ORIGINAL ARTICLE

Development and Validation of Study-to-work Transition Questionnaire, Malaysian Version, Among Occupational Therapist Graduates

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ABSTRACT

Introduction: Smooth transition from study to work is crucial in preparing students for work. Although the questionnaire was used in previous studies to measure transition to work, a limited validated questionnaire is available. The purpose of this study was to develop a valid and reliable Study-to-Work Transition Questionnaire, Malaysian Version (S2WTQMV) that can be used to identify challenges that students face during clinical posting, work readiness, and job satisfaction. **Materials and methods:** The development of S2WTQMV was conducted in five phases: i) a questionnaire development through literature review; ii) a content validation of the questionnaire; iii) a feasibility study of the questionnaire; iv) the distribution of the questionnaire to 130 occupational therapy alumni; and v) a construct validation of the questionnaire using the ADANCO Version 2.1.1. **Results:** The questionnaire's content validity achieved I-CVI ≥0.78 and S-CVI/Ave ≥0.90. Four items with low factor loading (<0.50) and four items with low AVE were removed. The convergent validity of the questionnaire achieved AVE ≥0.50. Good construct reliability was also indicated based on the Dijkstra-Henseler's rho, Jureskog's rho and Cronbach's alpha values of more than 0.70. **Conclusion:** S2WTQMV is acceptable to be used as a tool to identify the challenges faced during clinical posting, work readiness and job satisfaction of graduates.
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Keywords: Study to work, Occupational therapy, Work readiness, Preparedness for practice, Job satisfaction

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INTRODUCTION

A transition is defined as a complex process that people need to go through to incorporate changes into their lives, often characterized by internalizing and redefining self-concepts. The transition from study to work is a significant change and a crucial time for newly graduated students. Graduates need to be equipped with knowledge and skills and to integrate both aspects into clinical practice (1). It marks the status change from a student to a health professional who offers clinical services (2, 3) such as Occupational Therapy. The main core occupational therapy education takes place during the clinical placement and aims to prepare the students to become entry-level occupational therapists and become more competent by incorporating all theory knowledge, critical thinking, professional reasoning, skills, and professional attitude during assessment and intervention with the clients. Experiences gained during clinical placement will support learning and are vital for students to expand their abilities and thus increase their competency level as health professionals (1, 4). All the challenges that graduates face during clinical placement determine their work readiness, as clinical placement facilitates a smooth transition and integration into the workplace (5, 6).

It is well documented that newly graduated occupational therapists face difficulties as they move into a real professional setting (1, 5, 6). Lack of practical experience, lack of knowledge, lack of skills in performing assessments and interventions are the major challenges to a fresh graduate's ability to perform at work (7-9) and lack of social interaction (10). These factors reduce the ability to work effectively, create higher rates of job stress and cause burnout among graduates (10, 11). Most of the new graduate students have weak employability skills (12). Hence, work readiness is important in evaluating graduate job performance and career advancement after

study (3).

Lack of preparation for the evaluation process, intervention planning and presentation of reports to team members during clinical placement is common among graduates (13). The factors of unpreparedness need to be identified to allow students to recognize the importance of various aspects of occupational therapy education and to be competent clinically during the transition from study to work (14). Clinical competence was positively related to job satisfaction, as graduates who are more confident in their clinical competence do experience a higher level of job satisfaction (5). Students with a positive experience of transition from student to therapist report high job satisfaction (11). Poor well-being at work or low job satisfaction can cause health service providers to be less likely to provide higher quality services. Good strategies to enhance job satisfaction will improve workforce well-being (15) as it impacts employees' overall performance and commitment to the profession.

Many studies have evaluated the challenges during clinical attachment and work (16)readiness or preparedness for practice of occupational therapy graduates (13, 14). There were also previous studies regarding the job satisfaction of occupational therapy graduates (15-17). Most of these studies used either qualitative approaches or questionnaire surveys. However, the questionnaires used in these studies were lacking in information on validity. A valid and reliable questionnaire is critical to ensure that the reliability of the scores that emerge and the validity of the scores' intended interpretation and use is adequate (18).

As challenges faced during clinical experience, work readiness and job satisfaction are related to each other, the objective of this study was to develop and validate the Study-to-Work Transition Questionnaire, Malaysian Version (S2WTQMV), which can be used to measure challenges faced during clinical posting, work readiness and job satisfaction among graduate occupational therapists in Malaysia. Occupational therapy students, especially final year students, can use the S2WTQMV during their clinical attachment to evaluate the challenges experienced during their clinical placement. Furthermore, health service providers can use this questionnaire when recruiting new employees by evaluating their job readiness and assess freshly graduated students who have just started their career as a therapist by evaluating their job satisfaction. This questionnaire was developed for use by many student populations, regardless of their culture and can be adapted to other health professions.

MATERIALS AND METHODS

Study design

This study uses a qualitative and quantitative cross-sectional design. It involved five phases that were adopted and adapted from a study by Peart et al. (19). Phase i) The development of the Questionnaire; ii) Content validation of questionnaire; iii) Feasibility study; iv) Distribution of questionnaire; and v) Construct validation of questionnaire.

Research Ethics

The University Ethics committee granted the research approval with an ethics approval number of JEP-2018-690 under the code NN-2019-005.

Phase 1: The development of the questionnaire

Systematic reviews of challenges faced during clinical posting, work readiness and job satisfaction were used to identify and form the items of the questionnaire. The studies included in the systematic review were published over ten years in recent studies. The sources of previous studies were electronic databases such as EBSCO Medline, EBSCO Psychinfo, and EBSCO ERIC databases. Keywords used to search for the studies were 'transition experiences', 'occupational therapy', 'work readiness', 'preparedness for practice' and 'job satisfaction' (19) . The blueprint questionnaire was developed by adopting and adapting the findings of these ten reviews. The structure and content of assessment of the final questionnaire were reviewed in phase 2.

Phase 2: Content validation of questionnaire

The purposive sampling was used to recruit expert panel members who fulfilled the inclusion criteria: i) Professionals with PhD and ii) working experience in occupational therapy or occupational therapy-related fields. All experts were distributed a copy of the Study-to-Work Questionnaire and a content validity feedback form. The content validity feedback form consisted of four criteria: i) relevance, ii) clarity, iii) simplicity and iv) ambiguity level. All expert panel members were asked to rate each item of these criteria using an ordinal Likert scale of four: 1 = not relevant, 2 = items that need some revision, 3 = relevant but needs minor correction and 4 = very relevant. The same scoring applied to clarity, simplicity and ambiguity level (20).

Proportions were used to calculate the content validity index (CVI) for each item and for the whole questionnaire. The CVI of each item was determined as the proportion of experts who had judged any item as valid (i.e., obtaining a score of 3 or 4). In other words, it refers to the number of experts who scored an item as valid, divided by the total number of experts. The content validity taken into consideration was item-level (I-CVI) and the average of I-CVI for all items on the scale (S-CVI/Ave). The criteria of content validation are I-CVI $\geq$0.78 and S-CVI/Ave $\geq$ 0.90 (20-22).

At the completion of the content validation process, the questionnaire was revised based on the comments given by the experts. The same experts were sent the revised

questionnaire and asked to rate the items' relevance, simplicity, clarity, and ambiguity level using the same 4-point ordinal scale for the second time (21). An I-CVI was calculated for the items and revised items, as shown in Table I. All 36 items were judged valid for relevance, clarity, simplicity and ambiguity level, respectively. Therefore, CVI = 36/36 = 1.00, meaning that 100% of items had a CVI of ≥0.78 for these parameters (21). The S-CVI was calculated to determine the overall content validity of the questionnaire.

Table I: Content Validity Index of item and revised item for relevance, clarity, simplicity and ambiguity

		Relevance		Clarity		Simplicity		Ambiguity	
	Item	I	RI	I	RI	I	RI	I	RI
Challenges during clinical posting. During clinical posting I..									
C1	felt stressful	0.50	1.00	0.67	0.83	0.67	1.00	0.50	1.00
C2	was not confident with my clinical skills	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C3	was not confident with my intervention planning skills	0.67	0.83	0.67	0.83	0.67	1.00	0.67	1.00
C4	was unable to apply the skills taught by my lecturers	0.67	1.00	0.67	1.00	1.00	1.00	0.67	1.00
C5	was unable to apply the knowledge taught by my lecturers	0.67	0.83	0.67	1.00	0.67	1.00	0.67	1.00
C6	was unable to conduct therapy session without constant supervision from clinical preceptor	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C7	was unable to socialise well with my clinical preceptor and other occupational therapists	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C8	was not given a detailed orientation by my clinical preceptor about the occupational therapy department	0.50	0.83	1.00	1.00	1.00	1.00	1.00	1.00
C9	was unable to learn new knowledge from my clinical preceptor	0.67	1.00	1.00	1.00	1.00	1.00	1.00	0.83
C10	was unable to communicate with clients comfortably	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
C11	was unable to document the therapy session	0.50	0.83	0.50	1.00	0.50	1.00	0.50	1.00
C12	was unable to manage caseload handed over to me	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Readiness Upon my study completion I,									
WR1	had good expectations of my future career	0.67	1.00	0.33	1.00	0.67	1.00	0.50	1.00
WR2	knew that I wanted to work as occupational therapist	0.67	1.00	1.00	1.00	1.00	1.00	0.67	1.00
WR3	was ready to join occupational therapy workforce	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WR4	wanted to start working as soon as I received a job offer	1.00	1.00	0.33	1.00	0.67	1.00	0.67	1.00
WR5	had prepared my resume and cover letter	0.33	1.00	0.17	1.00	0.33	1.00	0.33	1.00
WR6	believed that I was fully capable of practising as an occupational therapist	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WR7	was confident with my clinical skills	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WR8	was confident with the knowledge taught by my lecturers	1.00	1.00	0.67	1.00	1.00	1.00	0.67	0.83
WR9	was confident with my intervention planning skills	0.67	1.00	0.67	1.00	0.67	1.00	0.67	1.00
WR10	was confident with my communication skills (e.g. with clients, employers, colleagues etc.)	0.67	1.00	0.50	1.00	0.67	1.00	0.50	1.00
WR11	had searched for job opportunities in occupational therapy (e.g. through family, friends, newspaper etc.)	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00
WR12	was willing to move to other places to pursue my career as an occupational therapist	1.00	0.83	0.67	1.00	0.67	1.00	1.00	1.00
Job Satisfaction While working, I									
JS1	do not experience occupational stress at all (e.g. pressure due to inability to fulfill work requirements)	0.67	1.00	0.33	1.00	0.67	1.00	0.50	1.00
JS2	am satisfied with my knowledge as an occupational therapist	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS3	am satisfied with my skills as an occupational therapist	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS4	am satisfied with my job scope	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS5	am satisfied with my work schedule	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS6	am satisfied with my work environment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS7	am satisfied with my salary	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

CONTINUE

Table I: Content Validity Index of item and revised item for relevance, clarity, simplicity and ambiguity (CONT.)

		Relevance		Clarity		Simplicity		Ambiguity	
	Item	I	RI	I	RI	I	RI	I	RI
Job Satisfaction									
While working, I									
JS8	am able to obtain the position that I wanted	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS9	am able to develop professional relationships with my employer and colleagues	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS0	am well informed of what is going on at my workplace	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
JS11	am able to handle the workload	1.00	1.00	1.00	1.00	0.67	1.00	1.00	1.00
JS12	am given the respect that I deserved	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

* I=Item, RI= Revised item , C=Challenges faced during clinical posting, WR= Work Readiness, JS= Job Satisfaction

Phase 3: A feasibility study

This phase was a qualitative feasibility study requiring at least five participants (23). The participants were recruited based on the inclusion criteria: i) Occupational therapist who had graduated from public university and ii) has provided occupational therapy services for more than one year. The exclusion criterion for this study was: i) Occupational therapist with no working experience (24). All the participants were interviewed face-to-face, individually. They were asked what they thought the question was asking by using think-aloud & verbal probing, and they were required to repeat their understanding of that question in their own words (25). They were asked about the phrases and terms used in the questionnaire, or any words that they considered were not clear, incomprehensible or offensive. Similar techniques were completed for each item. In this phase, the time taken to answer the questionnaire was also determined to enhance the practicality of the data collection procedure.

Phase 4: Distribution of questionnaire

The second-last phase of this study was the distribution of the questionnaire to 130 alumni of Occupational Therapy from one of the government universities with 100% response rate. The criteria for alumni were i) graduated from an Occupational Therapy Program ii) working for at least a month as an Occupational Therapist iii) working either in a government or private setting. A purposive and snowball sampling (n=130) of working occupational therapy graduates from the institution was used to recruit participants in this study. The sample size of this study was calculated using Krejcie and Morgan's sample size calculation which was based on p = 0.05, where the probability of committing type I error is less than 5 % or p <0.05(26). The questionnaire was distributed through electronic and social media such as the alumni group on Facebook by using a Google Form and participants were required to provide their email for follow-up purpose.

Phase 5: Construct validation of questionnaire

The fifth and final phase of the questionnaire development involved construct validation of the questionnaire. The collected data was used to validate the construct of the questionnaire using Confirmatory Factor Analysis (CFA). The ADANCO Version 2.1.1. was used to conduct the CFA (27). The construct validities obtained were convergent validity and discriminant validity. Convergent validity was checked with construct reliability (CR) and average variance extracted (AVE). The criterion for convergent validity is a value of 0.70 or more for CR (28-29). The value of AVE has to be more than, or equal to, 0.50 (27-29). Factor loading is one of the parameters in CFA (30). The criterion for acceptable factor loadings is 0.50 or higher (28-31).

Discriminant validity was checked with the Fornell-Larcker criterion and Heterotrait-monotrait Ratio of Correlation (HTMT). Using Fornell-Larcker criterion, each construct's AVE should be higher than its squared correlation with any other construct, based on Fornell and Larcker (32). For HTMT, a value of below 0.85 ensures discriminant validity (28, 30, 33).

The study flowchart is shown in Figure 1.

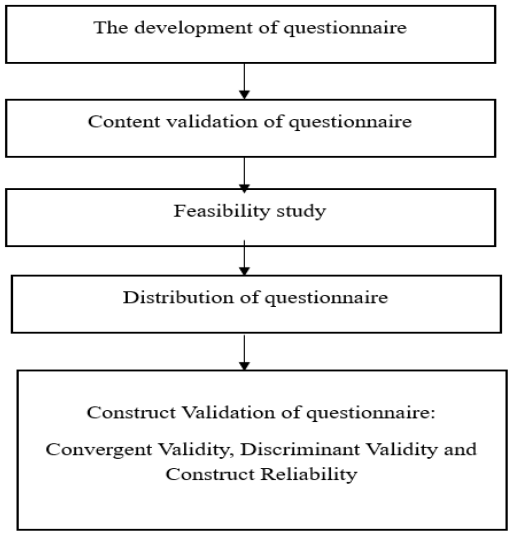

Figure 1: Flow chart of the study.

Study to Work Transition Questionnaire Malaysian Version instrument

This Study to Work Transition Questionnaire, Malaysian Version was a self-reported questionnaire known as

S2WTQMV. S2WTQMV consists of two sections: i) demographic information such as gender, age, working sector, graduation year, and ii) the main body question. The main section question consisted of three domains and, taking into account the statistical finding using confirmatory factor analysis, the total number of items was 28. The first domain was focussing on the challenges during clinical posting for the period of study – such questions as I felt stressed, I was not confident with my intervention planning skills, I was unable to conduct therapy session without constant supervision from clinical staff, etcetera. The second domain asking participants to identify any statements they felt reflected their experience related to work readiness and job satisfaction. The examples for domain two were: i) I was ready to join the occupational therapy workforce, ii) I was confident with my clinical skills, etcetera, while for domain three: i) I am satisfied with my work environment, ii) I am able to handle the workload, am able to develop professional relationship with my employer and colleagues, etcetera.

S2WTQMV uses a one-to-seven Likert Scale in examining the transition from study to work. Seven points were used for the response as a greater number of categories allowed for greater discrimination (34). Point 1 is strongly agree, 2 is agree, 3 is more or less agree, 4 is undecided, 5 is more or less disagree, 6 is disagree, and 7 is strongly disagree.

RESULTS

Face validity: Questionnaire development

Based on three main databases, from the initial search 612 studies were identified for possible and relevant inclusion. After abstract evaluation or review of the full study, 554 studies were excluded, and 58 studies were retrieved for detailed examination. Manual searches from the reference list of three studies were also conducted. The search yielded 10 articles that were used as a reference to adopt and adapt questions for the developed questionnaire. Knowledge, soft skills, clinical skills, confidence level, mentoring, and critical judgment were the challenge factors during clinical placement which contribute to students' reflection on perception of, and preparedness for, work readiness. Professionalism, workload, work environment, professional development and salary were the factors that contribute to job satisfaction. Therefore, this S2WTQMV was designed to have three main domains: i) challenges during clinical posting, ii) work readiness and iii) job satisfaction (19).

Content validity: Validation Process

An I-CVI was calculated for each item on the questionnaire with respect to relevance, clarity, simplicity and ambiguity level. Items with an I-CVI below 0.78 were revised, based on expert feedback. A revised Study-To-Work Transition Questionnaire was created which consisted of a total of 36 items. The I-CVI scores were summed and divided by the total number of items to generate the S-CVI/Ave. Overall, the S-CVI/Ave of revised items improved and ranged from 0.94 to 1.00. The calculated S-CVI/Ave of items and revised items are tabulated in Table II. In a feasibility study, involving three participants, the questionnaire was reported easy to understand and clear; the content and time used to complete the questionnaire were appropriate.

Table II: Average of I-CVIs for items and revised items on the scale

	Relevance		Clarity		Simplicity		Ambiguity	
Construct	I	RI	I	RI	I	RI	I	RI
Challenges faced during clinical posting	0.61	0.94	0.85	0.97	0.88	1.00	0.83	0.99
Work readiness	0.78	0.99	0.65	1.00	0.81	1.00	0.75	1.00
Job satisfactin	0.97	1.00	0.94	1.00	0.95	1.00	0.96	1.00

*I=Item; RI= Revised item

Convergent validity, Discriminant validity and Construct reliability

A total of 130 responses was obtained for the validity and reliability study. Generally, the findings showed that four items had a low factor loading (<0.50) and thus were deleted from the questionnaire. Four other items were also removed due to low AVE value (<0.50). The factor loadings before and after deletion are shown in Table III. Table IV shows the finding for convergent validity where the value of AVE increased and was more than 0.50 after the deletion of items, while Dijkstra-Henseler's rho and Jureskog's rho were also good after deletion of items with low factor loadings. Discriminant validity is presented in Table V. The construct reliability of the questionnaire improved after deletion of items with low factor loadings; the value of Cronbach's alpha was 0.88, 0.93 and 0.90 for challenges faced during clinical issues, work readiness and job satisfaction, respectively, after the deletion (Table IV).

Table III: Factor loadings before and after deletion

		Loading	
Construct	Item	Before deletion	After deletion
C1	felt stressful	0.72	0.80
C2	was not confident with my clinical skills	0.74	0.84
C3	was not confident with my intervention planning skills	0.73	0.84
C4	was unable to apply the skills taught by my lecturers	0.83	0.88
C5	was unable to apply the knowledge taught by my lecturers	0.78	0.82
C6	was unable to conduct therapy session without constant supervision from clinical preceptor	0.64	0.59
C7	was unable to socialise well with my clinical preceptor and other occupational therapists	0.59	0.53
C8	was not given a detailed orientation by my clinical preceptor about the occupational therapy department	0.64	0.53
C9	was unable to learn new knowledge from my clinical preceptor	0.55	REMOVED
C10	was unable to communicate with clients comfortably	0.69	0.60
C11	was unable to document the therapy session	0.54	REMOVED
C12	was unable to manage caseload handed over to me	0.53	REMOVED
WR1	had good expectations of my future career	0.79	0.80
WR2	knew that I wanted to work as occupational therapist	0.83	0.84
WR3	was ready to join occupational therapy workforce	0.79	0.80
WR4	wanted to start working as soon as I received a job offer	0.85	0.85
WR5	had prepared my resume and cover letter	0.82	0.83
WR6	believed that I was fully capable of practising as an occupational therapist	0.72	0.71
WR7	was confident with my clinical skills	0.70	0.70
WR8	was confident with the knowledge taught by my lecturers	0.42	REMOVED
WR9	was confident with my intervention planning skills	0.76	0.74
WR10	was confident with my communication skills (e.g. with clients, employers, colleagues etc.)	0.73	0.72
WR11	had searched for job opportunities in occupational therapy (e.g. through family, friends, newspaper etc.)	0.66	0.65
WR12	was willing to move to other places to pursue my career as an occupational therapist	0.69	0.69
JS1	do not experience occupational stress at all (e.g. pressure due to inability to fulfill work requirements)	0.28	REMOVED
JS2	am satisfied with my knowledge as an occupational therapist	0.41	REMOVED
JS3	am satisfied with my skills as an occupational therapist	0.45	REMOVED
JS4	am satisfied with my job scope	0.62	REMOVED
JS5	am satisfied with my work schedule	0.71	0.57
JS6	am satisfied with my work environment	0.79	0.72
JS7	am satisfied with my salary	0.66	0.65
JS8	am able to obtain the position that I wanted	0.76	0.84
JS9	am able to develop professional relationships with my employer and colleagues	0.68	0.80
JS0	am well informed of what is going on at my workplace	0.78	0.86
JS11	am able to handle the workload	0.78	0.85
JS12	am given the respect that I deserved	0.71	0.81

, C=Challenges faced during clinical posting, WR= Work Readiness, JS= Job Satisfaction

Table IV: Convergent validity and Construct reliability

	Before deletion				After deletion			
Variable	AVE	ρ_A	ρ_C	α	AVE	ρ_A	ρ_C	α
Challenges faced during clinical posting	0.45	0.89	0.91	0.89	0.53	0.90	0.91	0.88
Work Readiness	0.54	0.93	0.93	0.92	0.58	0.93	0.94	0.93
Job Satisfaction	0.43	0.89	0.90	0.87	0.59	0.91	0.92	0.90

*AVE=Average Variance Extracted;

* ρ_A =Dijkstra-Henseler's rho

* ρ_c =Jureskog's rho; a =Cronbach's alpha

Table V: Discriminant validity

Method	Construct	Challenges faced during clinical posting	Work Readiness	Job Satisfaction
Fornell-Larcker criterion	Challengesfaced during clinical posting	0.53		
	Work Readiness	0.01	0.58	
	Job Satisfaction	0.01	0.24	0.59
HTMT	Challenges during clinical posting			
	Work Readiness	0.13		
	Job Satisfaction	0.11	0.56	

*HTMT=Heterotrait-Monotrait Ratio of Correlations

DISCUSSION

According to a recent integrative review, most of the previous studies were using a qualitative rather than quantitative approach in exploring factors that affect the novice health professional's transition from education to work (35, 36). Previous quantitative studies were using the Likert Scale, and closed and open response questions in determining the transition perception from student to therapist, and job satisfaction as a therapist (11, 35). Therefore, this study aimed to develop a valid and reliable self-report questionnaire on the transition from study to work in identifying the challenges faced during clinical posting, work readiness, and job satisfaction of graduates using a Likert Scale.

In this study, during the questionnaire development, a seven-point Likert scale was used for the questionnaire, as it provides more opportunity for participants to select the exact answer (37). A seven-point Likert scale performs better than a five-point Likert scale in producing a reliable participant response (38). The content validity index (CVI) is one of the most-used measures of the content validity of an instrument (22). Content validity can be considered as the minimum quality requirement for an instrument. However, it is an important quality indicator of an instrument's validity and provides insight into its feasibility and practicability(18). The first CVI was low due to items' direction in the "Challenges during clinical posting" domain and the choice of words used in questionnaire items. Based on recommendations and feedback from the experts, the questionnaire items were revised, and reverse orientation was performed on the items in the *Challenges during the clinical posting* domain (39). The scale content validity index (S-CVI/Ave) findings strongly supported the content of the Study-to-Work Transition Questionnaire.

Moreover, this study also performed a Confirmatory Factor Analysis (CFA) as additional validity testing to enhance the quality of this questionnaire. CFA can verify the relationships between items and their respective constructs, because these relationships can be fixed in the measurement model (29). Some studies also showed that a specific item may not be suitable for adding to the questionnaire or may need to be in a different construct and thus needs to be removed (40) . All CFA models contain parameters of factor loadings (29). Factor loading is the correlation between the original variables and the factors and the key to understanding the nature of a particular aspect. In general, items with weak factor loadings may not effectively represent the intended construct, potentially leading to misinterpretation of study results. The factor loadings represent the strength of the association between items and underlying constructs. Hence, the items with factor loading below 0.5 can potentially reduce the validity of a questionnaire due to the weak relationship between the items and the respective latent construct. According to the literature, any items with low factor loading may not adequately reflect the intended construct, compromising the validity of the questionnaire (29, 41, 42). Furthermore, items with factor loadings below 0.5 are unsuitable for the questionnaire, as they fail to demonstrate a strong relationship with the latent construct (29, 41) . Similarly, weak factor loadings can signal poor construct validity, ultimately diminishing the overall validity of the questionnaire (42).

Initially, four items WR8, JS1, JS2, JS3 had a low factor loading. It indicates that these items do not converge on a common point (30). The item WR8 is about "Confidence with the knowledge taught by lecturers". This item was included in the questionnaire as a successful transition to work requires students' to develop their competence through the integration of practical knowledge and clinical reasoning (7). However, participants in a study highlighted a disparity in the skills imparted in the classroom and those demanded in practical settings. This resulted in challenges such as graduates facing difficulties in understanding their role and consequently,

collaborating effectively within teams (43). Thus, Item WR8 is related to academic factors and does not belong in the construct "Work readiness".

Item JS1 is about "Occupational stress", JS2 is about "Satisfaction with knowledge as an occupational therapist" and JS3 is about "Satisfaction with skills as an occupational therapist". Item JS1 was included in the questionnaire as there were studies highlighting a significant negative relationship between occupational stress and job satisfaction (44). However, occupational stress can be overcome with various coping strategies such as emotional support from others or taking responsibility for managing stress (44). Thus, Item JS1 is related to an individual's coping strategies and does not belong in the construct "Job satisfaction". Item JS2 and JS3 was initially adapted from a research that indicated occupational therapy graduates lack confidence in their knowledge and skills and often feel unprepared (7). Similarly, another study revealed that participants had concerns of having limited knowledge and clinical competence during their transition to practice (45). Hence, JS2 and JS3 are pertaining to graduates' competence and does not belong in the construct "Job satisfaction".

Thus, JS1, JS2 and JS3 do not combine in their specific domain, and the items may belong in a different construct. Therefore, the items with a low factor loading were removed from the questionnaire.

The acceptable factor loading is required to be 0.50 or higher (28-31) while the value of Average Variance Extracted (AVE) must be more than, or equal to, 0.50 (27-29). The AVE is a summary measure of convergence among a set of items representing a latent construct and it is the average percentage of variation explained (variance extracted) among the items of a construct. The value of 0.50 or higher suggests adequate convergence (28, 30). There were two constructs with an AVE value of less than 0.50: "Challenges faced during clinical posting" and "Job satisfaction" (C9, C11, C12, JS4). This indicates that, on average, more errors remain in the items than the variance explained by the latent factor structure imposed on the measure. Although C9, C11, C12, JS4 has a satisfactory factor loading, the value of AVE was still less than 0.50, which is unacceptable. This indicated that improvement of the construct by eliminating items was necessary (35,37).

Item C9 "was unable to learn new knowledge from clinical preceptor', Item C11 "was unable to document the therapy session"and Item C12 "was unable to manage caseload handed over to me" were part of the construct "Challenges during clinical posting". These three items were adapted from the experiences and perceptions of occupational therapy students and qualified occupational therapists during their fieldwork. Students reported that they encountered difficulties in experiencing meaningful learning due to staff's lack of time, poor expertise and failure to clarify expectations of students' and their own (46). Lack of established scientific method and ignorance of reports by occupational therapists were among contributors of low motivation in students performing documentation and reporting while limited supervision and appropriate feedback from supervisors contributed to the difficulties faced by students in performing interventions (47). These factors were some of the challenges reported by students during their fieldwork (46, 47).

Item JS4 "am satisfied with my job scope" was part of the construct "Job satisfaction". This item was included in the questionnaire as occupational therapy was reported to be a satisfying career. Respondents in the study enjoyed the scope of their work (23). Occupational therapy responsibilities that include numerous professional activities, however, emotional exhaustion (16), stress, poorer wellbeing and fatigue (15) in certain field lead to burn out. This burned out associated with low job satisfaction. The job satisfaction will increase with year of experience and it is important to ensure quality of work and decrease employee turnover (48). The removal of items was based on a balanced approach between assessment of factor loadings, AVE, construct reliability and discriminant validity (30). Thus, these four items were removing due low AVE. After releasing eight items from the questionnaire, the value of AVE fulfilled the criterion. Construct reliability measures the reliability and internal consistency of the measured variables representing a latent construct. The construct reliability indicates that internal consistency exists and the items consistently represent their construct (30).

Discriminant validity is the extent to which a construct is distinct from other constructs. High discriminant validity indicates that a construct is unique (30). According to Gelhard and Delft (39) the square root of each AVE should be greater than its correlation coefficients with any other latent construct (49). The latent construct should explain more of the variance in its item measures than another construct. Fornell-Larcker criterion was assumed as the value of AVE, which found that the diagonal of Table 5 was higher than all the other values in its respective column. HTMT values were lower than 0.85, which was consistent with the criterion(33). The HTMT values were also compatible with another study that suggests the value should be lower than 0.90 (49). Since neither HTMT criteria were violated, it can be said that discriminant validity was established.

This study provides a valid and reliable tool that offers valid outcomes data that education providers can use for their curriculum review. This will help education providers and policy makers to better understand challenges faced by new graduates and to be able to

produce good program education outcomes. The education provider will be able to identify the strengths and weaknesses of the curriculum, particularly in the clinical area. Education providers and policy makers are also able to ensure all recent graduate students can meet market needs. In addition, this questionnaire will benefit employers for staff recruitment and assist new health professionals in professional development and increased professional confidence in the clinical setting. This questionnaire can also be adopted or adapted by other clinical professionals. It could also be translated into other languages.

CONCLUSION

This pilot study proved that the Study-to-Work Transition Questionnaire, Malaysian Version (S2WTQMV) is acceptable as a tool to measure the challenges faced during clinical posting, assess work readiness and the job satisfaction of graduates.

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