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Psychometric Properties of an Instrument Derived from the Intentional Relationship Model: The Self-Efficacy for Recognizing Clients' Interpersonal Characteristics (N-SERIC)

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Psychometric Properties of an Instrument Derived from the Intentional Relationship Model: The Self-Efficacy for Recognizing Clients' Interpersonal Characteristics (N-SERIC)

Abstract

Background: The Intentional Relationship Model conceptualizes the therapeutic use of self in occupational therapy. To increase motivation for and success in establishing therapeutic relationships, therapists need self-efficacy for using the self in therapeutic practice. However, attempts to combine this model with self-efficacy theory are rare, and instruments by which to measure self-efficacy for therapeutic use of self are in a developing stage. This study aimed to examine the factor structure and internal consistency of the Norwegian *Self-Efficacy for Recognizing Interpersonal Characteristics* (N-SERIC).

Methods: Occupational therapy students (n = 100) from two education programs completed the instrument and sociodemographic information. The factor structure was examined with Principal Components Analysis (PCA), and internal consistency was assessed with Cronbach's α and inter-item correlations.

Results: The PCA revealed that all N-SERIC items belonged to the same latent factor, with factor loadings ranging between 0.75 and 0.89. The internal consistency of the scale items was high (Cronbach's α = 0.96).

Conclusions: The N-SERIC scale is unidimensional and the items have very high internal consistency. Thus, the scale sum score can be useful for occupational therapy research and audits focusing on interpersonal aspects of practice.

Comments

The authors disclose no conflicts of interest.

Keywords

factor analysis, higher education, psychometrics, reliability, students

Cover Page Footnote

We are grateful for the questionnaire responses from the participating students.

Credentials Display

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The Intentional Relationship Model (IRM), as developed and introduced by Taylor (2008), aims to "integrate and conceptualize therapeutic communication in rehabilitation" (Fan & Taylor, 2016, p. 1). The model highlights the need for occupational therapists to increase their awareness of how they contribute to the client-therapist relationship, and how they can monitor and, if needed, change the way they communicate with and otherwise relate to the client during interactions in therapy. According to the IRM, therapeutic modes are specific ways of relating to clients and are labeled as advocating, collaborating, empathizing, encouraging, instructing, and problem-solving (Bonsaksen, Vøllestad, & Taylor, 2013; Taylor, 2008).

In addition to the more recently developed clinical assessments of mode use (Fan & Taylor, 2016; UIC Intentional Relationship Model Clearinghouse, 2016), a self-report measure concerned with therapists' preferences for using the different modes was first introduced by Taylor (2008) and subsequently revised (Taylor et al., 2013). Researchers in Norway have recently used a translation of this instrument to assess occupational therapists' (Carstensen & Bonsaksen, 2017) and occupational therapy students' (Yazdani, Carstensen, & Bonsaksen, 2017) preferences for therapeutic modes and their associated factors. Moreover, in one study, occupational therapists and occupational therapy students were compared (Carstensen & Bonsaksen, 2016), and it was found that students and therapists had significantly different mean scores on four of the six modes. Occupational therapists had higher scores on collaborating and empathizing mode use, whereas students had higher scores on instructing and advocating mode use.

Having preferences for actions and behaviors, however, may be insufficient for their actual performance. To transform a preference into an action, a person needs a certain level of self-efficacy for using it in real-life clinical situations. Self-efficacy can be described as the belief in one's capabilities to organize and execute the courses of action required to produce desired outcomes (Bandura, 1997). It affects goal setting, persistence in goal attainment, and outcome expectancies. Thus, once formed, self-efficacy influences a person's choice of action and course of behavior (Bandura, 1997). When faced with difficulties or new and demanding situations, self-efficacy influences the effort expended, the person's thought patterns, his or her perseverance, and the amount of stress experienced (Bandura, 1977). Therefore, persons with higher self-efficacy may have a greater chance of actually succeeding at a specific task, may recover more quickly when setbacks occur, and may remain committed to their goals (Bandura, 1997).

The self-efficacy concept has gradually been incorporated into occupational therapy research with diverse clinical groups. For example, in a study of persons with arthritis, Reinseth et al. (2011) found that higher self-efficacy for managing the illness was associated with higher levels of leisure-time physical activity, thereby demonstrating a link between task-specific self-efficacy and activity levels. At an aggregated level, self-efficacy for a range of specific tasks and activities is believed to build a person's generalized sense of self-efficacy (Schwarzer & Luszczynska, 2007). Higher levels of general self-efficacy have been reported to associate with higher levels of physical activity, better self-reported health, and more life satisfaction (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Luszczynska, Scholz, & Schwarzer, 2005; Schwarzer, Bassler, Kwiatek, Schroder, & Zhang, 1997). Thus, the studies demonstrate the importance of self-efficacy for subsequent outcomes.

Self-efficacy is needed not only among patients but also among health professionals, such as occupational therapists. Occupational therapists need self-efficacy to perform a range of different behaviors and skills. In line with theory, higher self-efficacy for work tasks is likely to increase the motivation for performing them and to assist the person in completing them successfully (Bandura, 1997). Nevertheless, it appears that only one previous study has investigated self-efficacy and related factors among occupational therapists. Vax, Schreuer, and Sachs (2012) found that among 64

Israeli occupational therapists working in mental health, having more education, more work experience, a leadership role, and higher levels of general self-efficacy were significantly associated with higher work-related self-efficacy.

Managing the client-therapist relationship is one important aspect of an occupational therapist's work, but self-efficacy measures related to this domain of practice are largely lacking. Bonsaksen and Carstensen (2017) recently examined a new measure for assessing self-efficacy for using the therapeutic modes among occupational therapy students in Norway. They found that the Norwegian Self-Efficacy for Therapeutic Mode Use (N-SETMU) was a unidimensional measure with good internal consistency between items. Factor loadings ranged between 0.68 and 0.81, and internal consistency was 0.82. The authors concluded that the N-SETMU could be a useful tool for occupational therapy research and audits focusing on the use of therapeutic modes in client interactions.

The appropriate use of therapeutic modes depends, however, on the therapist's ability to correctly recognize and adapt to the client's interpersonal characteristics, both those specific to the situation and those embedded in the client's enduring pattern of organizing his or her relationships to other people (e.g., the client's personality). Recognizing clients' interpersonal characteristics is a central aspect of establishing and sustaining helpful relationships with them, and is therefore a task for which the therapist or student needs a certain level of self-efficacy. However, self-efficacy beliefs related to one's own capability for recognizing clients' interpersonal characteristics is yet to be studied. Moreover, to enable systematic study in this area, relevant assessment tools need to be developed and psychometrically assessed for the groups and the cultural contexts that they target. The present study contributes to the knowledge related to one such assessment tool: the Norwegian Self-Efficacy for Recognizing Clients' Interpersonal Characteristics (N-SERIC). In combination with already developed IRM assessments, this tool may assist occupational therapists in targeting areas of further personal development as a therapist. It may also assist educators and course leaders in evaluating the outcomes of courses and other educational activities. The above considerations constitute this study's rationale.

Study Aim

This study aimed to examine the extent to which the N-SERIC items can be treated as indicators of the same underlying construct (factor structure) in a sample of occupational therapy students. In addition, the aim was to examine the degree of measurement consistency between the scale items (internal consistency).

Method

Design and Settings of the Study

The study had a cross-sectional design employing a factor-analytic methodology. The occupational therapy education programs in Oslo and Trondheim, Norway, where the study was conducted, are both 3-year undergraduate programs.

IRM Workshops

Workshops on the IRM were conducted in the classroom with the students from each of the universities. The students from both universities were in their second year of study. To accommodate the differences between the study programs, the IRM workshop with the students in Oslo was 3 hours, while the IRM workshop with the students in Trondheim was 6 hours. The contents of the two workshops had similarities and differences. Both workshops included a theoretical introduction to the IRM and its main concepts, teacher demonstrations, student role playing using the therapeutic modes, and a concluding plenary discussion. The role plays, however, were more extensive with the students in Trondheim because the workshop was longer.

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The students in Trondheim used preplanned case vignettes as a basis for their role plays. Groups of students assembled around a table to focus on one case story and one therapeutic mode to be practiced intensively. One of the students played the role of the client while another student played the role of the therapist and tried to use the selected mode as consistently as possible. The other group members would take over the role of therapist when new ideas were needed. The student groups rotated to different tables where they addressed new case stories and new modes to practice.

The students in Oslo were also organized into groups. These student groups, however, developed their own case stories in the form of short film scripts that demonstrated each of the therapeutic modes. One of the group members filmed the prepared therapy sequence. As part of the concluding plenary session, examples of these videos were shown to all of the students, and the discussion centered on identifying the mode or modes used, the interpersonal events occurring, and ideas about how and why the therapist might take another approach than the one shown in the video.

Participant Recruitment and Data Collection

The students were included as participants in the study based on their enrollment in one of the involved occupational therapy education programs and their informed consent to participate. The questionnaire (the N-SERIC; see below for description) was distributed to the students approximately three months after the IRM workshops. Between the IRM workshops and the time of data collection, the students from Oslo had been in clinical practice placement, whereas the students from Trondheim had undergone a university-based study module.

Measures

The Norwegian version of the instrument examined in this study represents Part II of the original instrument Self-Efficacy for Therapeutic Use of Self, as developed by Yazdani and Tune (2016) in the United Kingdom. The Part II scale, the Self-Efficacy for Recognizing Clients' Interpersonal Characteristics (N-SERIC), asks respondents to indicate their level of confidence that they have the required skills to recognize each of the 12 interpersonal characteristics described in the model (Taylor, 2008). These interpersonal characteristics are: communication style, capacity for trust, need for control, capacity to assert needs, response to change or challenge, affect, predisposition to giving feedback, predisposition to receiving feedback, response to human diversity, orientation toward relating, preference for touch, and capacity for reciprocity. For all items on the scale, the respondents are asked to rate their level of confidence from 1 (*I cannot do this at all*) to 10 (*I am very confident I can do this*). In the eventual case of obtaining a one-factor structure, with self-efficacy for recognizing all of the above interpersonal characteristics belonging to only one latent construct, there would be evidence to support that a sum score of the items provides a generalized measure of therapists' self-efficacy for recognizing clients' interpersonal characteristics.

The Norwegian version of the instrument was translated by the first author and back-translated into English by a person proficient in Norwegian and in English. The instrument developer checked the content of the back-translated version for correctness and conceptual clarity by comparing it to the original version (Yazdani & Tune, 2016). No further amendments were required after checking the back-translation. In addition to the scales, information regarding the participants' ages and genders was collected.

Data Analysis

The data were entered into the computer program IBM SPSS (IBM Corporation, 2016). Descriptive analyses were performed on all items using means (*M*), standard deviations (*SD*), frequencies, and percentages. Group differences were analyzed with independent *t*-tests and χ^2-tests as appropriate. Principal Component Analysis (PCA) was performed to assess latent factors. The

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Kaiser, 1974), in combination with Bartlett's Test of Sphericity (Bartlett, 1954), were used to assess whether the data were adequate for factorization. KMO measures should exceed 0.60 in order to proceed with factorization (Cerny & Kaiser, 1977; Kaiser, 1974).

Extraction of factors was determined by (a) visual inspection of the scree-plots, (b) assessing the Eigenvalue (λ) estimates, and (c) the variance explained by the factors. According to statistical convention, we retained factors with $\lambda > 1$ and/or factors explaining more than 10% of the variables' variance proportions. The factor solution should explain at least 50% of the variation in the data and should have a simple structure, meaning that all items should load strongly (> 0.40) on only one factor. An exploratory approach to the PCA was used. In addition to the λ estimates, the statistical measures reported from the factor analyses include communalities (the variance proportion of each variable explained by the factors together) and factor loadings (estimates of the impact from a given variable on each factor). Factor loadings > 0.40 were considered high. The internal consistency of the resulting scales was examined with Cronbach's α (which should exceed 0.70) and inter-item correlations (which should exceed 0.20). Statistical significance for all analyses was set at $p < 0.05$.

Ethics

Approval for conducting the study was obtained from the Norwegian Data Protection Official for Research (project number 49433). The students were informed that completion of the questionnaires was voluntary, that their responses would be kept anonymous, and that there would be no negative consequences for opting not to participate in the study. Written informed consent was provided by all of the participants.

Results

Participants

The characteristics of the study participants are displayed in Table 1. The participants in this study were 100 occupational therapy students from the second study year in the Oslo ($n = 39$) and Trondheim ($n = 61$) education programs, respectively. The mean age of the students was 24.6 years ($SD = 6.2$ years), and there was a predominance of female students ($n = 82$, 82 %). The students in Oslo were significantly older and had better academic results compared to the students from Trondheim.

Table 1

Sociodemographic Characteristics of the Study Participants (n = 100)

Characteristics	**All (*n* = 100)**	**Oslo (*n* = 39)**	**Trondheim (*n* = 61)**	
	M (SD)	M (SD)	M (SD)	p
Age	24.6 (5.8)	27.2 (8.4)	22.9 (3.4)	< 0.01
Gender	*n* (%)	*n* (%)	*n* (%)	
Men	18 (18.0)	7 (17.9)	11 (18.0)	0.99
Women	82 (82.0)	32 (82.1)	50 (82.0)	
Work status				
In paid work	59 (59.0)	23 (59.0)	36 (59.0)	0.99
Not in paid work	41 (41.0)	16 (41.0)	25 (41.0)	
Prior higher education				
With prior experience	50 (50.0)	20 (51.3)	30 (49.2)	0.84
No prior experience	50 (50.0)	19 (48.7)	31 (50.8)	
Academic performance	4.3 (0.69)	4.5 (0.7)	4.1 (0.6)	< 0.01

Note. Differences between sample subsets analyzed with independent *t*-tests (age and academic performance) and χ^2-tests (gender, work status, and prior higher education).

The N-SERIC: Factor Structure and Internal Consistency

For the N-SERIC, the item means ranged from 6.11 (preference for communication style) to 7.00 (affect) for the 12 items (see Table 2). The KMO value was 0.93 and Bartlett's test of sphericity was statistically significant ($p < 0.001$), indicating that the data was appropriate for factor analysis. One factor had Eigenvalue > 1: Factor 1 $\lambda = 8.32$, explaining 69.3% of the variance. The items' communalities after the extraction of one factor were between 0.57 (preference for touch) and 0.79 (predisposition to receiving feedback and response to change and challenge).

Table 2

The N-SERIC: Items, Mean Scores, and Standard Deviations (n = 100)

I am confident in my ability to recognize my clients'	M (SD)
1) Preference for communication style	6.11 (1.56)
2) Capacity for trust	6.90 (1.56)
3) Need for control	6.41 (1.56)
4) Capacity to assert needs	6.68 (1.68)
5) Response to change or challenge	6.79 (1.44)
6) Affect	7.00 (1.75)
7) Predisposition to giving feedback	6.67 (1.55)
8) Predisposition to receiving feedback	6.79 (1.63)
9) Response to human diversity	6.35 (1.59)
10) Orientation toward relating	6.55 (1.64)
11) Preference for touch	6.61 (1.68)
12) Capacity for reciprocity	6.59 (1.52)

Note. All items are rated 1 (*I cannot do this at all*) to 10 (*I am very confident I can do this*).

Table 3 shows the results for the one-factor solution resulting from the PCA, with factor loadings sorted by size. All items loaded strongly on the factor (0.75-0.89), and the internal consistency of the items was Cronbach's $\alpha = 0.96$ (mean inter-item correlation = 0.66). The sample sizes were too small to be able to repeat the PCA for each of the participant groups. However, Cronbach's α was 0.94 and 0.96 in the groups from Oslo and Trondheim, respectively.

Table 3

One-factor Solution of the N-SERIC, Showing Factor Loadings, Communalities, Eigenvalue Estimate (λ), Explained Variance and Reliability Estimates (Cronbach's α and Mean Inter-item Correlations; n = 100)

Variables	Factor 1	Communalities
Predisposition to giving feedback	**0.89**	0.79
Response to change or challenge	**0.89**	0.79
Predisposition to receiving feedback	**0.86**	0.74
Capacity for reciprocity	**0.86**	0.74
Orientation toward relating	**0.84**	0.71
Affect	**0.84**	0.71
Capacity for trust	**0.84**	0.70
Capacity to assert needs	**0.82**	0.68
Communication style	**0.82**	0.67
Response to human diversity	**0.80**	0.64
Need for control	**0.77**	0.60
Preference for touch	**0.75**	0.57
λ	8.32	
Explained variance	69.3 %	

Cronbach's α	0.96
Mean inter-item correlation	0.66

Note. Results derived from the exploratory Principal Component Analysis and scale reliability analysis.

Discussion

This study is the first to investigate the psychometric properties of the N-SERIC. The results suggest that the N-SERIC can be used as a unidimensional scale in cases where there is a need to assess the occupational therapist's or occupational therapy student's overall self-efficacy for recognizing clients' interpersonal characteristics in therapeutic practice.

The pattern of responses showed that the 12 N-SERIC items all loaded onto one component, representing one common core construct. Thus, the authors propose that the measure can be viewed as a one-dimensional scale for assessing self-efficacy for this specific set of interpersonal skills relevant for occupational therapists. The one-factor structure was expected, as this has been found in previous studies concerned with the psychometric properties of self-efficacy instruments, such as Schwarzer and Jerusalem's (1995) General Self-Efficacy Scale (Luszczynska et al., 2005; Scholz, Dona, Sud, & Schwarzer, 2002). IRM-specific scales, like the recently developed N-SETMU (Bonsaksen & Carstensen, 2017), similarly found a response pattern consistent with a one-factor solution to the data.

The scale items' internal consistency was very high ($\alpha = 0.96$). Scales with more items are generally known to produce higher internal consistency estimates. The commonly used Cronbach's α estimate should exceed at least 0.70 to be considered acceptable and should preferably exceed 0.80 (Streiner & Norman, 2008). The N-SERIC is indeed comprised of a relatively large number of items, and it is therefore logical that Cronbach's α for the scale items is in the higher range. However, Streiner and Norman (2008) also suggested that the internal consistency of scales should preferably not exceed 0.90. The inherent problem of such high internal consistency values, according to Streiner (2003), is that "higher values may reflect unnecessary duplication of content across items and point more to redundancy than to homogeneity" (p. 102). As the N-SERIC items did exceed this level of consistency, an interpretation may be that the participants were unable to discriminate fully between the different items and their content, and that some items may be redundant. Further, some of the items listed in the questionnaire (e.g., "preference for communication style," "orientation toward relating" [see Table 2]) are relatively abstract and would require the respondent to have developed beforehand an understanding of the meaning content implicitly asked for in these items. A very similar issue was noted in the previous psychometric study of the N-SETMU (Bonsaksen & Carstensen, 2017); in this scale, the abstract therapeutic mode descriptors are used as items. As an alternative interpretation, the students may have become bored while completing the questionnaire and therefore may have responded to the items in a semi-automatic way. If so, this may also have produced a similar result.

Irrespective of scale properties, being able to recognize and adapt to clients' various, and sometimes rapidly changing, interpersonal characteristics by using the different therapeutic modes interchangeably may strengthen the therapeutic relationship between the client and his or her occupational therapist. Low self-efficacy in any of these areas may detract from the occupational therapist's ability to sustain a productive therapeutic relationship, thus decreasing his or her ability to assist the client toward improved treatment outcomes. Higher self-efficacy in these areas, conversely, may increase the chances of responding appropriately to clients with a range of interpersonal characteristics. Further research is needed to see whether and to what extent self-efficacy for managing the interpersonal aspects of therapy changes over the course of the educational

program. Given the different contents and organization of the workshops delivered to the students from Trondheim and Oslo, and given the different types of study (clinical practice vs. university based) they carried out after the workshop, future studies may investigate whether the students' N-SERIC changes related to the type of training they received during that period.

Methodological Considerations

The study is limited by a relatively small sample, although there is no definition of a large sample (Pedhazur & Schemelkin, 1991). It has been proposed that a sample of more than 200 subjects is "large" (Comrey, 1978), whereas others have suggested that "large" corresponds with at least a 10:1 ratio between subjects and items (Nunally, 1978). The present sample consisted of 100 participants, and the PCA was applied on 12 variables. Thus, the sample size was in the lower range for the employed analytic approach. The small sample size also prohibited repeating the PCA for each of the student groups, as might be indicated from their different age and academic performance distributions, but also because the two groups received IRM training that differed somewhat in length and educational methods. However, the groups' similar internal consistency estimates indicate similar response patterns on the N-SERIC.

The sample was also one of convenience, and this may limit the generalizability of the study results. Recruiting participants from two higher education institutions, however, adds to the external validity of the results. Moreover, the substantial variance proportion explained by the factor and the uniformly high-factor loadings indicate that the N-SERIC sum score can be applied as a general measure of a therapist's self-efficacy for recognizing the client's interpersonal characteristics.

Conclusion

This study showed the N-SERIC scale had a one-factor structure. The scale items had high-factor loadings and very high internal consistency, indicating that self-efficacy for recognizing clients' interpersonal characteristics may be treated as one higher-order concept in relationship to its specific constituents. Thus, the scale and its sum score may be used in education, research, and audits among occupational therapy students, practitioners, and educators. Future studies may use the scale in both therapist and student populations and in different contexts.

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