2017; O'connor et al. 2010; Unsworth et al. 2012).

On the other hand, inconsistent instrument selection with a specific group of clients and a particular diagnosis requires investigation. Therefore, occupational therapists use the client-centred approach and treat clients individually (Dickerson 2013). Meanwhile, the prediction of fitness-to-drive for clients with different types of disorders may need another kind of assessment (Piersma et al. 2016). Occupational therapists suggest combining all the result and performance collected from different assessment outcomes to decide the patient's ability to drive. To date, studies have shown that no single assessment tool is able to determine fitness-to-drive (Dickerson 2013; Vrkljan et al. 2015). A summary of pre-driving assessment can also determine how fitness-to-drive and pre-driving assessment selection have to be suitable to certain illnesses or conditions.

This study's limitation is that behaviour and reaction time are not in the standardised and non-standardised assessment list, which researchers had overlooked. Hence, a component of behaviour and reaction time should have further investigations for validity and reliability to be included as one of the pre-driving assessments. In addition, this survey used convenient sampling that might not represent the study population or not all Malaysian occupational therapists' perceptions of driving rehabilitation. The study outcome of validity and generalizability in this study might affect and threaten the small sample size due to the short data collection period. This study's small sample size was due to the lack of experienced occupational therapists in driving rehabilitation. As the sample size increases, the statistical power of the convenience sample also increases (Etikan 2016).

CONCLUSION

This study's findings identified that challenges and attitudes of occupational therapists are significantly associated with skills towards practising driving rehabilitation. Furthermore, the type of pre-driving assessments used are numerous and vary from facility to facility. Conducting a driving assessment allowed therapists to analyse individual performance capacity and complicated situations related to the driving task. This study hopes to benefit occupational therapists, related rehabilitation practitioners, and policymakers towards a holistic understanding of Malaysia's driving rehabilitation practices. This study recommends future investigations on developing culturally valid, reliable and practical pre-driving assessments to suit Malaysian drivers.

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