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Cross-cultural adaptation of the professional version of the Readiness for Interprofessional Learning Scale (RIPLS) in Japanese

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ABSTRACT

Interprofessional education (IPE) for healthcare professionals is important in Japan because of its rapidly aging population and increasingly complex healthcare needs. However, no tools have been validated in the Japanese context to evaluate healthcare professionals' attitudes towards, or readiness for, IPE. The professional version of the Readiness for Interprofessional Learning Scale (RIPLS) with 23 items was selected for cross-cultural adaptation because it has been widely used internationally and a Japanese edition of the student version has already been developed. We followed a guideline for cross-cultural adaptation and subsequently conducted factor analysis with 368 responses from over 16 professions. Face and content validity was confirmed through the translation process. We obtained four factors with good internal consistency (Cronbach's alpha > 0.7). These results were similar to those of the original UK study, apart from one factor being divided into two different factors in this study. Studies are required to further confirm the rigor and generalisability of the results; however, the Japanese RIPLS can be used to evaluate healthcare professionals' attitudes towards IPE, which can eventually lead to a better IPE development for healthcare professionals in Japan.

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Introduction

The World Health Organization (WHO) defines interprofessional education (IPE) as being when, "two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p. 13). In recent years, the increasing complexity of healthcare has led to a growing recognition of the need for IPE to promote interprofessional collaborative practice (e.g., WHO, 2010). Barriers to IPE have been categorised as organisational, structural, and attitudinal (Parsell & Bligh, 1999). The RIPLS was developed to quantitatively measure the readiness of students and professionals for IPE (Parsell & Bligh, 1999; Reid, Bruce, Allstaff, & McLernon, 2006). The initial student version of the RIPLS consists of 19 questions to be answered on a 5-point Likert scale. It has been translated into several languages (Cloutier, Lafrance, Michallet, Marcoux, & Cloutier, 2015; Lauffs et al., 2008; Mahler, Rochon, Karstens, Szecsenyi, & Hermann, 2014). The developers of the original student version identified three subscales, namely "teamwork and collaboration," "professional identity," and "roles and responsibilities" (Parsell & Bligh, 1999). McFadyen and colleagues (2005) later conducted another validation study to improve its reliability. Subsequently, questions regarding patient-centredness, which is highlighted as particularly important for interprofessional collaborative practice by the WHO (2010), were added. The amended version of the RIPLS was validated for professionals with 23 questions in total (Reid et al., 2006).

While the student version of the RIPLS has become the most widely cited scale internationally for measuring readiness for IPE, the use of the RIPLS has been limited mostly to Western countries. Outside the West, the student version has been translated in the United Arab Emirates (El-Zubeir, Rizk, & Al-Khalil, 2006) and Japan (Tamura et al., 2012). The German student version of the RIPLS was used by first-year postgraduate healthcare professionals (Mahler et al., 2014); however, the professional version developed by Reid and colleagues in 2006 has not been validated either in other languages or in other cultural settings.

Meanwhile, the rapidly ageing population in Japan has created a shortage of health workforce. Older people tend to have more complex healthcare needs, which are better handled by interprofessional work (Robben et al., 2012). In particular, integration and collaboration of care are considered a challenge in many aging countries (Clarfield, Bergman, & Kane, 2001; Leichsenring, 2004). To tackle this challenge, IPE has been deemed essential for all healthcare professionals. Several Japanese universities have introduced progressive and innovative approaches to IPE (Watanabe & Koizumi, 2010) and participating students recognise its importance (Maeno et al., 2013).

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However, there are no sufficient data on the status of IPE and collaborative practice among present healthcare professionals in Japan. To promote IPE and collaborative practice, it is important to investigate the current status and develop appropriate interventions accordingly. Therefore, we aimed to develop a Japanese version of the RIPLS and explore if the developed version is useful among the Japanese healthcare professionals. We also attempted to compare the findings gained from this study with those from the original study done by Reid et al. (2006).

Although Reid and colleagues (2006) used the word "interprofessional learning (IPL)" in their article, we decided to adopt the WHO (2010) definition of "interprofessional education (IPE)" and "collaborative practice" (p. 13) for our article in the interest of clarity.

Methods

Translation and cross-cultural adaptation

The Japanese version of the RIPLS was developed according to guidelines for cross-cultural adaptation of self-reported measures (Beaton, Bombardier, Guillemin, & Ferraz, 2002). The translation process is shown in Figure 1.

We first obtained permission to develop the Japanese version from the research group that developed the original professional version of the RIPLS in English (Reid et al., 2006). Translators 1 (AO) and 2 (JH) independently translated the original version into Japanese. We then worked together to complete "Translation ver 1 (JP)." Words and expressions were selected by referring to the existing Japanese version of the student RIPLS when needed (Tamura et al., 2012).

"Translation ver 1 (JP)" was then back translated into English by a native English speaker with Japanese competence. After completing back translation, the back translator compared the "Back Translation (EN)" with the "Original RIPLS (EN)" and provided feedback on whether they contained equivalent meanings or how expressions differed. All authors collaborated in the development of "Translation ver 2 (JP)" based on the results of the aforementioned processes.

A pilot test of "Translation ver 2 (JP)" was conducted with seven respondents (a social worker, a psychologist, a nurse, a medical secretary, an occupational therapist, a pharmacist, and a doctor). In addition, we specifically asked them whether "Translation ver 2" was well constructed and useful. The "Final Translation (JP)" was completed with reference to the feedback from pilot testing and comments from an IPE expert. The amendments at this stage mainly addressed word choice, grammatical changes, and standardisation of the format.

For face and content validity, we have confirmed that the Japanese translations from each step are consistent with the Japanese healthcare context. All authors discussed the relevance of the items in "Final Translation (JP)" and whether all items covered areas relevant to IPE in Japan. In addition, we consulted an IPE expert for further verification of face and content validity.

Sampling and data gathering

We developed an online questionnaire from the "Final Translation (JP)" and distributed it to staff members of the Japan Association for Development of Community Medicine (JADECOM). The JADECOM is a public-interest incorporated foundation that practices and conducts research on

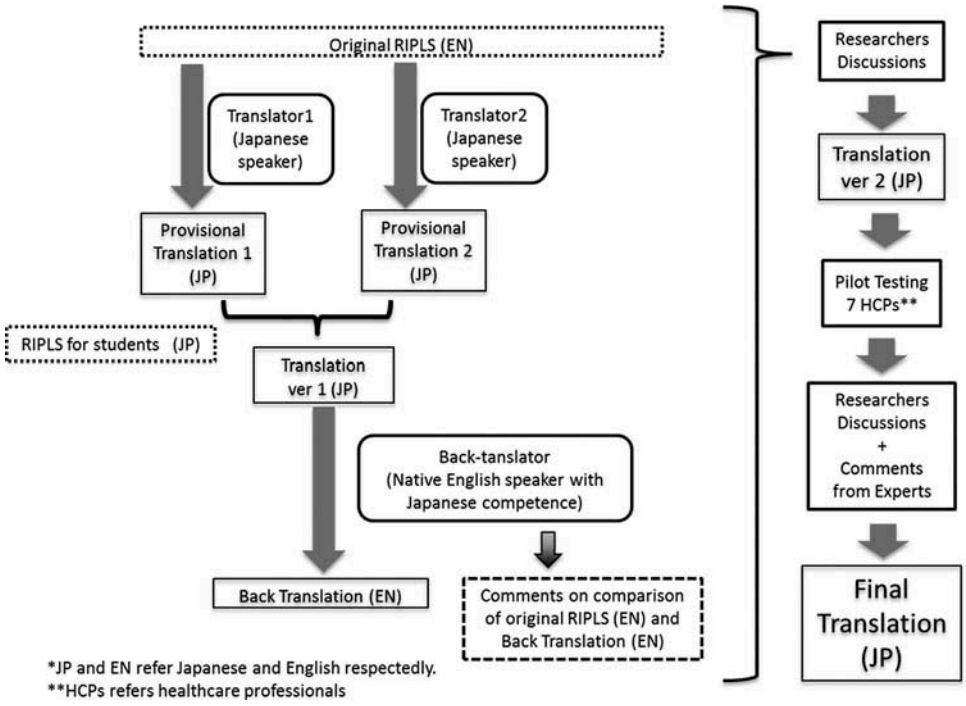

Figure 1. The translation process.

community medicine with a focus on rural medicine. This organisation was selected because we thought that it represented well the situations of the wider healthcare settings in Japan and possibly had the equivalent clinical settings to those in the original UK study. The JADECOM has over 7,000 staff members in total (7,115 members and 59 institutes as of 1st February, 2014). The staff members consisted of a variety of professionals, including 3,341 staff with a nursing background, 950 doctors and dentists, 719 back-office staff, 662 professional carers, 487 clinical technologists, and 445 rehabilitation therapists. After obtaining permission from the Board of Directors of the JADECOM, we sent invitation letters to the heads of all 59 institutions via email and post. We identified the optimal method of survey distribution to be entrusting the task to the head of each institution for logistic reasons.

This study was approved by the Ethics Committee of Mie University.

Data analysis

A psychometric analysis was conducted after data cleaning. Data cleaning included reverse scoring (items 14, 15, 16, 17, and 18; Table 3) and excluding incomplete data. Exploratory factor analysis was conducted to explore the structure of the items because there are no known structures of the developed Japanese version of the RIPLS. For this study, promax rotation was adopted in conjunction with the maximum likelihood method. The number of factors was determined based on Kaiser's criterion (eigenvalues > 1). An item was accepted when its factor loading was ≥0.4. Cronbach's α was calculated to measure internal consistency.

Criterion validity could not be verified since there is no established scale for measuring the readiness of healthcare professionals for IPE in Japan. All statistical analysis was conducted using IBM SPSS Statistics 22 (IBM Japan, Tokyo, Japan).

Results

Translation and cross-cultural adaptation

We preserved the words and expressions of the original version as much as possible and amendments were made only when needed. When multiple Japanese translations were possible, we selected translations that made the item more understandable. We made two changes following back-translation and feedback (Table 1). Unnatural Japanese expressions in items 19 and 21 were also identified during pilot testing. These were amended by collaboration between all authors (Table 1).

Following suggestions from an IPE expert, we added a phrase, "*watashi wa … to omou*" (meaning "I think …" in English) to each item in the Japanese version to standardise the format. All the authors and the expert confirmed face and content validity.

Characteristics of respondents

We had 375 responses in total and after the data cleaning, 368 responses were used for data analysis. The respondents came from over 16 professions, as shown in Table 2. "Others" includes clinical engineering technologists, system engineers, and medical secretaries.

Psychometric analysis

The results of the factor analysis are shown in Table 3. The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.931, which was more than the recommended value of 0.6. Bartlett's test of sphericity was significant with $p < 0.001$ (χ^2= 4,240.867, df = 253). A total of four factors with factor loadings of ≥0.4 were extracted. The Cronbach's α values were >0.7 in each of these factors. Neither item 10 nor 18 were loaded on any factors; they were therefore excluded from the Japanese RIPLS.

By referring to prior studies (McFadyen et al., 2005; Reid et al., 2006) and through discussion among all authors, these factors were labeled as follows: 1. interprofessional learning (IPL) in practice, 2. patient-centredness, 3. IPL in education, and 4. sense of interprofessional identity. We have decided to use "interprofessional learning (IPL)" for the names of the identified factors because the word "learning" implies "learner-centred," whereas "education" can mean "teacher-centred" or "curriculum-oriented" in the Japanese context. The last factor was originally labeled as "professional identity" in the prior studies. However, "interprofessional identity",

Table 1. Changes made after cross-cultural adaptation.

Item no.	Original RIPLS (EN)	Translation ver 1 (JP)	Direct translation of translation ver 1 (JP)	Back translation (EN)	Final translation (JP)	Direct translation of Final translation (JP)
Changes made after the back-translation						
11	I **would welcome** the opportunity to work on small-group projects with other healthcare professionals.	*… ukeireru…*	I accept	I can actively participate in collaborative, practice-based small-group projects with people from other professions.	*…ukeiretai…*	I want to accept
17	I would **feel uncomfortable** if another healthcare professional knew more about a topic than I did.	*…yoi kimochi ni naranai…*	I do not come to feel comfortable	People from other professions know more than I do about some topics. I cannot feel good about that.	*…fuan na kimochi ni naru…*	I feel anxious
Changes made after the discussion among the authors						
19	I **like to** understand the patient's side of the problem.	*… ga suki*	I like to	I like understanding problems from the patient's point of view.	*… shitai…*	I want to
21	**Thinking about the patient as a person** is important in getting treatment right.	*Kanja o hito toshite kangaeru*	Thinking about patients as persons	Thinking about patients as people is important for treatment.	*Kanja o hitori no hito toshite kangaeru*	Thinking about the patient as one person

Table 2. Respondents' professions.

Profession	*n*
Nurse	97
Rehabilitation therapist	54
Medical clerk	44
Care worker	42
Back office	34
Doctor	21
Clinical technologist	15
Pharmacist	10
Care manager	9
Radiological technologist	9
Medical social worker	8
Dietician	7
Health information manager	6
Others	12
Total	**368**

which is supported by understanding of other healthcare professionals' roles (Khalili, Orchard, Laschinger, & Farah, 2013) is deemed more appropriate considering the contents of the items included in this factor.

Discussion

The Japanese professional version of the RIPLS was successfully developed for use by healthcare professionals. To our knowledge, this is the first time that the professional version developed by Reid et al. (2006) has ever been translated into another language. Its face and content validity were verified through the translation process and cultural adaptation.

In the subsequent exploratory factor analysis, four factors were extracted, all of which had good internal consistency. While three factors were extracted by Reid and colleagues ("teamwork and collaboration", "patient-centeredness", and "sense of professional identity"), our study identified four factors. Items 10 and 18, which were excluded in the present study and in the previous study were categorised in "teamwork and collaboration" and "sense of professional identity" respectively. The factor labeled as "teamwork and collaboration" by Reid et al. (2006) was divided into two factors in our study, "IPL in practice (factor 1)" and "IPL in education (factor 3)".

Interestingly, the items in other two factors, "patient-centeredness (factor 2)" and "sense of interprofessional identity (factor 4)" matched those equivalent in the original UK study. These factors seem to be understood similarly in the UK and in Japan regardless of apparent cultural differences, which indicates that these factors are cross-culturally relevant for IPE. A number of possible reasons exist for why "teamwork and collaboration" was divided into two factors in the Japanese version. First, the meanings of the items might have changed slightly during the translation which could have affected the respondents' interpretations of the items, although we believe its influence was minimal. Secondly, the respondents' characteristics could have also affected the results. We had a smaller proportion of doctors, nurses and pharmacists than the original study and probably a larger variety of professions represented. Thirdly, the shorter history of IPE in Japan could have influenced perceptions of IPE. Finally, not only the local history of IPE but also substantially different cultural contexts could have affected the understanding of IPE.

However, none of these conclusively accounts for the finding. In addition, items 10 and 11 are double-loaded to "IPL in practice" (factor 1) and "IPL in education" (factor 3), implying that these factors follow a similar trend. To gain a more robust construction of the factors and to scrutinise the relationships between each factor, further investigations will be needed with the present Japanese version of RIPLS.

For translation and cultural adaptation, we could not find another back translator as recommended in the guidelines (Beaton et al., 2002). We believe that it is acceptable because some previous studies did not have two back-translators (Jeong, Homma, & Oh, 2011; Mahler et al., 2014) and that our translation process is robust enough to highlight unexpected meanings.

We have chosen the JADECOM because it has a variety of professionals, which can represent the situations of the Japanese healthcare settings. In addition, the organisational structure of the JADECOM allowed us to systematically access the staff members. The response rate was unknown because the survey was conducted online for logistical purposes. Although the possibly low response rate through online survey could be seen as a limitation, a low response rate of the healthcare professionals in survey studies is a well-known challenge (Cook, Dickinson, & Eccles, 2009). Also, this study is the first to use the Japanese version of the RIPLS, and our aim was to explore if the developed Japanese RIPLS is usable. Thus, we prioritised obtaining a good number of responses to a high response rate. Furthermore, it was difficult for us to determine the influence of participant characteristics on the results. Self-selection biases must also be considered in the interpretation of the results.

While we were preparing this article, two discussion articles on the RIPLS were published (Mahler, Berger, & Reeves, 2015; Schmitz & Brandt, 2015). It is indeed problematic to measure the readiness for IPE because of its complex nature (Schmitz & Brandt, 2015). We also acknowledge that the RIPLS lacks a robust factor structure and several other characterstics which good instruments should have (Mahler et al., 2015). In fact, there are no perfect tools to evaluate IPE and collaborateive practice (Schmitz & Cullen, 2015). Cultural and structural contexts, which are undoubtedly important in IPE and collaborative practice, are hard to deal with when evaluating pracitce with standardised instruments.

Despite its imperfection, we believe that having the Japanese RIPLS can facilitate discussion leading to better development of IPE and collaborative practice. We expected that the impact would be bigger because the RIPLS was the most widely cited scale internationally. Finally, under the limited resources and timeframe, translating and validating the RIPLS was the most pragmatic approach to meet our purpose.

Still, we acknowledge the possible deficit of robustness of the structure of the present Japenese RIPLS. To confirm whether similar results can be obtained from other groups of professionals in Japan and robustness of the structure we identified in the present study, futher studies are needed.

We hope that healthcare professionals lead the discussion of IPE and collaborative practice in Japan using the present

Table 3. Results of factor analysis.

	Items (as in Original English Version)	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1 IPL in practice	5. Patients ultimately benefit if healthcare professionals work together to solve patients' problems.	**0.773**	0.075	−0.087	−0.058
	2. For small-group learning to work, healthcare professionals need to trust and respect each other.	**0.767**	0.040	−0.151	−0.025
	1. Learning with other healthcare professionals will help me be a more effective member of a healthcare team.	**0.710**	0.011	−0.166	0.019
	3. Teamwork skills are essential for all healthcare professionals to learn.	**0.590**	0.048	0.025	0.023
	9. Shared learning will help me think positively about other healthcare professionals.	**0.573**	−0.082	0.255	0.049
	4. Shared learning will help me understand my own limitations.	**0.572**	−0.044	−0.017	0.135
	12. Shared learning helps clarify the nature of patient problems.	**0.506**	0.013	0.356	−0.093
	6. Shared learning with other healthcare professionals will increase my ability to understand clinical problems.	**0.472**	0.170	0.223	−0.073
Factor 2 Patient-centredness	20. Establishing trust with my patients is important to me.	−0.089	**0.942**	0.007	0.006
	22. I try to communicate compassion to my patients.	0.067	**0.821**	−0.034	−0.045
	21. Thinking about the patient as a person is important in getting treatment right.	−0.012	**0.777**	0.066	−0.038
	23. In my profession, one needs skills in interacting and cooperating with patients.	0.142	**0.697**	−0.066	0.054
	19. I like to understand the patient's side of the problem.	0.059	**0.678**	0.022	0.042
Factor 3 IPL in education	13. Shared learning before qualification would help healthcare professionals become better team workers.	−0.126	0.003	**0.932**	−0.009
	7. Learning with healthcare students from other disciplines before qualification would improve relationships after qualification.	−0.162	−0.027	**0.877**	0.024
	8. Communication skills should be learned with other healthcare professionals.	0.120	0.040	**0.555**	0.015
	11. I would welcome the opportunity to work on small-group projects with other healthcare professionals.	0.329	0.026	**0.400**	0.059
Factor 4 Sense of interprofessional identity	14. Clinical problem-solving skills should be learned only with professionals from my own discipline.*	0.079	−0.018	−0.026	**0.698**
	16. There is little overlap between my role and that of other healthcare professionals.*	−0.167	0.089	0.003	**0.664**
	15. The function of nurses and therapists is mainly to provide support for doctors.*	0.034	−0.080	0.019	**0.650**
	17. I would feel uncomfortable if another healthcare professional knew more about a topic than I did.*	0.089	−0.042	0.020	**0.502**
Cronbach's *α*		0.867	0.900	0.821	0.718
% of variance				51.86	
Items excluded	10. Shared learning with other healthcare professionals will help me communicate better with patients and other professionals.	0.377	0.053	0.396	−0.015
	18. I have to acquire much more knowledge and skills than other healthcare professionals.*	0.065	0.181	0.049	0.360

The bold values are ≥ 0.4 of factor loading.
*Reverse-scored items.

Japanese version of the RIPLS to improve their practice and we do believe that further discussion will help develop better IPE and collaborative practice in future.

Concluding comments

We translated the professional version of the RIPLS into Japanese with appropriate caution. In the factor analysis, four factors were extracted in contrast to the three factors identified in the original study. It is significant that the professional version of the RIPLS has been translated into Japanese because it is expected to promote future studies in this field. Further research is needed to confirm the robustness of this Japanese professional version of the RIPLS.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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