ORIGINAL ARTICLE

Malay Translation and Reliability Testing of Return to Work Self-Efficacy (RTWSE-19) Scale among Patients with Work-Related Musculoskeletal Injuries.

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Abstract

Introduction: The Return to Work Self-Efficacy Scale (RTWSE-19) is a widely used tool designed to assess individuals' confidence in their ability to return to work following injury or illness. This study aimed to translate, cross-culturally adapt, and preliminarily validate the RTWSE-19 into Malay among patients with work-related musculoskeletal injuries in a rehabilitation setting in Malaysia. **Method:** The translation process followed established guidelines, including forward and backward translation, expert committee review, and pilot testing. Pre-testing was conducted among 30 patients at Pusat Rehabilitasi PERKESO Tun Abdul Razak (PRPTAR), Melaka, and was followed by reliability testing in a separate validation sample (n=23). The validity was determined by the content and face validity index and test-retest reliability was assessed using the Intraclass Correlation Coefficient (ICC) between day 0 (admission) and day 7. **Results:** Content validity was evaluated using the Content Validity Index (S-CVI/Ave=0.98) and Face Validity Index (S-FVI/Ave=0.95), demonstrating excellent clarity and relevance. Internal consistency for the three subscales - (i) "Meeting Job Demands" ($\alpha = 0.88$), (ii) "Modifying Job Tasks" ($\alpha = 0.86$), and (iii) "Communicating Needs to Others" ($\alpha = 0.90$) showed good reliability. Test-retest reliability demonstrated strong stability (ICC = 0.89, 0.84, and 0.89, respectively). **Conclusion:** The Malay RTWSE-19 shows promising reliability in this pilot sample. Given the small sample size and absence of construct validation, findings should be interpreted with caution. Further studies with larger populations are needed to establish full psychometric properties, including construct and predictive validity.

Keywords: Malaysia, r*eturn-to-work, rehabilitation, self-efficacy, validation.*

Introduction

The process of returning to work (RTW) after a work-related injury or illness is multifaceted, influenced not only by physical recovery but also by psychosocial factors [1, 2]. Studies have identified over 100 determinants of RTW outcomes, with psychological aspects like self-efficacy emerging as significant predictors [3-6]. Self-efficacy refers to an individual's belief in their ability to perform tasks necessary for RTW, and higher levels of RTW self-efficacy (RTWSE) are consistently associated with better outcomes across various worker groups [6]. Since 2010, scales specific to RTWSE have been developed and validated for individuals resuming work after experiencing work-related injuries, particularly those with musculoskeletal injuries, cancer, mental illness, and psychological injuries [7-12]. While self-efficacy is normally hypothesized as an individual-level factor, the RTWSE scale mirrors individual drive and workplace barriers to work [10].

Numerous authors highlight the significance of self-efficacy in the return-to-work process as well as in the framework for preventing work disability [13-17]. Self-efficacy is assumed to increase as an individual progresses to more advanced stages of readiness [2]. Bandura's Social Cognitive Theory proposes that self-efficacy stands as a primary factor of behaviour and is characterized as individuals' confidence in their capability to plan and execute actions necessary for reaching specific goals [18].

Various scales have been developed by researchers to measure self-efficacy. These include the Return to Work Self-Efficacy (RTWSE) Scale, Return to Work Self-Efficacy (RTWSE) Questionnaire, and the 19-item Return to Work Self-Efficacy (RTWSE-19) Scale [9, 10, 19]. The RTWSE concept was derived from the Readiness for Return to Work (RRTW) Model proposed by Franche and Krause [2]. In the RRTW Model, which views returning to work as

a health-related behaviour, RTWSE is described as "the individual's assessment of their capability to undertake all necessary steps to return to work" [6]. This concept proves valuable in comprehending the motivational and pain management aspects associated with returning to work. Shaw and Huang (2005) underscore the necessity for clinical interventions targeting self-efficacy regarding functional recuperation and pain management to facilitate early return to work [20].

Initially, Shaw et al. (2011) developed the RTWSE scale with 28 items, which was later refined and validated as a 19-item version [10]. The study proposed that the RTWSE-19 scale could serve as a valuable tool in assessing the efficacy of clinical and workplace interventions, as well as investigating the underlying mechanism involving RTW [10]. This scale measures confidence in" meeting job demands", "modifying job tasks", and "communicating needs to others", highlighting both individual and environmental influences on RTW success.

Although the RTWSE-19 has been validated in several languages, no validated Malay language version currently exists. Malay is the national and primary working language in Malaysia, and many rehabilitation patients demonstrate limited English proficiency. Therefore, a culturally adapted and linguistically validated Malay version is necessary to ensure conceptual equivalence, improve clinical usability, and enhance accurate assessment of return-to-work confidence in Malaysian rehabilitation settings. Establishing accessible and valid assessment tools is particularly important, as return-to-work self-efficacy has been recognised as a main determinant of successful work integration.

Research in various contexts has shown that enhancing RTWSE can improve the likelihood of successful reintegration into the workforce [8, 21]. Consequently, understanding and measuring RTWSE using validated tools like the RTWSE-19 is crucial for assessing readiness for work resumption, particularly in diverse cultural and linguistic populations. Therefore, this pilot study aimed to translate the RTWSE-19 into Malay and examine its preliminary reliability, including internal consistency and test–retest stability, among patients with musculoskeletal injuries in a rehabilitation setting. Evaluating the psychometric properties of the adapted scale is essential to ensure its applicability and effectiveness in supporting return-to-work outcomes in Malaysia.

Methods

Participants and procedures

Cross-cultural translation and adaptation

The procedure for cross-cultural translation and adaptation of the RTWSE-19 Scale was based on the studies by Beaton et al. (2002), Beaton et al. (2000), Hall et al. (2018), and Wild et al. (2005) [22-25]. This procedure includes five stages (Fig. 1).

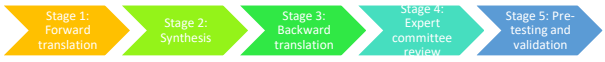

Fig. 1: Systematic cross-cultural translation and adaptation process. Figure based on Beaton et al. (2000) [23]

Forward translation

The preliminary step in the adaptation process involves forward translation. This step ensures that the translated text accurately conveys the meaning of the original version while maintaining linguistic and cultural relevance [23]. For the forward translation, two Malay native speakers, comprising one informed translator (T1) and a non-informed translator (T2), performed the forward translation. Malay was their first language, while English was their second

language. T1 had a medical background, whereas T2 had a non-medical background.

Synthesis

The two translators (T1 and T2) collaborated to consolidate the translation outcomes. Utilizing the original questionnaire alongside the initial translator's (T1) and the second translator's (T2) versions, a comprehensive synthesis was performed, resulting in a unified translation denoted as T12. In this study, variances in the two translations were resolved in an agreement meeting among T1, T2, and four research team members, with one linguist available for consultation to help ensure that the translation remained consistent and accurate in both language and meaning. The research team consisted of the principal investigator, an academic supervisor with expertise in rehabilitation research, and two physiotherapists with clinical experience in rehabilitation practice. After this session, a synthesized Malay version of the questionnaire was developed.

Backward translation

For the backward translation, two separate translators (BT1 and BT2), who were unaware of the original version, translated the T12 version of the questionnaire back into the original language (English). The translators consisted of a medical doctor with 10 years of experience in return-to-work (RTW) practice and a head of customer relations experienced in occupational rehabilitation services. This step serves to assess whether the translated version maintains the integrity of the original content and ensures cross-cultural equivalence [23]. Both translators were kept unaware of the original content to prevent bias in the translation process.

Expert committee review

The expert committee review is a critical step in ensuring the translation's cultural and conceptual equivalence. The committee consisted of two methodologists, one medical doctor, one linguist, one physical therapist, and one occupational therapist. The committee's role was to integrate all versions of the questionnaire (T1, T2, T12, BT1, and BT2) and resolve any discrepancies. They assessed the comprehensibility, relevance, and clarity of the translated scale using a Likert scale. A consensus was reached for the disagreements during the review process. The number of experts in the committee followed the guidelines for calculating the Content Validity Index (CVI), with a recommended minimum of six experts but not exceeding ten [26-29]. The CVI ensures that the translated scale is culturally and contextually appropriate for the target population.

Pre-testing and validation

The final step of the adaptation process involves pre-testing the translated scale. A field test was conducted using the pre-final version of the questionnaire with a sample of 30 musculoskeletal patients. They were recruited at Pusat Rehabilitasi PERKESO Tun Abdul Razak, Melaka (PRPTAR), after providing consent to participate. PRPTAR is one of Southeast Asia's biggest rehabilitation centres, specializing in the Return to Work (RTW) program for employees who sustain work-related injuries, and it is a facility established by the Social Security Organization (SOCSO) Malaysia.

The participants' ages ranged between 18 and 60 years old. They were undergoing treatment, such as a sub-acute intensive rehabilitation program, tailor-made exercise program, or work hardening program, and the duration of injury was more than three months. The participant was excluded if they had central nervous complications such as stroke, traumatic brain injury, and spinal cord injury. An eligible participant completed the questionnaire, including answering brief questions about their sociodemographic characteristics, and participated in a follow-up interview using a probe method. The aim was to confirm that the items are interpreted as intended and to ensure that the adapted version is valid in the target cultural context. Additionally, the Face

Validity Index (FVI) was assessed to determine the translated scale's clarity and comprehensibility. The number of raters and the acceptable cut-off score for FVI were based on guidelines from previous studies [30, 31], with an optimal number of raters to ensure reliable results.

Following completion of the adaptation phase, a separate validation sample (n = 23) comprised of musculoskeletal patients undergoing rehabilitation were recruited to evaluate the test–retest reliability of the finalized Malay RTWSE-19. Participants completed the questionnaire at baseline and again after a seven-day interval. There was no overlap between participants involved in the pre-testing and reliability validation phases. A seven-day interval was selected as it is sufficiently long to reduce recall bias while short enough to minimise the likelihood of meaningful clinical changes in participants' conditions [32, 33].

Instrument

The RTWSE-19 is a ten-point English Likert scale (1 = not at all certain, 10 = completely certain) and a self-reported questionnaire that measures workers' self-efficacy in resuming normal job duties. It consists of 19 items with an internal consistency exceeding 0.8 and is divided into three subscales: "meeting job demands", "modifying job tasks", and "communicating needs to others". The original 10-point Likert scale anchors (1 = not at all certain; 10 = completely certain) were translated into Malay while retaining conceptual equivalence and the original scaling structure.

Data Analysis

The process of translation and adaptation was narratively described. Descriptive statistics for continuous variables relied on the mean and standard deviation, while categorical variables were summarized using frequency. The CVI and FVI were calculated using MS Excel, following previous guidelines and studies [29-31]. Cronbach's alphas were determined for each of the three factors: (i) "meeting job demands", (ii) "modifying job tasks", and (iii) "communicating needs to others", with alphas > 0.70 considered satisfactory to evaluate the internal consistency of the RTWSE-19 questionnaire. Test-retest reliability was evaluated on admission days zero and seven using the Intraclass Correlation Coefficient (ICC), whereby ICC 0.75-1.0 is excellent, 0.6-0.74 is good, 0.4-0.59 is fair, and < 0.4 is poor [34]. SPSS (IBM Corp, Version 27.0) was used for these analyses.

Ethics

Ethical approval was obtained through the Institutional Review Board of University Teknologi MARA (UiTM) (REC/01/2025(PG/MR/42)) before the study's commencement. Approval for the research study conducted in the Pusat Rehabilitasi PERKESO Tun Abdul Razak was also successfully obtained.

Results

Descriptive data

A total of 30 participants were recruited for the pre-testing study and 23 for the validation study. Table 1 displays the sociodemographic features of the musculoskeletal patients participating in the pre-testing and validation studies. The average age of participants was 37.8 ± 11.27 for the pre-testing study and 36.0 ± 12.19 for the validation study. Among the participants, gender was equally distributed for the pre-testing study, whereas 91.3% were male and 8.7% were female for the validation study. The majority were diagnosed with lower limb injury, followed by multiple musculoskeletal injuries, spine, and upper extremities. In terms of duration of work disability, the majority sustained an injury for more than 13 months, followed by 3-6 months, 7-9 months, and 10-12 months for the pre-testing study. The 3-6 months duration of disability was the highest for the validation study, followed by 7-9 months, 10-12 months, and more than 13 months.

Translation and cross-cultural adaptation

During the translation process, some changes were unavoidable for improving comprehensibility and clarity of meaning in a Malaysian context and to adapt it to Malaysian culture. During expert committee review, several linguistic refinements were made to enhance cultural clarity. In Item 13, the term "production" was translated as *"produktiviti"* rather than a literal equivalent to better reflect workplace expectations. In Item 18, "slowing" was translated as *"mengganggu"* (disturbing/interfering), as this term is more commonly used in the Malay language and better conveys functional interference. In Item 9, "Keep up with the pace at work" was translated as *"Mengikut rentak dan momentum di tempat kerja"* to improve semantic clarity. The differences were discussed with the research team, with one linguist available for consultation. The pre-test revealed that most participants responded favourably to the questionnaire's usability, clarity, and completeness. In addition to their positive feedback, it was stated that the items were difficult to answer if the participants were self-employed or without colleagues. Further discussion is warranted for this feedback in future studies since in Malaysia, the gig economy is emerging and will transform the Malaysian labour market.

Content validity

Content validity was conducted during the translation and cultural adaptation processes. Six expert panels assessed the comprehensibility and clarity of the translated version. They consisted of two methodologists, a medical doctor, a linguist, a physical therapist, and an occupational therapist. The I-CVI and S-CVI were calculated. S-CVI/Ave = 0.98, and all I-CVIs scored above 0.92 (Table 2). Overall, a value above 0.83 was considered acceptable for six to eight experts based on the previous literature [27, 28, 35].

Face validity

Face validity was conducted during the pre-final process. Thirty raters evaluated the comprehensibility and clarity of the translated version and underwent a follow-up interview using a probe method. The I-FVI and S-FVI were calculated. S-FVI/Ave = 0.95, and all I-FVIs scored above 0.85 (Table 2). Overall, a value above 0.8 was considered acceptable with 30 raters based on previous literature [36-38].

Reliability

The Malay RTWSE-19 demonstrated high internal reliability, with its overall Cronbach's alpha scoring 0.88. The Cronbach's alpha of the three subscales of the Malay RTWSE-19 ("Meeting job demands", "Modifying job tasks", and "Communicating needs to others") scored 0.88, 0.86, and 0.90, respectively (Table 3). As they were all above 0.7, this result was considered acceptable [34, 39]. In addition, there was a high test-retest reliability of the total score of the Malay RTWSE-19 (ICC = 0.87), with subscale ICCs = 0.89, 0.84, and 0.89.

Discussion

An instrument to assess self-efficacy, particularly in the framework of returning to work, is essential. This study was undertaken to address that need. The RTWSE-19, as a self-report tool, holds significant value for use in both clinical and educational environments. Hence, the use of validated health-related outcome measures is crucial. Adaptation may be necessary to ensure cultural and linguistic relevance. As previously noted, RTW is influenced by various interrelated physical and psychological factors. Additionally, individuals can independently complete the questionnaire without requiring translation from healthcare professionals, enhancing its convenience and efficiency.

The Malay RTWSE-19 demonstrated excellent internal consistency, test-retest reliability, and acceptable content validity and face validity. In

comparison, the previous studies also showed excellent internal consistency and test-retest reliability ranging from 0.81-0.98 [6, 10, 12]. The consistency of these findings across different language versions may reflect the robustness of the return to work self-efficacy construct, which represents employees' confidence in "managing job demands", "modifying job tasks" and "communicating workplace needs". Previous validation studies conducted in Korean and Chinese populations similarly reported robust reliability and factor structure following cross-cultural adaptation, suggesting that the conceptual domains of RTWSE remain stable across cultural and clinical contexts. Furthermore, the use of standardized translation and adaptation procedures helps maintain conceptual equivalence with the original instrument, thereby contributing to comparable psychometric performance across studies.

This study's results also confirm that the Malay RTWSE-19 is a reliable tool within the musculoskeletal context across a variety of sociodemographic and work-injury parameters in Malaysia. The RTWSE scale applies to larger populations across diverse socioeconomic and cultural contexts and among individuals with varying types of work-related injuries, levels of severity, and stages of disability. Clinically, the Malay RTWSE-19 may assist rehabilitation professionals in identifying patients with low return-to-work confidence, enabling early psychosocial intervention. Patients with lower scores may benefit from targeted strategies such as graded activity exposure, workplace simulation training, and self-efficacy enhancement programs. Conversely, patients with higher scores may be appropriate candidates for job matching or accelerated return-to-work planning.

The strengths and limitations of this study should be acknowledged. The translation and cross-cultural adaptation of the RTWSE-19 were based on standard procedures [23-25]. Another notable strength is that the sample sizes also align with the recommended guidelines for evaluating the CVI and FVI [29, 31]. In order to ensure that the translation remains consistent and accurate in both language and meaning, this study included a linguist for consultation at the stage of synthesis and an expert review committee.

In this study, the factor structure was not determined since no analysis of exploratory factor analysis or confirmatory factor analysis (CFA) was conducted. However, based on previous studies, all of them showed three factors, which are (i) "meeting job demands", (ii) "modifying job tasks", and (iii) "communicating needs to others". Therefore, we acknowledge the need for this analysis as a gap for future research. In summary, it is suggested that patients with low scores focus on improving RTW self-efficacy and participating in lifestyle redesign programs [21]. Conversely, high-scoring patients may benefit from job matching, simulated work training, and job-seeking opportunities.

Conclusion

The RTWSE-19 has been successfully translated and culturally adapted into Malay for patients with work-related musculoskeletal injuries. The Malay version demonstrates good internal consistency, content validity, face validity, and test-retest reliability in this pilot sample. The instrument may serve as a practical screening tool in Malaysian rehabilitation settings to assess return-to-work confidence. Future research with larger samples is warranted to confirm its construct validity and predictive performance.

Acknowledgement

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Conflict of interest

The authors affirm that they have no conflicts of interest related to the conduct of this study, and that all contributed substantially to the development of this manuscript.

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Authors' contributions

ZR, SAB and NM contributed to the study conceptualization, methodology, data collection, statistical analysis, interpretation of results, and preparation of the original manuscript draft. HH and HM contributed to study supervision, methodological review, critical revision of the manuscript, and final approval of the manuscript for publication. WAWA and AA assisted in data validation, manuscript review, language refinement, and final manuscript approval.

Table 1. Socio-demographics data pre-testing study and validation study

	Pre-Testing Study (FVI)		Validation Study (test-retest reliability)	
Demographic characteristics	**No (n = 30)**	**%**	**No (n=23)**	**%**
Age	37.8 ± 11.27		36.0 ± 12.19	
Gender				
Male	15	50	21	91.3
Female	15	50	2	8.7
Race				
Malay	27	90	18	78.3
Chinese	1	3.3	1	4.3
Indian/Others	2	6.7	4	17.4
Marital status				
Single	13	43.3	8	34.8
Married	17	56.7	15	65.2
Education level				
Secondary school	15	50	10	43.5
Tertiary education	15	50	13	56.5
Salary				
< RM1000	15	50	7	30.4
RM1001-5000	10	33.3	13	56.5
> RM5000	5	16.7	3	13
Region of injury				
Upper extremity	4	13.3	7	30.4
Lower extremity	13	43.3	10	43.5
Spine	4	13.3	3	13
Multiple injuries	9	30	3	13
Duration of work disability (months)				
3-6	9	30	13	56.5
7-9	4	13.3	6	26.1
10-12	4	13.3	3	13
> 13	13	43.3	1	4.3

Legend: FVI (face validity index);

Table 2. Items summary content validity index (CVI) and face validity index (FVI) for the translated RTWSE-19 scale

RTWSE-19 scale item	I-CVI	S-CVI/Ave	I-FVI	S-FVI/Ave
Meeting Job Demands				
2. Memenuhi semua tugas dan tanggungjawab anda?	1		0.95	
Fulfill all of your duties and responsibilities?	1		0.93	
5. Mencapai jangkaan prestasi kerja?	1		0.97	
Meet expectations for job performance?	1	0.95	0.87	0.94
6. Menjalankan kebanyakan aktiviti harian anda di tempat kerja?	0.83		0.94	
Perform most of your daily activities at work?	1		0.9	
9. Mengikut rentak dan momentum di tempat kerja?	0.83		1	
Keep up with the pace at work?				
13. Memenuhi keperluan produktiviti kerja anda?				
Meet your production requirements?				
15. Melakukan kerja yang telah dilatih?				
Do everything you're trained to do?				
18. Melakukan kerja anda tanpa mengganggu kerja orang lain?				
Do your work without slowing others down?				
Modifying Job Tasks				
1. Mencadangkan kepada penyelia pelbagai cara untuk mengubah kerja anda agar dapat mengurangkan ketidakselesaan?	0.83		0.93	
Suggest to your supervisor ways to change your work to reduce discomfort?	1		0.97	
3. Mengubah jenis aktiviti kerja yang anda lakukan untuk mengurangkan	1		0.97	
ketidakselesaan?	1		0.97	
Change the type of work activities you do to reduce discomfort?	1		1	
		0.98		0.97
7. Mengelakkan kecederaan semula?	1		0.97	
Avoid re-injury?	1		0.97	
10. Mengubah suai cara anda bekerja untuk mengurangkan ketidakselesaan?				
Modify the way you work to reduce discomfort?				
12. Mengelakkan aktiviti-aktiviti yang boleh meningkatkan kesakitan?				
Avoid activities that are likely to increase pain?				
14. Mengurangkan beban kerja fizikal anda?				
Reduce your physical workload?				
19. Memohon perubahan pada ruang atau kawasan kerja untuk mengurangkan ketidakselesaan?				
Request changes in your workstation or work area to reduce discomfort?				
Communicating Needs to Others				
	1		0.85	
4. Menerangkan sebarang limit fizikal yang anda mungkin ada kepada rakan sekerja anda?	1		0.99	
Explain any physical limitations you may have to your co-workers?	1	1	0.95	0.93
8. Mendapatkan bantuan rakan sekerja untuk aktiviti- aktiviti yang mungkin menyebabkan ketidakselesaan?	1		0.97	
Get co-workers to help you with activities that might cause discomfort?	1		0.9	
11. Mendapatkan sokongan emosi daripada rakan sekerja (seperti mendengar atau bercakap tentang masalah anda)?				
Get emotional support from coworkers (such as listening or talking about your problem)?				

16. Menerangkan kepada penyelia tentang kecederaan dan rawatan perubatan anda? *Describe to your supervisor the nature of your injury and your medical treatment?*	
17. Berbincang secara terbuka dengan penyelia perkara- perkara yang mungkin menyumbang kepada ketidakselesaan anda? *Discuss openly with your supervisor things that may contribute to your discomfort?*	

Legend: I-CVI (item-level content validity index); S-CVI/Ave (scale-level content validity index based on the average method), I-FVI (item-level face validity index); S-FVI/Ave (scale-level face validity index based on the average method)

Table 3. Test and retest reliability of scores in the Malay version of return-to-work self-efficacy (N=23). [95% CI=95% confidence interval)

RTWSE-19 scale item	First mean	SD	Second mean	SD	Intra correlation coefficient (ICC)	Cronbach's alpha
Meeting Job Demands	46.0	15.4	45.6	15.0	0.89	0.88
Modifying Job Tasks	42.5	13.0	46.8	14.6	0.84	0.86
Communicating Needs to Others	31.7	10.1	34.8	10.3	0.89	0.90
Total score	40.1	12.8	42.4	13.3	0.87	0.88

Legend: ICC (intraclass correlation coefficient); SD (standard deviation)

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