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Development and psychometric properties of the Therapeutic Relationship Assessment Scale-Nurse

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Accessible Summary

What is known on the subject?

- The literature shows a clear relationship between a good therapeutic relationship (TR) and the efficacy of nursing interventions.
- For the implementation of nursing psychotherapeutic interventions, the initial establishment of a good TR is essential.
- Several instruments assess the relationship established between the therapist and the patient in psychotherapy. However, no tool has been found to assess the quality of the TR established between the nurse and the patient.

What this paper adds to existing knowledge?

- This study allowed the development and evaluation of the psychometric properties of a scale to assess the TR between the nurse and the patient in a sample of mental health nurses.
- The developed scale (Therapeutic Relationship Assessment Scale-Nurse) has psychometric properties that attest its reliability (internal consistency and test–retest) and construct validity as an instrument to assess the quality of the TR established between the nurse and the patient from the nurse's perspective.

What are the implications for practice?

- As the TR is crucial for providing nursing care and, in particular, for implementing nursing psychotherapeutic interventions, the scale developed is a valid tool to assess the quality of the TR established between the nurse and the patient in the perspective of the mental health nurse.
- The use of instruments to assess the quality of the nurse–patient TR facilitates the identification of the relationship's gaps, which can serve as a basis for improving the relationship itself and the nursing care provision.

Abstract

Introduction: The therapeutic relationship (TR) is essential to providing psychiatric and mental health nursing care. Nevertheless, no assessment tools exclusive for assessing nursing TR were found in the literature.

Aim: To describe and evaluate the psychometric properties (reliability and construct validity) of a scale that allows assessing the quality of TR established between the nurse and the patient.

Method: A survey method was adopted, using a convenience sample of 356 mental health nurses. Internal consistency was assessed by Cronbach's alpha and Omega index.

Results: A total of 221 mental health nurses participated in the study (response rate = 62.08%). The scale's final structure has 25 items. Cronbach's alpha was 0.93, ranging from 0.78 to 0.88 for each of the factors. The cumulative variance explained in a four-factor structure was 71.12%.

Discussion: The Therapeutic Relationship Assessment Scale (TRAS)-Nurse presents good psychometric properties. In the light of Benner's theory, it can be an useful tool for novice nurses to better understand what aspects they should pay attention to for establishing a successful TR.

Implications for Practice: Mental health nurses can use the TRAS-Nurse, thus having a scale available that allows them to self-assess the quality of TR they establish with their patients.

KEYWORDS
mental health, nurse–patient relations, psychiatric nursing, psychometrics

1 | INTRODUCTION

The therapeutic relationship (TR) between the nurse and the patient has long been considered a pillar in psychiatric and mental health nursing (Harris & Panozzo, 2019). In fact, in psychiatric/mental health nursing, the nurse–patient TR can even be considered the core of practice (Dziopa & Ahern, 2009).

A proof of this is the existence of a nursing theory focused exclusively on interpersonal relationships—*Theory of Interpersonal Relations*—developed by Hildegard E. Peplau in 1952, which reports that nursing practice is based on an interpersonal process between the nurse and the patient. Other nurses before Peplau, such as Render (1947), and following Peplau, such as Mellow (1966), used similar constructs without developing a theory. Through this process, the nurse must identify the patients' needs, thus promoting their personal growth and producing changes that positively influence their life (D'Antonio et al., 2014). Through the years, nurses have adopted a more and more holistic approach to caregiving. They recognized that patients present emotional, social, and spiritual needs and that the nurse–patient relationship is crucial to understand those needs better (Benner, 2001). The ability to understand the patient's needs from non-verbal cues and ascribe meanings to behaviours requires mental health nurses' advanced skills (Dziopa & Ahern, 2009).

According to Zugai et al. (2015), the TR is a vehicle to improve the health of people with mental health needs. The TR is based on trust and mutual respect (Richard & Tabatha, 2010) and allows identifying objectives that help the patients improve their well-being and satisfy their needs through the nurse's knowledge and skills (Adams, 2017). The TR is a complex relationship that comprises multiple factors, such as empathy (Bohart et al., 2002), mutual goals and collaboration (Lambert & Barley, 2001), congruence, and genuineness (Norcross & Lambert, 2011; Rogers, 1957). Privacy and consistency during the interaction are also important features for the development of a TR and the nurse's ability to listen to the patient. On the contrary, unavailability, nurses' negative feelings and unrealistic expectations hinder the establishment of a good TR. It is quite relevant for nurses to be aware of all the factors that inhibit or hamper the establishment of a TR and try to minimize behaviours that compromise the TR (Forchuk et al., 2000).

According to the literature, a strong TR increases the probability of obtaining positive outcomes (Wilmots et al., 2019), increases the effectiveness of nursing interventions, improves the patient's well-being (Moreno-Poyato et al., 2017) and is the basis for a provision of care that guarantees the patient's safety (Conroy et al., 2017). Several studies have also concluded that the establishment of a good TR leads to positive clinical results, such as improving the quality of life and reducing relapse rates (Ahn & Wampold, 2001; Bambling & King, 2001). According to Miller et al. (2007), the relationship established between the healthcare worker who carries out an intervention and the patient is the most important factor for that intervention's success. It is an even more important factor than the technical ability of the healthcare worker.

Evidence is increasingly emerging about the importance of TR in implementing psychotherapeutic interventions performed by nurses (Romeu-Labayen et al., 2020). According to Sampaio et al. (2017), the TR is a mandatory assumption for implementing any nursing psychotherapeutic intervention. Different studies demonstrate that

the TR's quality is a more significant predictor of behavioural change than, for example, the psychotherapeutic model used (Cahill et al., 2013; Sampaio et al., 2015).

Given the relevance mentioned above that TR can have in nursing care and a clear understanding of the concept, it is also important to have tools that allow its evaluation. In a preliminary literature review, the following TR assessment tools were found: the *Relationship Inventory*, originally developed by Barrett-Lennard, and based on Rogers' person-centred therapy (Watson & Geller, 2005); the *Vanderbilt Psychotherapy Process Scale* and the *Vanderbilt Therapeutic Alliance Scale*, which assess the TR from the perspective of the patient and the therapist (Henry & Strupp, 1994); the *Counselor Rating Scale*, based on Strong's model of social influence (LaCrosse, 1980); the *Penn Helping Alliance Questionnaire*, based on the theoretical framework of psychodynamic therapies (Horvath, 1994); the *Working Alliance Inventory* (WAI) (Horvath & Greenberg, 1989); the *Scale to Assess Therapeutic Relationship*, developed to assess the TR in the context of mental health and psychiatry in the community setting (McGuire-Snieckus et al., 2007); the *Helping Alliance Scale* (Luborsky et al., 1996); and the *California Psychotherapy Alliance Scale* (CALPAS) (Gaston & Marmar, 1994). The WAI is the most widely used tool to assess the TR and has already been translated into several languages. The WAI has the largest amount of data available regarding its reliability in different populations (Ramos, 2008). Other tools found in the literature were the Session Rating Scale (SRS) and the Outcome Rating Scale (ORS), both included in the feedback informed therapy (FIT). FIT is grounded on the premise that the therapist–patient relationship is more decisive for positive outcomes than the choice of therapy by itself. The FIT model proposes that the patient provides regular and formal feedback on the therapeutic relationship and the intervention outcomes. Such feedback is provided through the SRS and the ORS. That feedback allows the therapist to adapt and modify his/her approach according to the patient preferences and needs (Miller et al., 2016).

Although several instruments for assessing the TR were found in the literature, none focuses on the nurse–patient relationship. The vast majority focus on the relationship between the therapist, often a psychologist, and the patient, never focusing on the nurse. On the contrary, many of the items found in the different tools focus exclusively on psychotherapy and only on the relationship established in that context. For example, Item 34 of the WAI—therapist version indicates "… does not know what to expect as the result of therapy" (Horvath & Greenberg, 1989), and Item 9 of the CALPAS version therapist refers to "*patient viewed therapy as important*" (Gaston & Marmar, 1994). In some European countries, nurses are not allowed to perform psychotherapy (Horatio: European Psychiatric Nurses, 2012). Lastly, the assessment tools presented and used in FIT, i.e. the SRS and the ORS (Duncan et al., 2003; Miller et al., 2003), are focused on the relationship established in psychotherapy. Because in Portugal, mental health nurses are allowed to perform psychotherapeutic interventions (i.e. using some psychotherapy techniques), but few nurses are allowed to perform psychotherapy, the FIT assessment tools are not very useful in the Portuguese nursing context. On the contrary, both tools are supposed to be filled in by the patient; thus, those tools do not assess the quality of the TR from the therapist/nurse perspective.

2 | AIM

This study aims to describe and evaluate the psychometric properties (reliability—internal consistency and test–retest—and construct validity) of a new instrument—the Therapeutic Relationship Assessment Scale-Nurse (TRAS-Nurse).

3 | METHODS

3.1 | Design

This study comprised two phases: (1) the development of TRAS-Nurse and (2) the evaluation of the psychometric properties (reliability—internal consistency and test–retest—and construct validity) of TRAS-Nurse, following the methodological principles presented by Roldán-Merino et al. (2019). The data to test the psychometric properties of the TRAS-Nurse were collected using a survey of mental health nurses.

3.1.1 | Phase 1: Development of the TRAS-Nurse

The development of TRAS-Nurse comprised three stages, following a different method in each of them:

First stage

This stage's objective was to identify items that were essential to assess the TR between the nurse and the patient. A group of 20 nursing experts, Portuguese and Spanish, was intentionally selected in order to allow the development of a scale whose interpretation of the TR construct was not limited to a specific geographical and cultural context (10 nurses working in clinical settings and/or management, and 10 nursing professors). The selection of nursing professors was based, cumulatively, on the following criteria: (a) minimum academic degree of Ph.D. and (b) holding the professional title of mental health nurse. In turn, in the selection of nurses, the following criteria were cumulatively considered: (a) minimum academic degree of Masters; (b) currently working in a clinical setting and/or management; and (c) holding the professional title of mental health nurse.

To this end, an online questionnaire was prepared with several sociodemographic questions and one open-ended question ("What items do you consider relevant to assess the quality of the TR that is established between the nurse and the patient?"). The questionnaire was sent by email to all experts in March 2020.

Twenty questionnaires were sent, of which 13 were returned (response rate = 65%). All the items that could be

included in the assessment tool were identified, resulting in 45 items. After eliminating duplicate items, the list made a total of 35 items.

Second stage

Each expert (the initial 20 were considered again) was again invited to answer an online questionnaire aimed at assessing the content validity of each item for the assessment of the TR construct on a scale from 1 to 4 (1= not relevant and 4 = very relevant). The content validity for each item was calculated based on the percentage of experts who assigned a score of 3 or 4 to each item. According to Lynn (1986), only items with a result equal to or greater than 0.80 should be integrated into the scale. Eighteen responses were obtained (response rate = 90%). Of the 35 items identified, 32 were considered relevant or very relevant, with an agreement equal to or greater than 0.80.

The characterization of the experts involved in the study is detailed in Table 1.

The TRAS-Nurse test of face validity. A test of face validity of the scale was carried out with five mental health nurses. The test of face validity aimed to evaluate the scale's questions regarding clarity, way of presentation and rationale; the time necessary for completing the scale and the ease of scoring each item were also evaluated. A test of face validity should always be considered, using a small sample with the same characteristics of the study population to ensure that the scale's questions are clear and objective (Grimm, 2010). The time required to complete the questionnaire ranged from 5 to 7 min. The only suggestion given was the reorganization of the items according to the TR phases, for example, and following this logic, the item "I introduce myself to the patient." became the first to appear in the list of statements in the instrument.

3.1.2 | Phase 2: Assessment of the TRAS-Nurse Reliability and Construct Validity

Participants and setting

The inclusion criteria for the participants were as follows: (a) to be a mental health nurse and (b) to currently work in a clinical setting in Portugal. The healthcare system in Portugal comprises a public National Health Service and private healthcare institutions. Most mental health departments are included in the National Health Service: some are in psychiatric hospitals, and others are in general hospitals. Some social institutions have psychiatric inpatients, most of whom have severe mental disorders and no social or family support/background. At the Community Health level, some projects aiming to promote people's mental health and/or prevent mental disorders are carried out by psychiatric nurses working in Community Care Units. Finally, the recent creation of the Integrated Continued Mental Health Care has allowed the National Network for Integrated Continuous Care to be extended to people with mental health problems by contemplating the existence of psychosocial rehabilitative structures, responding to situations with varying degrees of psychosocial disability and dependence due to severe mental illness.

The sample size was calculated according to several authors' recommendations, i.e. from 5 to 20 participants for each item in the assessment tool (Streiner et al., 2015; Tabachnick & Fidell, 2007). It was also defined that the minimum mandatory number of participants would have to be 100 in order to fulfil the criteria to carry out an exploratory factor analysis (EFA) (Gorsuch, 1983; Kline, 1994).

Variables and information source

A convenience sample was used. All the mental health nurses who were members of the Portuguese Society of Mental Health Nursing

TABLE 1 Characteristics of the experts

	Experts	
	First stage (*n* = 13)	**Second stage (*n* = 18)**
Gender		
Female	*n* = 9 (69.23%)	*n* = 9 (50%)
Male	*n* = 4 (30.77%)	*n* = 9 (50%)
Age	42.29 years (SD = 10.76)	43.67 years (SD = 10.32)
Academic degree		
Doctorate	*n* = 4 (30.77%)	*n* = 8, 44.44%
Master's degree	*n* = 3 (23.08%)	*n* = 3, 16.67%
Professional experience as a nurse	20.07 years (SD=11.41)	20.50 years (SD=10.55)
Professional experience as a mental health nurse	14.43 years (SD=11.90)	13.67 years (SD=10.55)
Country		
Portugal	*n* = 10 (76.92%)	*n* = 15 (83.33%)
Spain	*n* = 3 (23.08%)	*n* = 3 (16.67%)

Abbreviation: SD, standard deviation.

and fulfilled the inclusion criteria were invited to participate in the study. From the 372 nurses who were members of the Portuguese Society of Mental Health Nursing, 16 were excluded because they did not fulfil the inclusion criteria. Thus, 356 nurses were contacted by email to learn their interest and availability to participate in the study. In case of a positive answer, a second email was sent one week later in which participants were asked to answer the data collection tool (available through a link to an online questionnaire created in Google Forms). The participants were asked to respond to the questionnaire in 15 days.

The online questionnaire comprised two parts: (a) questions that allowed the collection of the sociodemographic characteristics of the participants (sex, age, marital status, academic degree, etc.); and (b) the TRAS-Nurse composed of 32 items. The instrument items consisted of statements for which the response varied between 1 and 5 on a Likert scale (1—never, 2—rarely, 3—sometimes, 4—often and 5—always). According to Revilla et al. (2013), using a Likert scale from 1 to 5 is highly recommended, as it provides a better quality of the data compared to a scale with 7 points.

In case the participants did not respond to the online questionnaire, a reminder was sent on the last day of data collection (15 days after the email was sent). That reminder was intended to give them an additional 7-day period to answer the questionnaire. Coding was used to track non-responders. Overall, data collection was carried out between 22 June and 13 July 2020.

3.2 | Statistical analysis

Statistical analysis was performed using IBM SPSS® version 25 and the Factor software (Ferrando & Lorenzo-Seva, 2017).

The sample characteristics were analysed using descriptive statistics reporting *n* (%) for categorical data.

To determine the number of items and the underlying factor structure of the questionnaire, an EFA was performed.

Relevance for the analysis was verified using the Kaiser–Mayer–Olkin (KMO) test and the Bartlett sphericity test. The value of the KMO was 0.93, which was deemed acceptable for proceeding with the EFA, and Bartlett's test of sphericity significance level was $\chi^2 = 3939.25$; $df = 496$; $p < .001$.

For the extraction of the factors, several criteria have been taken into account. Firstly, Kaiser's rule was used (Field, 2018). Under this criterion, the components with an eigenvalue >1 were retained. Secondly, the sedimentation graph was inspected (Ledesma et al., 2015). In the inspection of the graph, all those factors above the curve were retained. Finally, the Classic Implementing Horn's Parallel Analysis (1965) was used.

Item scores were treated as ordered categorical variables, and the EFA was adjusted to the polychoric correlation matrix between items (Ferrando & Lorenzo-Seva, 2013). The communalities and coefficients in the items' matrix were also reviewed, and coefficients greater than 0.40 were taken as significant.

The chosen fit function was unweighted robust least squares, with adjusted mean and variance fit statistics (Ferrando & Lorenzo-Seva, 2017). The factors were rotated using the Robust Promin rotation (Lorenzo-Seva & Ferrando, 2019). The coefficients in the matrix were also reviewed, and the items with a factor loading <0.40 were eliminated.

The inspection of the parameters of the between factors correlation matrix and of the sedimentation graph suggested that a one-dimensional factor solution could also be a plausible option. To assess whether the instrument could be considered essentially one-dimensional, we calculated the explained common variance (ECV) and one-dimensional congruence (UniCo) indices to assess the degree of mastery of the general factor or the closeness to one dimensionality (Lorenzo-Seva & Ferrando, 2019a).

To explore the loading values of the items in a one-dimensional solution, an EFA was performed. The chosen fit function was also that of unweighted robust least squares, with adjusted mean and variance fit statistics (Ferrando & Lorenzo-Seva, 2017). We were also interested in evaluating a bifactor model for the instrument. We calculated the Pure Exploratory Bifactor (Pebi) proposed by Lorenzo-Seva and Ferrando and implemented it in Factor software (Lorenzo-Seva & Ferrando, 2019). Since the scale ultimately aimed to measure four factors previously identified in the parallel analysis, these factors were rotated using the Robust Promin rotation (Lorenzo-Seva & Ferrando, 2019b).

Reliability was analysed by internal consistency assessed by Cronbach's alpha and Omega index. Moreover, composite reliability was also calculated.

The corrected coefficient of homogeneity of the items was also calculated by estimating each item's correlations with the total of the scale and with its corresponding subscale. A correlation of 0.20 was accepted as the lower limit (Clark & Watson, 2015). Both indices were calculated for the instrument's total score and for each of the factors that make it up.

Test–retest reliability was examined within 2 weeks using the intraclass correlation coefficient in a sample of 100 nurses.

3.3 | Ethical considerations

The study was approved by Porto Nursing School Ethics Committee (ADHOC_674/2020). An email was sent to the potential participants for purposes of recruitment for the study. The email explained the study's background, aim, and methods and contained a financial disclosure and conflicts of interest statement. The confidentiality of the answers and the right to drop out at any moment with no consequences was assured to all the potential participants. The email address of the principal investigator was also provided in order to solve any potential doubt. If the participant was interested in participating in the study, he/she had to sign a consent form (attached to the email) and send it back to the principal investigator. Then, a code was attributed to each participant, and a second email was sent to him/her containing the link to the online questionnaire.

4 | RESULTS

4.1 | Respondents' characteristics

The final sample included 221 mental health nurses working in Portugal (response rate = 62.08%). The sociodemographic characteristics of the participants are shown in Table 2.

The participants' average age was 43.88 years (standard deviation = 8.65), and 74.70% were female and married (69.70%). Only 13.60% of the sample attended and completed postgraduate training in clinical/health communication, and 17.60% attended and completed training in psychotherapy (Table 2).

4.2 | Measure descriptive and acceptability (TRAS-Nurse)

In this study, seven factors with eigenvalues >1.0 were identified. In consecutive order, the eigenvalues of the first seven components were 12.30, 2.00, 1.50, 1.57, 1.40, 1.20 and 1.00. The results of the parallel analysis suggested four factors in which the eigenvalues of real data exceeded the eigenvalues of random data. The eigenvalues (and the per cent of variance explained) were 12.66 (50.66%), 2.01 (8.04%), 1.57 (6.31%) and 1.16 (6.09%). Thus, the cumulative variance explained was 71.12%.

4.3 | Scale validity (EFA)

The EFA identified six items with a factor loading <0.40 (Item 1, 18, 21, 22, 23 and 29), which were eliminated. Subsequently, item 24 was also eliminated because it had a factor loading also <0.40 when repeating the analysis without the six previous items. Finally, the instrument was composed of 25 items grouped into four factors (Tables 3 and 4).

Through the analysis of the scree plot (Figure 1), a one-dimensional model could be plausible. To assess this hypothesis, we performed an analysis to determine essential one dimensionality. The values of UniCo and ECV were 0.98 and 0.88, respectively. These values suggest that there is a predominant factor that encompasses the 25 items. In addition, the first order value represents 50.67% of the common variance. The parallel analysis suggests that the one-dimensional solution is replicable. Table 5 shows the goodness-of-fit indexes for the one-dimensional model (Table 5).

The fit indices inspected in the previous subsection show that the fit to the one-dimensional solution is acceptable. On the contrary, we consider that the four group factors can play an important role in the factor model. Table 6 shows the goodness-of-fit indices for the bifactor model, which were really good (Table 6).

All the items presented a notable loading both in the general factor and in the expected factor. All the values were higher than 0.25, except for item 11, which obtained a value of 0.23 (Table 7).

The correlation between the factors ranged from 0.10 (F2—Self-Knowledge) to 0.33 (F1—Empathy). Finally, the reliability of the Orion factors (Ferrando & Lorenzo, 2016) ranged from 0.84 (F1—Empathy) to 0.91 (F4—Orientation). The Orion overall factor reliability was 0.95.

TABLE 2 Sociodemographic characteristics of the sample

Variables	*n* = 221	%
Sex		
Male	56	25.30
Female	165	74.70
Marital Status		
Single	37	16.70
Married/in union	154	69.70
Divorced/de facto separated	28	12.70
Widow(er)	2	0.90
Academic degree		
Graduation	105	47.50
Master's	108	48.90
Doctorate	8	3.60
Professional performance		
Hospital Health Care	136	61.50
Primary Health Care	62	28.10
Others	23	10.40

4.4 | Reliability

As for internal consistency, Cronbach's alpha for the total questions was 0.93, with all values above 0.78 in all factors. The Omega coefficient (ω) for all questions was 0.96. The overall composite reliability was 0.96.

All values obtained for each factor were greater than 0.87, and the total ICC (CI 95%) was 0.86 (0.80–0.91) (Table 3).

4.5 | The TRAS-Nurse final structure

TRAS-Nurse final structure has 25 items distributed by four factors: F1—Empathy, with 5 items (minimum score of 5 and a maximum of 25); F2—Self-knowledge, with six items (minimum score of 6 and a maximum of 30); F3—Involvement, with eight items (minimum score of 8 and a maximum of 40); and F4—Orientation, with six items (minimum score of 6 and a maximum of 30) (Appendix 1). However, TRAS-Nurse can also be used as a one-factor structure instrument with 25 items (minimum score of 25 and a maximum of 125).

5 | DISCUSSION

This research was the first attempt to validate an instrument for measuring the TR specifically in nursing. This is an important achievement and probably the major strength of this study.

TABLE 3 Loading matrix related to the exploratory factor analysis solution—TRAS-Nurse (*n* = 221)

Items	Factor 1	Factor 2	Factor 3	Factor 4
2				0.83
3				0.79
4				0.49
5				0.64
6				0.55
7	0.64			
8	0.71			
9	0.97			
10	0.78			
11		0.58		
12		0.65		
13		0.91		
14		0.84		
15		0.79		
16		0.71		
17	0.49			
19			0.42	
20				0.41
25			0.91	
26			0.86	
27			0.99	
28			0.83	
30			0.71	
31			0.59	
32			0.64	
Eigenvalue	12.66	2.01	1.57	1.16
Variance explained (%)	50.66	8.04	6.31	6.09
Cronbach's alpha	0.86	0.85	0.88	0.78
Composite reliability	0.84	0.88	0.91	0.79
Omega (ω)	0.92	0.91	0.93	0.88
ICC (CI 95%)	0.79 (0.70–0.86)	0.78 (0.67–0.85)	0.86 (0.79–0.91)	0.82 (0.73–0.88)

Abbreviation: ICC, intraclass correlation coefficient.

The numbers are in bold because they are <0.30, so they are low factor loading items.

Most of the participants were female nurses. According to the *Ordem dos Enfermeiros* (OE) (2020), in 2019, of the total 2223 Portuguese mental health nurses, 72.60% were female, and in this study, the sample was composed of 74.70% of female nurses. Regarding professional practice, in the sample, about 61.50% performed functions in the hospital and 28.10% in primary health care. In 2017, according to the OE (2018), 62.33% of the mental health nurses performed functions in the hospital setting. Thus, there is evidence that the sample represents the study population (Portuguese mental health nurses). However, it is important to note that the academic degrees of nurses included in the sample could not be compared with those of the nursing workforce as national statistical data on nurses' academic degrees are not available.

The convenience sample consisted of 221 individuals which, according to several authors, is an adequate sample size for carrying out an EFA (Comrey & Lee, 1992; Gorsuch, 1983; Kline, 1994). Gorsuch (1983) also suggested a minimum of five participants per item. Thus, this study's sample size followed Gorsuch recommendation for the conduction of an EFA.

The results show that the psychometric properties of TRAS-Nurse are globally good, indicating, with certainty, that the instrument allows assessing the quality of the TR between the nurse and the patient. The instrument's total alpha value was excellent

TABLE 4 Goodness-of-Fit Indexes for the Four-Dimensional Model—TRAS-Nurse (n = 221)

Index	Value	95% confidence interval
CFI	0.99	0.98–1.00
GFI	0.99	0.98–0.99
AGFI	0.98	0.97–0.99
RMSEA	0.04	0.03–0.06
Goodness-of-fit test	$\chi^2 = 267.119$; gl =206; $p = .002$	
Reason for fit	$\chi^2/gl = 1.29$	

Abbreviations: AGFI: Adjusted Goodness-of-Fit Index; CFI, Comparative Fit Index; GFI, Goodness-of-Fit Index; RMSEA: Root Mean Standard Error of Approximation.

(0.93), varying in factors between 0.78 and 0.88, making it suitable for all of them. Because in the literature, no instruments were found that assess the same construct as that of the present study, comparing the alpha value between instruments was not possible. However, and for purely comparative purposes, we present two instruments that assess a construct relatively close to the one approached in this study. Thus, the CALPAS therapist version, in its different validation processes in different contexts, presented a Cronbach's alpha ranging between 0.95 and 0.97 (Gaston & Marmar, 1994), higher than the value found in TRAS-Nurse. The WAI, on the contrary, presented a Cronbach alpha in its subscales that varies between 0.68 and 0.92 (Horvath, 1994), being 0.68 inferior and 0.92 superior to the values found in the factors of TRAS-Nurse.

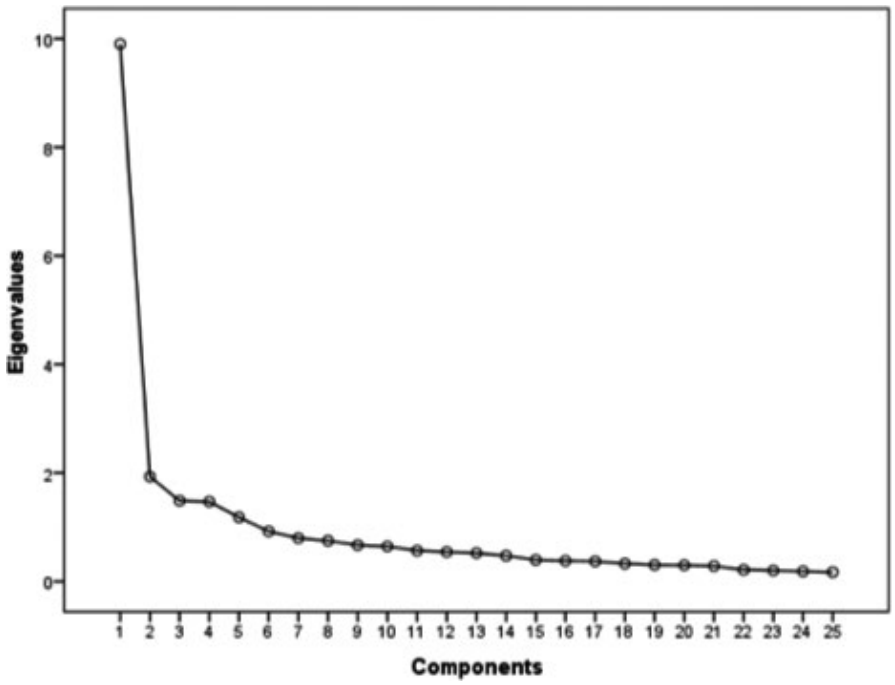

FIGURE 1 Scree plot of the TRAS-Nurse (without items 1, 18, 21, 22, 23, 24 and 29)

TABLE 5 Goodness-of-Fit Indexes for the One-Dimensional Model—TRAS-Nurse (n = 221)

Index	Value	95% confidence interval
CFI	0.98	0.95–1.00
GFI	0.96	0.95–0.98
AGFI	0.96	0.94–0.98
RMSEA	0.08	0.08–0.10
Goodness-of-fit test	$\chi^2 = 671.505$; $gl = 275$; $p = .00001$	
Reason for fit	$\chi^2/gl = 2.44$	

Abbreviations: AGFI, Adjusted Goodness-of-Fit Index; CFI, Comparative Fit Index; GFI, Goodness-of-Fit Index; RMSEA, Root Mean Standard Error of Approximation.

Still, in the internal consistency domain, the Omega index was also calculated, with the total instrument presenting an excellent index (0.96). In this study, the questionnaire was answered again by 100 participants. The total ICC was 0.86 for an IC of 95%, confirming good test–retest reliability.

To analyse the construct validity, an EFA was performed that demonstrated the instrument comprises a factorial structure with seven factors. However, factors that were difficult to explain from the theoretical point of view were found and, in some cases, those consisted of only two items which, according to MacCallum et al. (1999) and Raubenheimer (2004), is not enough for a factor to be representative. Given this somewhat weak structure from a theoretical and statistical perspective, the Classic Implementing Horn's Parallel Analysis (1965) was used. This analysis resulted in a model with four factors. The researchers developed the names of the four factors, taking into account the literature review previously carried

TABLE 6 Goodness-of-Fit Indexes for the Exploratory Bifactor Model—TRAS-Nurse (n = 221)

Index	Value	95% confidence interval
CFI	1.00	0.99–1.01
GFI	0.99	0.99–0.98
AGFI	0.99	0.99–9.99
RMSEA	0.00	0.00–0.04
Goodness-of-fit test	χ^2 = 134.032; gl=185; p = 0.998	

Abbreviations: AGFI, Adjusted Goodness-of-Fit Index; CFI, Comparative Fit Index; GFI, Goodness-of-Fit Index; RMSEA, Root Mean Standard Error of Approximation.

TABLE 7 Loading matrix related to the exploratory bifactor solution—TRAS-Nurse (n = 221)

Items	Factor 1	Factor 2	Factor 3	Factor 4	Global
2				0.58	0.58
3				0.52	0.49
4				0.35	0.70
5				0.44	0.66
6				0.34	0.64
7	0.48				0.64
8	0.52				0.68
9	0.77				0.59
10	0.69				0.56
11		**0.25**			0.59
12		0.33			0.73
13		0.56			0.70
14		0.50			0.65
15		0.60			0.62
16		0.54			0.56
17	0.30				0.69
19			**0.29**		0.67
20				**0.27**	0.53
25			0.65		0.54
26			0.68		0.56
27			0.77		0.46
28			0.60		0.56
30			0.50		0.67
31			**0.27**		0.76
32			0.32		0.82

out. The cumulative variance explained by the scale in a four-factor structure was acceptable (71.12%).

A one-dimensional model was also tested, and the results were satisfactory. The cumulative variance explained for the one-dimensional model was 50.67%. Even though this variance could be considered low, the literature recommends not interpreting the cumulative variance explained as a single/unique indicator. Thus, the literature recommends carrying out other statistical analyses, such as the parallel analysis, the minimum average partial test, and calculating the fit indices, such as the RMSEA, the CIF, the GFI and the AGFI (Lorenzo-Seva, 2013). In this case, we conducted a parallel analysis, and we calculated the fit indices to determine whether the one-dimensional model was plausible.

In this regard, it is possible to safely say that combining all the items on the scale allows the evaluation of the same construct, i.e. the TR between the nurse and the patient.

Besides, we performed an EFA and observed that the solution of a one-dimensional factor and four factors adjusted by a bifactor model are plausible. Our results reinforce the idea that subject scores can be calculated and interpreted for each of the four factors or the overall factor (full scale). In the bifactor model, several items presented a low correlation. However, those correlations were near 0.30, and the items loaded on their respective factors.

It is still important to analyse the TRAS-Nurse in the light of Patricia Benner's theory (2001), which argues that the nurse's emotional involvement with the patient can be useful for the therapeutic process. Nonetheless, Benner and Wrubel (1989) argue that emotional management in nursing caregiving is deeply related to the nurses' professional experience and level of expertise. Thus, it seems to make sense for nurses to recognize their emotions and their impact on the TR established with the patient. Being a self-report assessment tool, the TRAS-Nurse can lead to this self-reflectiveness and, consequently, improve nurses' self-awareness, which is crucial to optimize the TR's quality.

According to Benner (1984), a novice nurse's expected behaviour regarding the TR, considering his/her lack of professional experience, is that he/she needs some rules to establish a TR that is often characterized as being limited and inflexible. The TRAS-Nurse can be useful at this moment of professional development for the novice nurse to better understand the aspects/factors he/she should pay attention to for establishing a successful TR. Over time, nurses can be expected to understand the TR more and more, and the TR will change according to the patient and the nurse's experiences. The nurse reaches the level of "expert" when he/she understands the TR intuitively and when it becomes fluid and flexible relationship, in which the nurse adapts to the patient to establish a good TR (Benner, 1984).

The TRAS-Nurse can be useful for nurses to self-evaluate themselves and understand better which aspects they have to improve to reach the "expert" level. The development of a TR within the mental health setting demands a complex interplay of skills adapted by the nurse that, when reaching the "expert" level, he/she can individualize and make more flexible to meet the patient's needs (Dziopa & Ahern, 2009).

5.1 | Limitations

The first potential limitation of this study is that the TRAS-Nurse is a self-report instrument, which, in itself, can lead to some response

bias. The phenomenon of social desirability may be present, that is, nurses can complete the scale according to their perceptions of what society expects them to perform in the field of TR, instead of what is really their performance and competence to establish TR. However, we sought to minimize this possible bias with anonymity guaranteed when filling out the instrument.

The convenience sampling technique can also be a potential limitation, as it limits the generalization of results.

Other potential limitations of this study are no assessment of the face validity of the TRAS-Nurse; and the non-involvement of service users (patients) in all stages of the scale development, either being experts by experience or agreeing with content based on their experience of therapeutic relationships with nurses.

In the future, it would be important to validate the TRAS-Nurse with other populations, such as nurses who are not mental health nurses, to use probability sampling, and also to develop a complementary instrument that would allow the assessment of TR from the patient's perspective. Moreover, it would be relevant to assess the TRAS-Nurse concurrent validity alongside an established instrument in clinical practice. However, that could only be done in a psychotherapy context, as there were not to be found in literature any assessment tool, filled by nurses, which assesses the nurse–patient therapeutic relationship in a non-psychotherapy context. Finally, in the future, it would be potentially useful to analyse the TRAS-Nurse psychometric properties by using the item response theory.

5.2 | Implications for nursing practice

This study presents relevant results that contribute to nursing's body of knowledge. The psychometric properties found in the TRAS-Nurse seem to support its use in clinical settings, allowing the assessment of the TR's quality that the nurse can establish with the patient. This instrument has been developed by nurses and for nurses. It is applicable in clinical settings, and it highlights the importance of the TR in the provision of nursing care, especially in the context of psychotherapeutic intervention. The TRAS-Nurse differs from all the instruments in the literature, as it is specific for the TR established between the nurse and not another health professional, and the patient. This instrument has in its genesis the main aspects that the literature recommends for establishing a nursing TR. It is a unique instrument in nursing, and, therefore, it also brings innovation in view of the already existing knowledge regarding the TR. Thus, evaluating and interpreting its quality is the first step towards the effectiveness of the interventions to be implemented.

6 | CONCLUSION

The TRAS-Nurse comprises a set of items that assess the different aspects that contribute to establishing a TR. Therefore, it is an instrument that can facilitate the assessment of the TR's quality and the identification and reflection of the less positive aspects that deserve to be worked on so that the TR's quality can be improved. On the contrary, this instrument becomes a crucial work tool for implementing nursing psychotherapeutic interventions since the previous establishment of a good TR is crucial, both for the intervention's execution and for its success.

7 | RELEVANCE STATEMENT

This paper presents the findings of a study on the development and evaluation of the psychometric properties of a scale to assess the quality of the TR established between the nurse and the patient from the nurse's perspective. The development of a scale in this domain is fundamental to promote nurses' self-knowledge/self-awareness and reflectiveness about their abilities to establish a successful TR.

CONFLICTS OF INTEREST

The authors report no actual or potential conflicts of interest.

AUTHOR CONTRIBUTIONS

Joana Coelho has made substantial contributions to conception and design, and acquisition of data, was involved in drafting the manuscript, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Francisco Sampaio has made substantial contributions to acquisition of data, was involved in revising the manuscript critically for important intellectual content, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Maria José Nogueira has made substantial contributions to conception and design, was involved revising the manuscript critically for important intellectual content, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Carlos Sequeira has made substantial contributions to conception and design, and acquisition of data, was involved in revising the manuscript critically for important intellectual content, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Mar Lleixà Fortuño has made substantial contributions to conception, was involved in revising the manuscript critically for important intellectual content, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Juan Roldán Merino has made substantial contributions to conception and design, and analysis and interpretation of data, was involved

in drafting the manuscript, gave final approval of the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ETHICAL STATEMENTS

The Ethics Committee of the Nursing School of Porto approved the study - statement ADHOC_674/2020.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX 1

Distribution of the TRAS-Nurse items by the four factors

			1	2	3	4
Item 7	Compreendo e aceito a/o utente, independentemente das suas verbalizações.	I understand and accept the patient, regardless of his/her verbalizations.				
Item 8	Apoio a/o utente, de igual forma, independentemente das suas verbalizações atuais e/ou passadas	I support the patient in the same way, regardless of his/her current and/or past verbalizations.				
Item 9	Compreendo e aceito a/o utente, independentemente dos seus comportamentos.	I understand and accept the patient, regardless of his/her behaviour.				
Item 10	Apoio a/o utente, de igual forma, independentemente dos seus comportamentos atuais e/ou passados.	I support the patient in the same way, regardless of his/her current and/or past behaviours.				
Item 17	Consigo compreender os sentimentos da/o utente.	I can understand the patient's feelings.				
Item 11	Evito a interferência dos meus problemas na relação com a/o utente.	I do not let my problems interfere with the relationship with the patient.				
Item 12	Aceito os sentimentos que experiencio na relação com a/o utente.	I accept the feelings I experience in the relationship with the patient.				
Item 13	Reconheço os meus pensamentos, sentimentos e comportamentos.	I recognize my thoughts, feelings, and behaviours.				

Distribution of the TRAS-Nurse items by the four factors

			1	2	3	4
Item 14	Reflito sobre o potencial impacto dos meus pensamentos, sentimentos e comportamentos na relação com a/o utente.	I reflect on the potential impact of my thoughts, feelings, and behaviours on the relationship with the patient.				
Item 15	Reflito e identifico as minhas competências relacionais.	I reflect on and identify my relational skills.				
Item 16	Reflito e identifico as minhas limitações relacionais.	I reflect on and identify my relational limitations.				
Item 19	Garanto a identificação, junto da/o utente, das suas necessidades, expetativas e potencialidades.	I guarantee the identification, along with the patient, of his/her needs, expectations, and potential.				
Item 25	Ajudo a/o utente na identificação do seu problema.	I help the patient to identify his/her problem.				
Item 26	Ajudo a/o utente na identificação de estratégias para lidar com / resolver o problema.	I help the patient to identify strategies to deal with/ solve the problem.				
Item 27	Ajudo a/o utente a identificar os fatores que estão na base da sua incapacidade para resolver o problema.	I help the patient identify the factors that are at the base of his/her inability to solve the problem.				
Item 28	Negoceio os objetivos a atingir com a/o utente.	I negotiate with the patient the goals to be reached.				
Item 30	Negoceio com a/o utente os contornos da intervenção.	I negotiate with the patient the contours of the intervention.				
Item 31	Dedico ao utente o tempo que ela/e necessita.	I dedicate to the patient the time he/she needs.				
Item 32	Dedico ao utente a atenção que ela/e necessita.	I dedicate to the patient the attention he/she needs.				
Item 2	Apresento-me à/ao utente.	I introduce myself to the patient.				
Item 3	Pergunto à/ao utente como prefere ser tratada/o.	I ask the patient what I should call him/her.				
Item 4	Esclareço a/o utente sobre o seu papel e o da/o enfermeira/o na relação.	I inform the patient about his/her role and that of the nurse in the relationship.				
Item 5	Encorajo a/o utente a falar abertamente.	I encourage the patient to speak openly.				
Item 6	Ajo de forma a alcançar a confiança da/o utente.	I act in such a way that I gain the trust of the patient.				
Item 20	Aplico os princípios éticos e deontológicos inerentes a uma RT.	I apply the ethical and deontological principles inherent to a therapeutic relationship.				

1 - Empathy; 2 - Self-Knowledge; 3 - Involvement; 4 - Orientation.