

ORIGINAL ARTICLE

Development of a Japanese Version of a Collaborative Relationship Scale between Clients and Occupational Therapists

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Objective: The success of a client-centred practice depends on the relationship between the client and therapist and on their ability to make constructive decisions together, particularly in the field of occupational therapy. The aim of this study was to develop a Occupational Therapy Collaborative Relationship Scale (OTCRS) to measure the quality of such interaction. **Methods:** This work included constructing a draft questionnaire and testing its validity and reliability. A Rasch analysis was applied to determine its validity, and several tests were used to confirm its internal consistency. **Results:** After reviewing more than 130 scientific papers and books, we built explicit selection criteria for issues to be addressed in this instrument, and we developed 40 questions to be included. These were analysed using a standard content validation process and a Rasch analysis to examine confirmation validity. A nine-item scale was finalised for testing (OTCRS-9). This review process revealed the validity, high internal consistency, and item/person separation reliability of OTCRS-9. **Conclusion:** This study presents only the initial phase of scale development. As suggested by the Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN), the OTCRS-9 score should be tested further for validity and reliability and should also be conducted in subjects of other ethnicities to improve its generalizability.

Key Words: client-centred; occupational therapy; scale

INTRODUCTION

A teamwork approach is the foundation of rehabilitation medicine. This approach develops mutual reinforcement and synergistic effort and is able to achieve more than that achieved by each professional alone.^{1,2)} For the team approach to work to its fullest potential, team members should identify with their own profession, have mutual respect for the skills of other professionals, and recognize their personal and professional limitations in teamwork. However, a previous study has reported that physiotherapists sometimes have insufficient understanding of nurses' practice and lack recognition of nurses' professional autonomy, a situation that can hinder effective teamwork.³⁾ Therefore, it is very impor-

tant for occupational therapists to make other professionals aware of their value and role.

In occupational therapy (OT) practices around the world, the phrase 'client-centred' is widely employed in a variety of contexts and has always been an integrated value and a fundamental element.⁴⁻⁶⁾ The focus of the client-centric approach is on treating the client as a unique individual, considering the client's point of view, and allowing the client to participate in the decision making and treatment processes.⁷⁾ In particular, one of the core values that underpin this client-centric approach is the equal sharing of power that can be enacted through communication practices such as shared decisions.⁸⁾

It is generally understood that the success of an OT inter-

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vention depends on the quality of the relationship between the client and the therapist and the quality of the decision-making processes that are virtually always involved in the course of treatment.⁹ To be an effective facilitator able to allocate influence and materially assist clients in solving a wide variety of daily performance issues, the occupational therapist needs to fully understand and respect the client's values and daily priorities.¹⁰ Therefore, in a client-centric approach, it seems important that the client and therapist have approximately equal power in the relationship, through mutually interdependent decision-making processes, and engage in activity that will in some ways be satisfying to both. The 'power' used in this study is defined as a related, co-built process.¹¹ Because power exists in all interpersonal relationships, there are no interactions that are not related to OT.

However, there can be impediments in the decision-making process between the client and occupational therapist, even in a truly client-centred practice. These can include the following: (a) a client with reduced cognitive function, (b) clients who may have no desire to set their own goals, (c) physical facilities that are not effective, (d) clients who cannot convey their worries to occupational therapists, (e) client goals that are different from those of the health care team, and (f) clients that are simply indifferent to almost all choices.⁹ Indeed, in a typical clinical setting, no power is shared in the relationship between clients and occupational therapists, and other decision-making models are used, i.e., paternalistic¹² or Shared Decision Making.¹³ Occupational therapists need to recognise that a relationship with a client can change over the course of treatment and that it takes time to develop relationships. It is common to start in a paternalistic framework and evolve to a shared-decision working environment. However, the occupational therapist needs to remain aware that any sharing of power should be based on what is right for the client at the time so that the entire relationship remains truly client centred.

In OT, there are established tools that evaluate the relationship between providers and patients, such as the intentional relationship model.¹⁴ This tool features the use of six therapeutic modes in the practice of OT (advocating, collaborating, empathising, encouraging, instructing, and problem solving) and describes the method of the therapeutic use of self. Furthermore, to promote the relationship with their clients, occupational therapists in Japan use several evaluation tools, such as the Canadian Occupational Performance Measure (COPM)¹⁵ and Occupational Self-Assessment (OSA).¹⁶ These scales are the client-centric measures of

the clients' perceived occupational competence and value and are designed to identify changes in the client's personal perceptions of occupational performances. Studies have also shown that the identification of self-recognised occupational performance problems appears to enhance client motivation and to increase the relevance of personalised goals in rehabilitation.^{17,18} However, there is no single tool to assess the degree of shared power between the client and the occupational therapist in the client-centric decision-making process. Therefore, it is, by default, simply evaluated subjectively by occupational therapists at the clinical site.

Therefore, the aims of this study were to develop and evaluate what we will call the Occupational Therapy Collaborative Relationship Scale (OTCRS) for use in both research and clinical practice. The hypothesis behind this work is that well-trained occupation therapists fully understand the importance of the relationship that they have with patients, that this relationship can evolve over the course of treatment, and that being able to measure its quality can lead to more effective clinical outcomes.

MATERIALS AND METHODS

This study was performed between April 2018 and February 2019 after receiving approval from the Ethics Committee of Tokyo Metropolitan University (Project No. 18044). The development of the OTCRS item bank proceeded in three distinct phases: (phase I) defining a conceptual framework, conducting a literature search, and constructing a draft questionnaire; (phase II) ensuring the face validity of the draft OTCRS; and (phase III) field testing and calibration of the item bank. These three efforts are detailed below.

Phase I – Literature Search and Construction of a Draft Questionnaire

During April 2018, an extensive review of PubMed, CINAHL, Medical Online, CiNii Articles, and Ichushi-Web was made to identify historical efforts to define and measure the quality of relationships between occupational therapists and their clients. Medical Online, CiNii Articles, and Ichushi-Web were used because they are major electronic databases in Japan. An initial literature search in PubMed and CINAHL was performed using search terms from the Medical Subject Heading (MeSH) keyword searches. Several searches using different word combinations were performed with 'Occupational therapy' and 'Occupational therapist', 'patient' and 'client', 'collaborative' and 'collaboration' or 'client-centred' and 'client-centre' or 'relation'. Client-centred synonyms

such as ‘Patient-centred’ or ‘patient-focused care’ are terms that are not used in the OT profession; therefore, they were not included. A search of the reference lists of published manuscripts was also conducted to ensure that other relevant studies were captured.

We included studies that met all of the following criteria: (1) elements needed for a client-centric approach for decision making, (2) collaborative relationship between the client and therapist, and (3) published in English or in Japanese. Studies that did not meet these inclusion criteria were excluded.

The titles and abstracts of the records identified by searching the electronic databases were initially assessed for eligibility by three independent reviewers. We collected full-text articles of studies that appeared to be eligible, and three independent reviewers considered inclusion or exclusion. Discrepancies among the reviewers were resolved by agreement. From these sources, we developed a draft OTCRS.

Phase II – Determining the Validity of the Draft OTCRS

To ensure internal consistency of the raw instrument, two experts in the field reviewed it independently. These outside experts have well-known specialisations in the concept of client-centred OT practice, specifically in Japan.^{19,20} At each selection step, the two independent reviewers rated the development of the scale, and these views were then compared and discussed if there was any disagreement. The two reviewers were asked to judge the relevance of each question (yes/no) and then to suggest possible modifications, as well as additional items.

Phase III – Field Testing and Calibration of the Item Bank

Field Testing and Calibration of the Item Bank

To ensure the appropriateness of the items included in the instrument, the preliminary list of questions was field tested using a sample of Japanese inpatients. In Japan, although the client-centric approach is widespread, it is not routinely used by all occupational therapists.

Therefore, we recruited at least 100 hospitalised patients from 22 hospitals throughout Japan using convenience sampling; this number of patients was regarded as sufficient for item calibration on the basis of the requirements of the Rasch analysis.²¹

We included patients that met all of the following criteria: (1) they were receiving OT services in a client-centric practice, (2) they had already discussed treatment targets with their occupational therapist, (3) they had no cognitive

impairment, and (4) they could understand and sign the relevant informed consent forms. Patients that did not meet these inclusion criteria were excluded. Furthermore, non-responses were invalidated. Prior to conducting the survey, the patients were informed about the purpose and procedure of the study and that their anonymity was guaranteed.

Statistical Analysis

Participant demographics were summarised using descriptive analyses. To test whether all OTCRS scores were normally distributed, we used the Shapiro–Wilk test ($P < 0.05$). Responses were evaluated using standard item reduction statistics (e.g., ceiling/floor effects and missing data) to explore individual OTCRS items, and then a Rasch analysis was used to review how well each item functioned as part of the overall goal of the instrument. This approach was used because it is effective for describing the difficulty of an item and provides a way to evaluate the extent to which a person’s reaction matches the general pattern of item responses.²² In particular, Rasch analysis can be used with both dichotomous and polytomous data sets either through the dichotomous model or through either of the polytomous models.²³ In this study, we used the Rasch Rating Scale model (RSM), a polytomous model, to handle ordered categorical items from the self-questionnaire. RSM in the polytomous models expects there to be an equal difference between item thresholds, and only one discrimination value was estimated. For difficulty, the difference pattern of estimates has equal features in all items. We used three criteria to describe the quality of each item: (a) the standard error of the estimate of item difficulty (criterion: < 0.24);²⁴ (b) ‘item misfit’, i.e., the extent to which the sample as a whole responds unexpectedly to specific items (criterion: information-weighted mean square fit statistic (Infit MnSq) < 1.4 , standardised as a z-score (Zstd) < 2.0);^{25,26} and (c) outlier-sensitive fit statistic (outfit MNSQ) < 1.6 .²¹ If misfitting items were found, they were deleted from the scale. Furthermore, if there were items with similar difficulties, the researchers discussed them and ultimately rejected one.

Reliability was evaluated using the indices generated by Winsteps, which produces an analysis of how well separated each item is when examined across individuals. Our reliability metric reports how reproducible the results are when tested against numerous subjects. We used the following criteria to describe the quality of the items: (a) item separation reliability, i.e., the potential range covered by the measure (criterion: > 0.80), and (b) person separation reliability, i.e., the ratio of person variation to measurement error (criterion: > 0.80).²⁷

The assumption of unidimensionality is required for Rasch analysis. For this reason, dimensionality was checked for sophisticated items using Principal Component Analysis (PCA; criterion: <2.0 eigenvalue).²⁷⁾ PCA analyses the components of the residual correlation matrix in terms of ‘contrasts’. The ‘first contrast’ is an element that explains the maximum dispersion of the residual.

Generally, in Japanese medicine, there are few Japan-specific evaluation tools used to evaluate the relationship between clients and therapists. However, representative evaluation tools are widely used in Japan, e.g., the Client–Nurse Relationship Scale (CNRS)²⁸⁾ and the General Self-Efficacy Scale (GSES).²⁹⁾ Therefore, for concurrent validity, correlations between the OTCRS and both CNRS and GSES were verified using Spearman’s correlation coefficient.

The CNRS, developed by Fukai et al., is a standardised assessment tool that focuses on the relationship between medical personnel and patients in their care.²⁸⁾ Patients respond to 24 items, and their responses are scored on a four-point scale, with lower scores denoting more severe dysfunction. The CNRS is applicable not only to nurses but to all medical staff. The GSES was developed by Sakano et al. and is a standardised assessment tool that focuses on the individual’s strength regarding general self-efficacy across a variety of settings in everyday life.²⁹⁾ This is a 16-item scale with only two response options: ‘Yes’ and ‘No’. The statistical packages used were Winsteps (Version: 4.0.1), STATAv 15, and HAD.

RESULTS

Phase I – Literature Search and Construction of a Draft Questionnaire

As presented in Fig. 1, we identified 480 studies, the abstracts of which were screened. Of these, full-text readings of 130 papers and seven books were carried out. The authors independently read these studies and refined the concept of the metric that we wanted to develop in a series of pre-defined selection steps. In each selection, we compared and discussed the merit of each concept until agreement was reached. This literature search and its evaluation yielded 41 questions that could potentially be used in the instrument. For each of these questions, a four-point Likert scale (from 1 to 4) was developed to assess the degree of shared power between the client and the occupational therapist in the client-centric decision making process.

Phase II – Ability To Ensure Face Validity

Each reviewer examined the composition of the OTCRS three times. During the face and content validation processes, items were eliminated if they generated unacceptable scores. In addition, 40 preliminary items were modified, replacing the initial questions with alternatives having more suitable wording or rephrasing the questions to improve their clarity. Finally, the draft instrument was reduced in size from 41 to 40 items after each question was refined, and the views regarding each question across all reviewers were compatible.

Phase III – Field Testing and Calibration of the Item Bank

Description of the Study Sample

Of the 220 questionnaires sent out, we received 112 responses from 14 hospitals. Seven of these were excluded for not fully completing the instrument, resulting in 105 valid responses, a rate of 47.73%.

The characteristics of the responders were as follows: mean age, 68.37 years [with a standard deviation (SD) of 16.80, range 21–96 years]; sex, 48 men (45.71%) and 57 women (54.29%); and mean length of stay in the hospital, 129.43 days (SD, 370.01, range 2–2730 days). The diagnoses included the following: stroke and head trauma ($n=45$, 42.86%), fracture ($n=24$, 22.86%), pulmonary disease ($n=6$, 5.71%), spinal cord injury ($n=5$, 4.76%), cancer ($n=5$, 4.76%), cardiovascular diseases ($n=2$, 1.90%), Guillain–Barre syndrome ($n=2$, 1.90%), Parkinson’s disease ($n=1$, 0.95%), multiple sclerosis ($n=1$, 0.95%) and others ($n=14$, 13.33%). The clinical and demographic details are shown in Table 1.

The Shapiro–Wilk test showed that none of the scores were normally distributed. In addition, 18 of our 40 items (1–4, 6, 8, 11, 13, 14, 17, 20, 24, 25, 34 and 37–40) were scored at the highest level on the Likert scale by all participants, i.e., they exhibited a ceiling effect, and were therefore discarded.

Item Fitness

The estimation results for the fitness of the 22 items of the OTCRS (OTCRS-22), after excluding those with a ceiling effect, are summarised in Table 2. Most items were well fitted to the Rasch model. All of the model’s standard errors were between 0.14 and 0.16. Infit MnSq/Zstd and outfit MnSq were well within the criterion range, except for four items (18, 19, 35 and 36). The MnSq/Zstd and outfit MnSq values of these four items were above the criterion range. However, because the first component had an eigenvalue of OTCRS-22 >2 (3.76), the assumption of unidimensionality was not confirmed. Therefore, we discussed these items

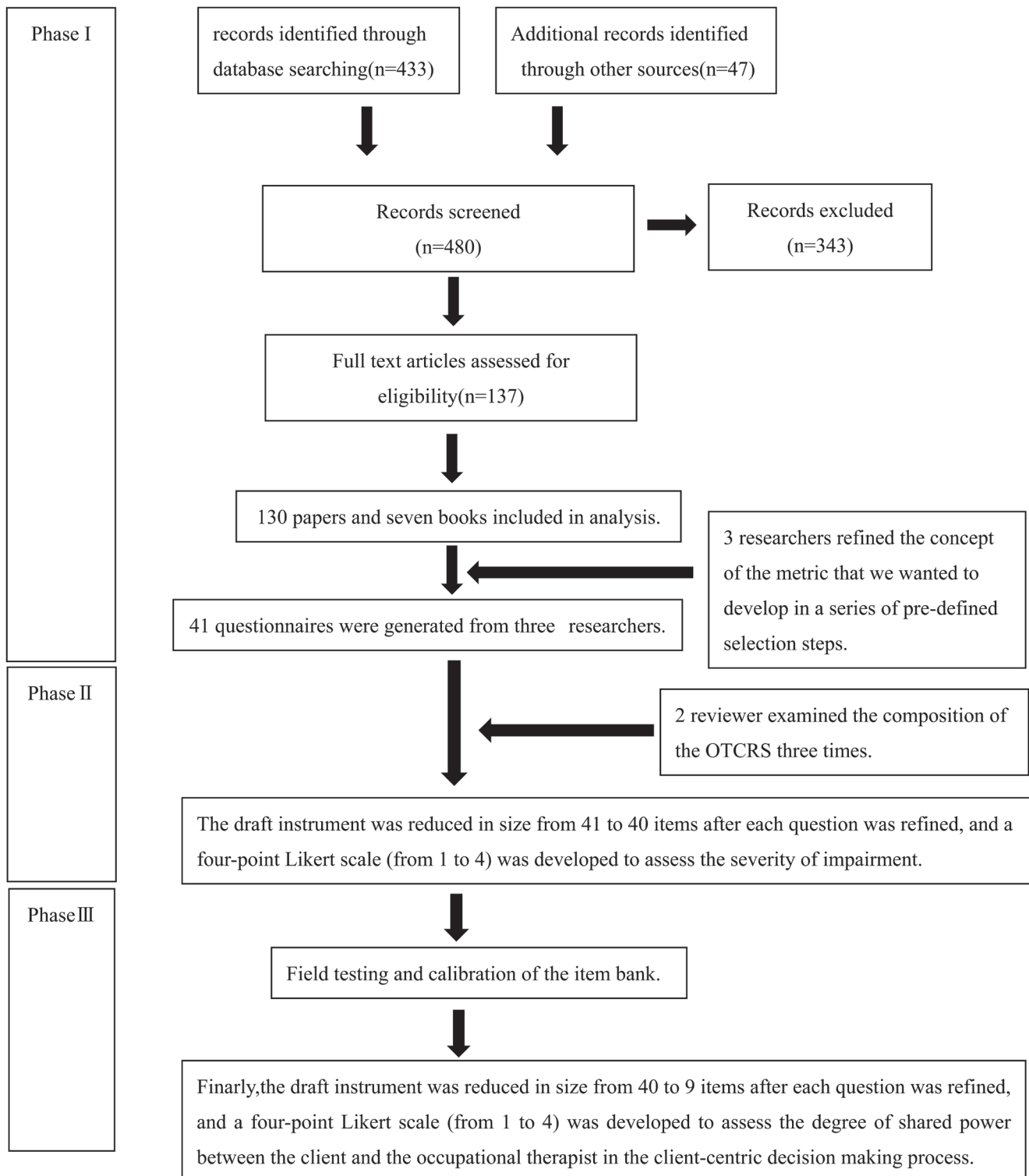


Fig. 1. Study flow.

so that the eigenvalue is ≤ 2 and excluded them. Finally, we extracted nine items (23, 26, 27, 28, 29, 30, 31, 32 and 33) (OTCRS-9). The first component had an eigenvalue of

OTCRS-9 < 2 (1.85), indicating that the overall instrument might be unidimensional. Moreover, OTCRS-9 items were well refitted to the Rasch model.

Table 1. Clinical and demographic details

Characteristic		Total sample n=105 (%)
Age (years)	Mean \pm SD	68.37 \pm 16.80
	Min–max	21–96
Gender	Male	48 (45.71)
	Female	57 (54.29)
Type of admittance	In-patient	105
	Out-patient	0
Length of stay in the hospital (days)	Mean \pm SD	129.43 \pm 370.01
	Min–max	2–2730
Diagnosis	Stroke and head trauma	45 (42.86)
	Fracture	24 (22.86)
	Pulmonary disease	6 (5.71)
	Spinal cord injury	5 (4.76)
	Cancer	5 (4.76)
	Cardiovascular disease	2 (1.90)
	Guillain–Barre syndrome	2 (1.90)
	Parkinson’s disease	1 (0.95)
	Multiple sclerosis	1 (0.95)
	Others	14 (13.33)

Reliability

Item separation reliability in OTCRS-9 was determined to be 0.83, and person separation reliability was 0.85. This indicated that OTCRS-9 has a strong capacity to generate accurate precision measurements for reliability indices, which represents a good level of separation.

Person–Item Histograms

We examined the person–item histograms (**Fig. 2**), which show the relative positions of ‘item difficulty’ and ‘personal ability’; a difference between the averages of persons and items of up to one logit is generally considered acceptable.³⁰⁾ The average person ability was 0.90 logit (SD 2.05, range –2.00 to 5.11), whereas the average item ability was 0 logit (SD 0.40, range –0.67 to 0.58). In this context, it was revealed that item 29 was the easiest for participants to endorse, and item 26 was the most difficult. Eight participants (7.62%) scored full points on all items, and no participant scored zero for all items.

Category Order

The estimation results for the four-point rating scale of the OTCRS-9 are shown in **Table 3** and **Fig. 3**. To best evaluate the category function of each item, we checked the ordering of thresholds. Each category has a clear peak, indicating that they are not disturbed (**Fig. 3**). However, ‘Category Level 1’ (count=117, 12%) had the fewest observed counts at each category level compared with the others. In addition, the ‘Category Level 1’ fit index showed Infit MnSq values ≥ 1.4 , implying that the applicable scale was not functioning properly.

Concurrent Validity

Table 4 shows the results related to concurrent validity. Concurrent validity was confirmed by the positive correlations between OTCRS-9 and CNRS total score ($r=0.36$ – 0.59 , $P<0.01$). However, there was virtually no correlation between OTCRS-9 and GSES, except for item 31. This result supports discriminatory validity between OTCRS-9 and GSES.

Table 2. Rasch fit statistics for the 22-item four-point response OTCRS scale

Item code	Item	MEASURE (logits)	MODEL.S.E.	INFIT		OUTFIT
				MnSq	Zstd	MnSq
Item 36	I passively participate in occupational therapy services.	1.57	0.14	1.83	5.1	1.71
Item 35	I want the occupational therapist to set the goal.	1.00	0.14	2.50	8.5	2.64
Item 26 ^a	I have the same authority as the occupational therapist.	0.57	0.14	0.89	-0.8	0.87
Item 18	The occupational therapist forces me to comply with his/her values.	0.53	0.14	2.81	9.7	3.12
Item 27 ^a	I decide on my own priorities of goals.	0.51	0.14	1.04	0.3	0.97
Item 31 ^a	I have the right of final decision making in occupational therapy services.	0.36	0.14	1.01	0.2	0.96
Item 33 ^a	I consult with the occupational therapist regarding “what I want to do”, “what I need to do”, or “what is expected of me”.	0.14	0.14	0.90	-0.7	0.90
Item 23 ^a	I understand to what extent my goal can be achieved.	0.12	0.14	1.04	0.4	1.04
Item 28 ^a	I consult with the occupational therapist about the outcome of my goal.	0.08	0.14	0.88	-0.9	0.83
Item 19	I would like to seek assistance from an occupational therapist.	0.05	0.14	1.47	3.1	1.57
Item 30 ^a	I know what will be needed to achieve the goal.	-0.07	0.14	0.83	-1.3	0.81
Item 32 ^a	I actively participate in the setting of occupational therapy goals.	-0.21	0.14	0.64	-3.0	0.60
Item 21	I talk to the occupational therapist like I talk to my friends.	-0.27	0.14	0.83	-1.3	0.78
Item 15	The occupational therapist gives me sufficient information about goal setting.	-0.31	0.14	0.51	-4.2	0.47
Item 16	The occupational therapist clarifies needs based on my situation.	-0.33	0.14	0.46	-4.8	0.45
Item 10	The occupational therapist understands my values.	-0.35	0.14	0.58	-3.5	0.56
Item 9	The occupational therapist respects my strengths.	-0.37	0.14	0.57	-3.6	0.61
Item 22	I set a meaningful goal with the occupational therapist.	-0.37	0.14	0.56	-3.7	0.51
Item 29 ^a	I clarify what I want to get from occupational therapy services.	-0.39	0.14	0.63	-3.0	0.57
Item 12	The occupational therapist helps me solve the problem myself.	-0.45	0.14	0.42	-5.2	0.45
Item 7	The occupational therapist appreciates my experience.	-0.47	0.14	0.58	-3.4	0.61
Item 5	The occupational therapist gives me energy.	-1.38	0.16	0.44	-4.6	0.53

^aThese entries were included in the final scale.

All the research was done with Japanese questionnaires and the items shown here are translations.

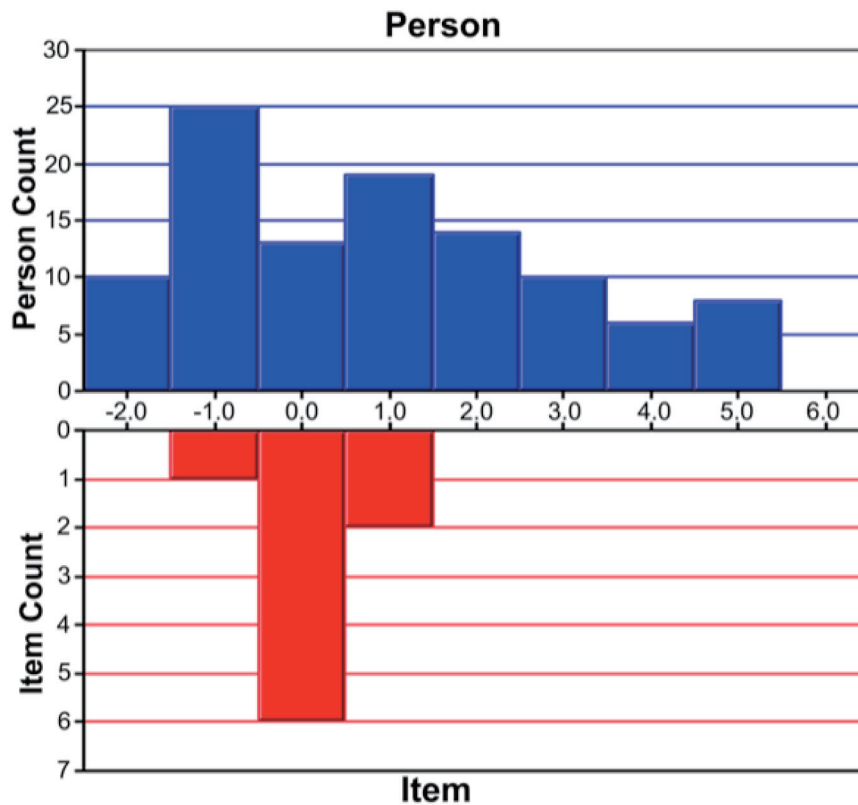


Fig. 2. Person–item histograms. The x-axis represents the construct. Higher scores increase to the right. The y-axis represents the frequency of person and item measures.

Table 3. Summary of the rating analysis of the four-point scale

Category level	Observed count	Observed average	Infit MnSq	Outfit MnSq	Andrich threshold	Category measure
1. Disagree	117 (12%)	-1.06	1.53	1.45	NONE	-3.06
2. Tend to disagree	267 (28%)	-0.93	0.6	0.59	-1.88	-0.9
3. Tend to agree	244 (26%)	1.14	0.72	0.81	0.22	0.99
4. Agree	317 (34%)	2.34	1.08	1.07	1.66	2.91

DISCUSSION

The substantial reduction in the number of items from the initial draft to the final result was necessary to fine tune the validity of the resulting OTCRS-9. As mentioned above, we discarded 18 items that had a ceiling effect on the Likert scale. Next, four items that showed a misfit in the Rasch model were discarded. We also discussed these items so that the eigenvalue is ≤ 2 and excluded them. Ultimately, the OTCRS was carefully pared down to nine items, and we readily confirmed both the unidimensionality and the concurrent

validity between OTCRS-9 and CNRS.

For a client-centred practice, it is essential to establish a relationship of trust between the client and the occupational therapist. Unsurprisingly, there was a correlation between OTCRS-9 and CNRS, which can measure the trust relationship between the client and therapist, and the concurrent validity was supported. In contrast, there was no correlation between the raw OTCRS-9 and GSES, and the difference in their structures was revealed on the scale. This result supported the discriminatory validity between OTCRS and GSES. We also found that OTCRS-9 has a high level of inter-

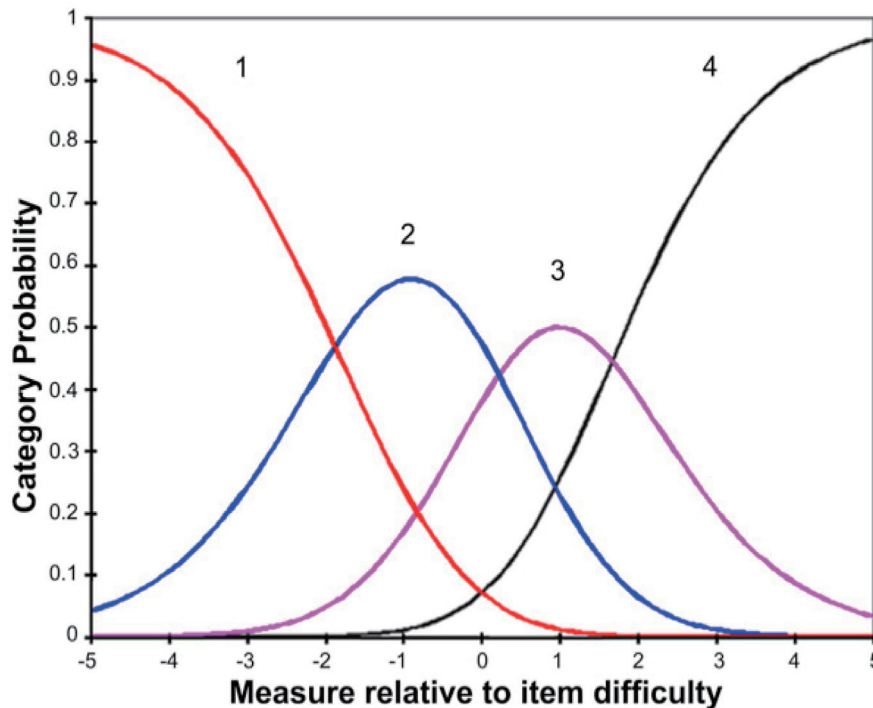


Fig. 3. Category probability curves for four response categories (1 = disagree, 2 = tend to disagree, 3 = tend to agree, and 4 = agree).

Table 4. Correlation analyses between OTCRS-9 and both CNRS and GSES

	OTCRS-9									Total
	Item 23	Item 26	Item 27	Item 28	Item 29	Item 30	Item 31	Item 32	Item 33	
CNRS	0.52**	0.51**	0.36**	0.49**	0.54**	0.43**	0.48**	0.55**	0.51**	0.59**
GSES	0.05	0.16	0.05	0.15	0.07	0.16	0.22*	0.18	0.16	0.15

** Significant at 1% level. * Significant at 5% level.

nal consistency, as shown by the item and person separation reliabilities in the Rasch models.

Difficulties that might arise because OTCRS-9 was fitted to a Japanese population were analysed by comparing individual attribute scores and item difficulty. If these scores and the distribution range of item difficulties coincide, the distribution is considered sufficient.³¹⁾ In our field testing, the client's overall ability to develop a good relationship with their therapist was found to be high, so OTCRS-9 is likely more sensitive to clients with relatively lower values regarding this capability. In addition, each category has a clear peak, indicating that the categories are not distributed in category order. However, 'Category Level 1' had the fewest number of observations compared to the others, indicating that the applicable scale was not functioning properly. This

result suggests the need to modify the OTCRS-9 response scale in the future. An investigation by Tourangeau emphasised that respondents hesitated to assign a negative score to themselves.³²⁾ Further, Japanese people tend to prefer positive intermediate responses compared to negative ones.³³⁾ In general, if the number of answer categories is small, the reliability will be low; consequently, it has been suggested that the number of reply categories should be five or more.^{34,35)} For these reasons, it may be necessary to modify this instrument to allow a reaction scale of five points or more.

The potential limitation of this study was its relatively small sample size, with which normal distributions could not be obtained. For OTCRS-9 to adapt to clients with a wide range of abilities, it is necessary to review the response scale and increase the sample size. The value of OTCRS-9 is that

it provides information on the client's power and comfort level with regard to making decisions in the context of client-centred OT practice.

There are several other advantages of OTCRS-9. First, it promotes the development of a client-centred practice for occupational therapists such that they can more readily develop and share meaningful targets with clients. Second, compared to many other scales that patients might encounter, it is a much shorter measure, with only nine items. It can be completed within 5 min and is easily administered in routine practice. It can also be used as a screening tool to capture a snapshot of the cross section of a client's outcomes. Third, using OTCRS-9 is expected to convey the role and value of OT to other professionals.

Research is needed to determine the scale responsiveness and its utility as an evaluation tool as well as its capability to understand how a collaborative relationship between the client and occupational therapist can be improved. Future work should focus on exploring the psychometric properties of OTCRS-9 in a larger sample and assessing convergent and divergent validity, as well as to determine test-retest reliability.

CONCLUSION

OTCRS-9 is a simple and brief assessment tool with good internal consistency and validity, and it has a marked correspondence with CNRS. In addition, it is a valid instrument for promoting a client-centred practice for occupational therapists and sharing meaningful targets with clients. Moreover, it can easily be employed in everyday clinical settings. OTCRS-9 can also be used to further investigate numerous issues regarding the quality of the collaborative relationship between clients and occupational therapists.

LIMITATIONS

This study presented only the initial phase of scale development. As suggested by Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN), the OTCRS-9 score should be tested further for validity and reliability and should also be conducted in subjects of other ethnicities to improve its generalizability. Moreover, the OTCRS-9 score has a very short questionnaire, and it does not cover all the domains identified in the literature searches.

DATA AVAILABILITY

The data that support the findings of this study are available from the first author, upon reasonable request (choujiyuki@gmail.com).

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CONFLICTS OF INTEREST

The authors confirm that there is no conflict of interest.

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APPENDIX. OTCRS SCALE

The purpose of this questionnaire is to determine the degree of shared power between the client and the occupational therapist in the client-centric decision-making process.

To maximize the effectiveness of occupational therapy, the client and the occupational therapist need to establish an appropriate relationship.

Therefore, occupational therapists are aiming that the client and therapist have approximately equal power in the relationship, through mutually interdependent decision-making processes. However, occupational therapists may need to confirm the client's "true feelings" because the power of the therapist may work unconsciously.

Please circle the answers that come closest to your response to the following nine questions. There is no right answer, so please answer intuitively.

1 = Disagree, 2 = Tend to disagree, 3 = Tend to agree, 4 = Agree

Questions		Answers			
1	I consult with the occupational therapist regarding "what I want to do", "what I need to do", or "what is expected of me".	1	2	3	4
2	I actively participate in the setting of occupational therapy goals.	1	2	3	4
3	I clarify what I want to acquire from occupational therapy services.	1	2	3	4
4	I decide on my own priorities of goals.	1	2	3	4
5	I consult with the occupational therapist about the outcome of my goal.	1	2	3	4
6	I know what will be needed to achieve the goal.	1	2	3	4
7	I have the same authority as the occupational therapist.	1	2	3	4
8	I have the right of final decision making in occupational therapy services.	1	2	3	4
9	I understand to what extent my goal can be achieved.	1	2	3	4

All the research was done with Japanese questionnaires and the items shown here are translations.