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Problem resolution scale: A single-item instrument for easily assessing clinical improvement

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Abstract

This study describes the development and tests the validity of the Problem Resolution Scale (PRS)—a single-item measure developed by researchers at Systemic Practice Research Network (SYPRENE) for assessing the degree to which the focal problem of therapy is perceived as resolved. Data were collected at termination from 747 clients seen across 18 therapists. Results suggested good construct validity, supported by a strong correlation between client and therapist perceptions as assessed by the PRS ($r = 0.71$, $p < 0.001$). Good criterion validity was also supported by strong correlations between client-reported psychological well-being and functioning at termination and both client-reported ($r = -0.63$; $p < 0.001$) and therapist-reported ($r = -0.66$; $p < 0.001$) problem resolution scores. Linear mixed model regression and stratified correlation analysis controlling for the therapist and presenting problem effects confirmed criterion validity. Results provide initial evidence for the validity and utility of the PRS.

KEYWORDS

outcome assessment, problem resolution, psychotherapy outcome research, single-item scale, strategic systemic therapy

INTRODUCTION

Assessing client progress in therapy is fundamental in shaping decisions pertaining to treatment, making it an indispensable component of the clinical process (Kamper et al., 2009). Major barriers to implementing multi-item clinical progress measures routinely in clinical practice, particularly when working with family systems, include required training, time to administer measures, and complex scoring processes, which is often further compounded by needing to use different measures to assess different clinical issues (Allen et al., 2022). By contrast, a universal single-item measure of clinical progress (a) requires no training, (b) is quick for clients to complete, (c) is easy to score, and (d) increases accuracy by avoiding too many questions that could lead clients to give imprecise answers, thereby decreasing client cognitive demands and promoting greater response deliberation (Matthews et al., 2022; Zhang, 2020). Given the potential benefits of using a single-item measure of therapy progress, the purpose of this study was to validate the single-item 11-point *Problem Resolution Scale* (PRS) that had been tested by therapists providing strategic systemic therapy to clients seeking therapy for a wide range of clinical issues.

Single-item measures in therapy outcome evaluation

Outcome assessment traditionally has relied on the use of standardized multi-item questionnaires specific to the focus of therapy (e.g., depression, anxiety, and relationship distress) in which clients respond to items created by researchers (Lloyd et al., 2019). Recently, there has been an increasing advocacy for more extensive use of single-item measures based on idiographic items generated by clients or in cooperation with therapists and for more individualized outcome assessment, in particular, assessment of target symptom/complaint or goal attainment (Allen et al., 2022; Hill et al., 2013; Lloyd et al., 2019). Research indicates that simple and personalized clinical outcome measures (e.g., Goal-Based Outcome Tool [Law & Jacob, 2013]; Goal Attainment Scaling [Kiresuk & Sherman, 1968]) evaluating clinical progress from therapists' and clients' perspectives are appropriate and sensitive instruments that are useful for both clinical and research purposes (Lloyd et al., 2019; McLeod, 2014).

Single-item measures are increasingly used as measurement instruments in health care (Lim et al., 2014; Mannion et al., 2014; Zimmerman et al., 2006) and marketing research (Alexandrov, 2010). Single-item assessments have been criticized mostly for being insufficient at capturing the entire domain of most constructs, thus lacking content validity (the extent to which an instrument accurately represents the specific construct it is intended to measure) compared to multi-item measures (Nunnally & Bernstein, 1994). Research, however, has proved otherwise (Drolet & Morrison, 2001; Hinkin, 1995). A study of single-item measures found 82% exhibited strong or extensive validity (e.g., a significant degree of content validity and substantial criterion validity [the extent to which an instrument accurately predicts or correlates with a specific established outcome of interest]), displayed moderate to high test-retest reliability, and did not demonstrate any usability issues; furthermore, single-item measures were found to reliably and validly assess broad conceptual constructs (Matthews et al., 2022).

Various studies have evaluated the efficiency of single-item scale measures (Ang & Eisend, 2018; Cheah et al. 2018; De Vries et al. 2016; Fisher et al., 2016; Fuchs & Diamantopoulos, 2009). The empirical evidence for convergent validity (e.g., the correlation between single-item

assessments and corresponding multi-item assessments) provides support for the use of single-item assessments (Ruekert & Churchill, 1984; Wanous & Hudy, 2001; Wanous et al., 1997) with multiple advantages, such as being quick and easy to complete and reducing respondent bias (Fu, 2005; Pearman et al., 2018). Single-item measures are especially beneficial in longitudinal studies or those involving difficult-to-access populations, such as psychotherapy clients (Zhang, 2020). Moreover, "single-item measures are acceptable when constructs are unidimensional, clearly defined, and narrow in scope" (Allen et al., 2022, p. 3), as is the case for presenting problem resolution.

Following the abovementioned trends and a recent call for the wider use of single-item measures in psychological science to improve parsimony, increase respondent satisfaction, reduce data-processing costs, and decrease ambiguity in the measurement of the construct of interest (Allen et al., 2022), we propose that a single-item measure is a valid time-effective way of assessing clinical outcomes, providing important and accurate information on goal attainment for research and treatment purposes.

Single-item scales are widely used in psychotherapy for multiple purposes. Some practice research networks (PRNs) have implemented single-item assessments of problem resolution from the therapist's perspective, from the client's perspective, or from both the therapist's and the client's perspectives. The Marriage and Family Therapy Practice Research Network (MFT-PRN; Johnson et al., 2017), for example, asks clients to rate their progress on a single-item 7-point scale ranging from *problem is much worse* to *problem is solved*. Similarly, the PRS has been used within the Systemic Practice Research Network (SYPRENE) as an ultra-brief, simple, and client-specific measure of clinical progress for individual clients, couples, and families (Vitry et al., 2020, 2021). The PRS can be quickly and easily administered to single or multiple family members, requires no extensive scoring by therapists or researchers, and illuminates the degree to which each member perceives the presenting problem is resolved—as well as the extent to which family or group members agree or disagree that the problem is resolved.

Development of the PRS as an instrument for measuring improvement in therapy

The initial prototype of the PRS was developed to assess the progress of a presenting problem resolution as part of the therapeutic process developed by Weakland et al. (1974) at the Mental Research Institute (MRI) in Palo Alto, California, revised by Molnar and de Shazer in 1987, and further developed and researched through SYPRENE, which is based in Paris, France (Vitry et al., 2020, 2021). The practice of evaluating problem resolution using a single-item scale was initially developed to assess the therapeutic progress in strategic systemic therapy, which focuses on the concept of *problem resolution* (Weakland et al., 1974). The therapist works with the client(s) to arrive at a clear, current, contextual, and behavioral description of the problem by answering questions such as the following: (1) What is the problem? (2) Who is involved (e.g., only the client, others, or macro-level systems such as schools, work, and societal norms)? (3) When does the problem happen? (4) Where does the problem happen? and (5) How does the problem work?

Through *problem resolution* questioning from an interactional perspective, clients discover that their problematic process is "maintained by [their] ongoing present behavior... [and that of] others, with whom [they] interact" (Weakland et al., 1974, p. 401). The therapist works with clients to identify the main problem the clients wish to resolve; it should be noted that clients

may have other problems for which they do not seek help. The therapist co-constructs with clients a narrow therapeutic objective, expressed in concrete and positive terms, which has the properties of a SMART goal: specific, measurable, attainable, realistic, and time-bound (Doran, 1981). Agreement on the goal provides the therapeutic orientation, allowing the therapist to help mobilize clients' personal resources so they can better utilize their own strengths. To do this, the therapist codiscovers with clients the unsuccessful attempted solution(s) that the clients redundantly implement in the hope of resolving the problem and that instead creates dysfunctional patterns that maintain or exacerbate the problem. In the strategic systemic approach, the therapist then identifies strategies that will help clients replace redundant unsuccessful attempts to resolve the problem with more effective ones (Fisch et al., 1982; Nardone & Balbi, 2012; Vitry et al., 2021; Weakland et al., 1974).

The extent to which the problem was resolved during therapy is usually assessed by the therapist and by the client(s) at the end of therapy using the scale ranging from 0 = *problem not resolved* to 10 = *problem resolved*. When the score is between 0 and 3, the problem is considered *unsolved*; between 4 and 6 *improved*; and between 7 and 10 *solved*. These assessments are closely linked and integrated into the strategic systemic therapy process, including the articulation and renegotiation of the problem.

The practice of assessing problem resolution was adopted and modified within solution-focused therapy (see Berg & de Shazer, 1993). Scaling questions, one of the foundational aspects of solution-focused therapy, are used for many purposes, such as creating links between the present and the future and exploring strengths. For example, a client who has felt depressed might be asked to scale their depression level at the beginning of therapy (e.g., "On a scale of 0 to 10, 0 being the most depressed you have ever felt and 10 being when you no longer feel depressed and feel fine, where would you say you are now?"). As Molnar and de Shazer (1987, p. 31) wrote: "Effective therapy can be done even when the therapist cannot describe what the client is complaining about. Basically, all the therapist needs to know is: how will we know that the problem is solved?" Accordingly, to link the assessment of problem resolution to the goal of the therapy, the evaluation scale was inverted to become a problem resolution evaluation scale. On the inverted scale, 0 represents the state of the initial problem, and 10 represents the resolution of the problem (Berg & de Shazer, 1993).[1] The inverted scale, filled out at each session, allows both the client and the therapist to evaluate the goal and progress in therapy, regardless of the causes of the problem. This scaling question is the technique most frequently used in solution-focused therapy and described by clients as one of the most useful and helpful (McKeel, 2011). The PRS was developed by SYPRENE in response to feedback from participating therapists who reported that administering multi-item questionnaires like the General Health Questionnaire (GHQ-12; Goldberg, 1972; Goldberg & Williams, 1991) and the Outcome Rating Scale (ORS; Miller & Duncan, 2004) seemed complicated and time-consuming.[2] After discussion among SYPRENE researchers, practitioners, and clients, consensus was reached among researchers that the PRS scale has been simplified to make it easier for clients to understand. Therefore, the PRS was developed to be an ultra-brief one-item instrument to measure clinical improvement as perceived by clients: *On a scale from 0 to 10, where 0 is when you started therapy, and 10 is when you can say, "My problem is resolved," where do you stand today*? A version of the PRS was also developed for therapists to provide their evaluation of client problem resolution using the PRS: *On a scale from 0 to 10, where 0 is when the client(s) started therapy, and 10 is when the client(s) can say, "My problem is resolved," where do think the client(s) is(are) today*?

To have a fuller evaluation of problem resolution, however, it is important to solicit the perspectives of both the client and the therapist (see Hadley & Strupp, 1977). They both collaborate in resolving the client's problems, so both of their perspectives are valuable. Besides, therapists sometimes have different ratings than clients, such as when a therapist believes that clients are underestimating their own progress (which may be part of the difficulty, e.g., with a perfectionist client) or overestimating it (such as someone who tends to be overly optimistic or exaggerates their achievements). The fact that the PRS enables evaluation from the view of both clients and therapists is a form of the double description method described by Bateson (1979, p. 70): "From this new sort of information, the seer adds an extra dimension of seeing." Thus, by providing a time-and-cost-effective evaluation of clinical progress from the perspectives of the client and the therapist, the PRS scale provides an "extra dimension" that can be used to facilitate important discussions with clients about the identified problem and course of therapy.

Although the therapeutic change process may be neither linear nor constant, the PRS brings a new dimension to the nature of change and sheds light on the stages of the change process (McGuinty et al., 2016). For some therapies, like brief therapies approaches (see Cannistrà & Hoyt, 2020/2023) where the therapist creates a framework that makes change possible by proposing tasks, this evaluation also guides the therapist in the choice of the prescribed tasks and provides information on the effects of the tasks on the change process. In addition, clients faced with major ongoing difficulties such as trauma or work stress may define their desired problem resolution as "improved coping" or "adequate functioning" (not the total elimination of difficulties).

The PRS is used in SYPRENE together with other well-established standardized clinical outcome measures (GHQ-12; ORS). These different measures assess clinical outcomes in the following three related yet different domains: (a) the PRS assesses problem resolution and goal attainment; (b) the GHQ-12 assesses changes in general symptoms and mental health, often closely related to the problem resolution; and (c) the ORS assesses change in general well-being in the broader contexts of clients' lives. Research suggests changes in these three domains are interrelated and yet different in their degree (level of correlation) and timing (e.g., problem resolution improvement tends to occur before global functioning improvement; Pakrosnis et al., 2011). Although there are multiple measures for assessing change in the domains of symptoms and general well-being, the same is not true about measures for assessing problem resolution and goal attainment (Lloyd et al., 2019). Therefore, the PRS fills in this gap by adding an important dimension to the outcome evaluation, validity analysis, and broadening the scope of single-item outcome measures.

Previous analyses of data from SYPRENE (Vitry et al., 2020, 2021, 2022) revealed that, along with multi-item questionnaires, the PRS has shown the potential in assessing therapeutic outcome of the strategic systemic approach. Over the course of treatment (an average of 5.4 sessions in 5.3 months), significant improvement or complete problem resolution was reported by therapists ($n = 1079$ cases) and clients ($n = 231$ cases) in 80% and 90% of cases, respectively. In addition, pre- to post-intervention comparison of clients' self-report scores on the GHQ-12, a global assessment for psychological well-being, revealed a large magnitude of improvement (Cohen's $d = 1.69$, $t = 26.58$, $p < 0.001$, $n = 180$) and 76% of cases were evaluated as reaching reliable and clinically significant change.

The purpose of the present study was to develop and then examine the validity of the PRS by addressing two main research questions: (1) to what extent does the PRS demonstrate construct validity as evidenced by the convergence of problem resolution progress evaluated by therapists with problem resolution progress evaluated by clients? and (2) to what extent does

the PRS demonstrate criterion validity as evidenced by corresponding problem resolution progress with psychological well-being (as measured by the GHQ-12) and global functioning (as measured by the ORS; Miller & Duncan, 2004)?

METHOD

The design of the study facilitated the development and evaluation of the PRS. Although item response theory and classical test theory both offer valuable approaches for evaluating content validity in self-report outcome measures, it is not possible to use these theories to assess single-item measures because they require enough items for respective analyses (Cappelleri et al., 2014). The following multistep structured approach for single-item measure validation (Matthews et al., 2022) was employed: (1) acquire a thorough understanding of the conceptual definition of the construct and its underlying concepts before developing the measure; (2) develop the measure, assessing for conceptual inconsistencies and selecting the most appropriate response scale and associated recall period to mitigate common method bias; (3) evaluate the validity of the measure through triangulation, prioritizing the types of validity that are most pertinent to the construct in question by examining similar and related constructs assessed by multi-item measures (e.g., criterion validity and convergent validity); and (4) assess measure reliability (e.g., test-retest reliability and consistency-based reliability), bearing in mind that reliability is just one aspect of the overall picture (e.g., temporal complications and lack of a comprehensive valid multi-item measure for the construct).

The first two steps of measure development were detailed in the "Development of the PRS as an Instrument for Measuring Improvement in Therapy" section. The third step of evaluating validity is detailed in the following sections. The fourth step of assessing reliability was not possible to complete because (a) the PRS was designed to only be used *after* treatment begins, and ongoing intervention created methodological and practical impediments to assessing test-retest reliability; and (b) the absence of a multi-item measure for problem resolution prevented the assessment of consistency-based reliability.

Participants

Clients

Inclusion criteria for the study required (a) clients seen by therapists participating in SYPRENE be at least 18 years old at the time of treatment and (b) data for the clients were available for the following variables: Client PRS or Therapist PRS (or both), in combination with either Client GHQ-12 or Client ORS (or both). There were no exclusion criteria (e.g., clients were not excluded based on presenting problem). Data for 3353 clients, seen mainly individually, have been collected through SYPRENE. Of those clients, 2132 (64%) had a final outcome assessment completed on at least one measure, 707 (21%) clients had no outcome assessment, and 514 clients (15%) were still in treatment at the time of data extraction. Since not all clients had evaluations on all outcome measures[3] and our statistical analysis was aimed at finding links between PRS and two other outcome measures (GHQ-12 and ORS), the final sample for analysis consisted of 747 clients who had a combination of at least two outcome scores (i.e., PRS and either the GHQ-12 or the ORS; Table 1); totaling these subsamples exceed 747 clients

TABLE 1 Pairwise sample sizes for assessment instruments ($N = 747$).

	Therapist PRS	Client PRS
Client PRS	488	–
Client GHQ-12	353	162
Client ORS	534	289

Note: The pairwise sample sizes do not total 747 because of overlap.

Abbreviations: GHQ-12, General Health Questionnaire; ORS, Outcome Rating Scale; PRS, Problem Resolution Scale.

TABLE 2 Client demographic characteristics ($N = 747$).

Characteristic	*n* (%)	*M* (SD)
Gender		
Female	500 (67%)	
Male	247 (33%)	
Age[a]		41.5 (14.6)
Couple relationship status[b]		
Living alone	183 (33%)	
Living as a couple	370 (57%)	

[a]Available for 81% of clients.

[b]Available for 74% of clients.

because of overlap (i.e., clients for whom there were data for two or more combinations, such as both Client PRS and Therapist PRS and Client GHQ-12 or ORS).

Table 2 summarizes clients characteristics. Within the sample ($N = 747$), 67% self-identified as female and 33% self-identified as male. Clients resided in Western European countries (primarily France and Italy). Data on race and ethnicity were not collected. Couple relationship status (reported by 74% of clients) consisted of 33% of clients living alone (single, separated, widowed) and 57% of clients living as a couple (married or in a union). The average age (indicated by 81% of clients) was 41.5 (SD = 14.6) years: 11% were under 25 years old, 44% were between 25 and 44 years old, 40% were between 45 and 64 years old, and 5% were over 65 years old. There was a wide range of presenting problems that were the focus of clinical attention, including (but not limited to) family relational problems, couple relationship problems, workplace relational problems, self-esteem, pathological doubt, mistrust and paranoia, depression, anxiety, panic disorder, burnout, chronic fatigue, posttraumatic stress, phobias, and avoidance.

Therapists

Analysis and results are based on data generated by the 18 registered SYPRENE therapists (11 women and 7 men) who contributed data on at least one completed case. Their mean age was 52.39 years (SD = 5.8), ranging from 40 to 60 years. Therapists reported an average of 14.3 years of experience as psychologists/psychotherapists ($n = 7$) and therapists/counselors ($n = 11$). All

identified themselves as strategic systemic therapists and 11% ($n = 2$) also specified Ericksonian hypnotherapy as a secondary specialization.

Procedure

SYPRENE is a practice research network (PRN) set up in 2014 by the LACT Research Center with the aim of observing intervention and change processes and evaluating the effectiveness and efficiency of strategic systemic therapy (Vitry et al., 2020, 2021). As SYPRENE was developed, a session-by-session data encoding system was established. The therapists received training on the use of SYPRENE and administration of questionnaires by participating in a monthly practice exchange group for a minimum of 1 year (Vitry et al., 2020).

Data were collected from clients before the first session, at each subsequent session, and at termination. The PRS was first administered at the fourth session. The PRS was then administered at the 10th session, at every subsequent 10th session, at termination, and after 6 months from termination. The GHQ-12 was administered before the first session, then at the fourth session, the 10th session, and then every 10 sessions until termination, at termination, and again after 6 months from termination. The ORS was administered before the first session and then every subsequent session until termination, at termination, and at 6 months after termination. For the present study, data were limited to those collected at termination.

Assessment instruments

Problem Resolution Scale (PRS)

The PRS assesses the extent to which the client's presenting problem was perceived as resolved during therapy. Ratings are provided by the therapist and client at the end of therapy on a scale of 0–10. The one-item PRS requires minimal time by both the client (to complete the questionnaire) and the therapist (to record the data). In this data collection framework, the client's assessment of problem resolution occurs at the fourth and last session; the therapist's assessment of problem resolution is collected at each session. Higher scores indicate higher levels of problem resolution.

General Health Questionnaire (GHQ-12)

The GHQ-12 (Goldberg, 1972; Goldberg & Williams, 1991) measures psychological distress. Responses were scored on a 5-point scale (0 = much less than usual, 1 = less than usual, 2 = as usual, 3 = more than usual, 4 = much more than usual) to assess the level of subjective psychological well-being; thus, scores can range from 0 to 48. Items include, “Have you been able to concentrate on everything you do?” “Do you feel reasonably happy, all things considered?” “Have you lacked sleep because of your worries?” “Have you lost confidence in yourself?” The GHQ-12 has been translated into a number of languages and has good validity and reliability characteristics, with internal consistency scores between 0.76 and 0.94 (Lesage et al., 2011; Sánchez-López Mdel & Dresch, 2008; Werneke et al., 2000). Internal consistency scores for the sample analyzed in the current study were not calculated because SYPRENE data collection for the GHQ-12 was only available at the total scale

level to simplify the process for therapists; without raw data for each item, internal consistency scores could not be calculated. Higher scores indicate lower levels of psychological well-being.

Outcome Rating Scale (ORS)

The ORS (Miller & Duncan, 2004; Miller et al., 2020) seeks to assess therapy effectiveness by measuring client functioning. The ORS was designed to facilitate Feedback Informed Treatment (FIT), in which client data are used to inform the direction of therapy. The ORS consists of four items, scored using a visual analog scale ranging from negative (left) to positive (right). The ORS asks clients to self-assess four domains of functioning: *individual* ("personal well-being"), *interpersonal* ("family, close relationships"), *social* ("work, school, friendships"), and *overall* ("general sense of well-being") over the course of the past week (Miller et al., 2020). Summing the scores from the four domains of client functioning yields a cumulative score of client personal well-being; this cumulative score was the measure of client global functioning used in the present study. Higher scores indicate higher levels of client functioning. The ORS has well-established validity and reliability (Bringhurst et al., 2006; Campbell & Hemsley, 2009). Internal consistency (Cronbach *alpha*) score for the sample analyzed in the current study was 0.79.

Data analysis

All data analyzed for the present study were collected at termination. The clinical outcome assessment of problem resolution was evaluated by both clients and therapists completing the PRS (i.e., Client PRS and Therapist PRS), allowing for the estimation of convergent validity (a type of construct validity in which data collected using the instrument are correlated with data collected on related constructs from other sources, including different observers using the same instrument) between clients and therapists. The association between Client PRS and Therapist PRS was evaluated by conducting zero-order bivariate correlation and average difference between Client PRS and Therapist PRS.

Criterion validity of the PRS was evaluated by analyzing the concurrent validity (a type of criterion validity in which data collected using the instrument are correlated with data collected at the same time using other instruments with established validity that measure related constructs); accordingly, we analyzed the zero-order correlations between Client PRS, Therapist PRS, Client GHQ-12, and Client ORS. Given the nested structure of the data with multiple observations grouped within therapists, a simple correlational approach may not have provided the most accurate estimates and inferences; hence, a linear mixed model (LMM; Searle, 1971) and stratified correlations were calculated to validate the results of a simple triangulation while controlling for the statistical effects of therapist differences and presenting problem. In terms of evaluating correlation point estimate magnitude, the following convention established by Cohen (1988) was used: weak = $0.10 \leq r \geq 0.24$, moderate = $0.25 \leq r \geq 0.39$, and strong = $0.40 \leq r$ (Lipsey et al., 2001).

RESULTS

Face validity

Face validity (the clarity or relevance of a test as it appears to participants; Holden et al., 2010) is often underappreciated (Allen et al., 2022). Three experts in strategic systemic therapy were

asked to evaluate whether the PRS appears to assess the degree to which the problem that is the focus of therapy has been resolved at the point in therapy when the PRS is administered. The three experts in strategic systemic therapy agreed that the PRS was worded in such a way that it appeared to have face validity for assessing problem resolution.

Construct validity

Correlation analysis revealed strong convergence between Client PRS scores and Therapist PRS scores ($r = 0.71$, $p < 0.001$, $n = 488$). The average difference between Client PRS scores and Therapist PRS scores was −0.20 (SD = 1.73, $n = 488$), indicating that, on average, therapists' evaluation of problem resolution was only slightly higher than that of clients. These results suggest strong convergence between the therapist's and client's evaluation of problem resolution on the PRS, suggesting good construct validity.

Criterion validity

Results indicated that Client GHQ-12 scores at termination correlated strongly with both Client PRS scores at termination ($r = -0.63$; $p < 0.001$) and Therapist PRS scores at termination ($r = -0.66$; $p < 0.001$; Table 3). Client ORS cumulative scores at termination also correlated strongly with Client PRS scores at termination ($r = 0.51$; $p < 0.001$) and Therapist PRS scores at termination ($r = 0.44$; $p < 0.001$; Table 3). To confirm these results, linear regression analysis was computed and yielded similar results. These findings suggested good concurrent validity of the PRS.

In addition, a LMM was calculated allowing for the incorporation of both fixed effects that estimate the average effect of predictor variables and random effects that estimate the variability of effects across groups (in this case, therapists). By accounting for the random effects associated with different therapists, the LMM results provide a more accurate and nuanced understanding of the relationships between Client PRS, Therapist PRS, Client GHQ-12, and Client ORS scores at termination.

LMMs were formulated to predict scores at termination on the Client PRS and Therapist PRS using Client GHQ-12 and Client ORS scores at termination while incorporating the random effects associated with the therapist identifier with random intercepts. The regression equations were as follows, where $\beta 0$ and $\beta 1$ are the estimated coefficients of the linear model and u(therapist) is the random effect liked to the therapist:

$$\text{Client PRS} = \beta 0 + \beta 1 \times \text{GHQ} - 12 \quad \text{at termination} + \text{u(therapist)},$$

TABLE 3 Correlations between therapist PRS, client PRS, client GHQ-12, and client ORS.

	Client GHQ-12	Client ORS (Cumulative)
Therapist PRS	$r = -0.66$; $p < 0.001$; $n = 353$	$r = 0.44$; $p < 0.001$; $n = 534$
Client PRS	$r = -0.63$; $p < 0.001$; $n = 162$	$r = 0.51$; $p < 0.001$; $n = 289$

Abbreviations: GHQ-12, General Health Questionnaire; ORS, Outcome Rating Scale; PRS, Problem Resolution Scale.

$$\text{Client PRS} = \beta 0 + \beta 1 \times \text{ORS cumulative} + u(\text{therapist}),$$

$$\text{Therapist PRS} = \beta 0 + \beta 1 \times \text{GHQ} - 12 \quad \text{at termination} + u(\text{therapist}),$$

$$\text{Therapist PRS} = \beta 0 + \beta 1 \times \text{ORS cumulative} + u(\text{therapist}).$$

Model slope and intercept were significant for all variable pairs (Table 4). Moreover, the slope between Client PRS and Client GHQ-12 was negative ($\beta = -0.15$, $p < 0.001$), as was the slope between Therapist PRS and Client GHQ-12 ($\beta = -0.17$, $p < 0.001$). Conversely, the slope between Client PRS and Client ORS was positive ($\beta = 0.04$, $p < 0.001$), as was the slope between Therapist PRS and Client ORS ($\beta = 0.07$, $p < 0.001$). Thus, a significant linear relationship existed between both PRS and GHQ-12 and PRS and ORS and is consistent with the previous correlation analysis and coherent with the design of the three scales.

Furthermore, the variance associated with the random effect (therapist) in the LMMs was significant, suggesting therapists introduce variance in the association between both PRS and GHQ-12 and PRS and ORS, but not to an extent that would invalidate these significant associations. These findings reinforce the concurrent validity of the PRS, as modeling the therapist effect still leads to a significant association between PRS and GHQ-12 and ORS. These significant associations included all types of presenting problems included in SYPRENE.

To determine if these significant associations still held regardless of presenting problem, Pearson's correlation coefficients between Therapist PRS and Client GHQ-12 at termination were computed for presenting problem categories for which there were data from 30 or more clients and their therapist (Table 5). Given the strong correlations between Client PRS, Therapist PRS, Client GHQ-12, and Client ORS, the association between Therapist PRS and Client GHQ-12 was selected for assessing the presenting problem category.

TABLE 4 Client PRS and therapist PRS linear mixed models (LMM) regression with client GHQ-12 and client ORS.

Independent variable	Dependent variable	*n*	Variable	*β*	SE	*p*
Client GHQ-12	Therapist PRS	353	Intercept	9.49	0.50	<0.001
			GHQ-12	−0.17	0.01	<0.001
			Therapists	0.84	1.33	-
	Client PRS	162	Intercept	9.82	0.28	<0.001
			GHQ-12	−0.15	0.02	<0.001
			Therapists	0.01	0.00	-
Client ORS	Therapist PRS	534	Intercept	3.72	0.50	<0.001
			ORS	0.07	0.01	<0.001
			Therapists	1.52	0.49	-
	Client PRS	289	Intercept	5.26	0.43	<0.001
			ORS	0.04	0.01	<0.001
			Therapists	0.09	0.11	-

Abbreviations: GHQ-12, General Health Questionnaire; ORS, Outcome Rating Scale; PRS, Problem Resolution Scale.

TABLE 5 Correlation coefficient between therapist PRS and client GHQ-12 for most frequent presenting problem categories ($n \geq 30$).

Presenting Problem Category	*n*	*r*	*p*
Self-esteem	35	−0.57	<0.001***
Family relational problems	33	−0.57	<0.001***
Pathological doubt	40	−0.49	0.001**
Workplace relational problems	35	−0.48	0.003**
Mistrust and paranoia	32	−0.37	0.038*

Abbreviations: GHQ-12, General Health Questionnaire; PRS, Problem Resolution Scale.

All five most frequently presenting problem categories demonstrated a significant association between Therapist PRS and Client GHQ-12 at termination (Table 5). Strong associations were found for self-esteem ($r = -0.57$, $p < 0.001$), family relational problems ($r = -0.57$, $p < 0.001$), pathological doubt ($r = -0.49$, $p < 0.01$), and workplace relational problems ($r = -0.48$, $p < 0.01$). A moderate association was found for mistrust and paranoia ($r = -0.37$, $p < 0.05$). These results likely indicate that the association between Therapist PRS and Client GHQ-12 is valid independently of the presenting problem.

DISCUSSION

Summary of findings

The results of this study suggest that the PRS is a promising measure for therapeutic improvement within the strategic systemic tradition, although additional research with different client populations, clinician populations, and therapeutic approaches is needed. Three experts in strategic systemic therapy affirmed that the PRS demonstrated apparent face validity in its ability to assess the resolution of the problem established as the focus of therapy. The results revealed strong construct (convergent) validity and criterion (concurrent) validity, as indicated by the findings that therapists' and clients' PRS scores correlate quite strongly with each other and with other well-established standardized questionnaires often used in therapy outcome evaluation (i.e., GHQ-12 and ORS). In addition, significant links between measures remained when controlling the effects of the therapists and presenting problems. Such results correspond with and broaden existing empirical evidence demonstrating good convergent validity of other single-item scales used in areas such as job satisfaction, teaching effectiveness, and others (Ruekert & Churchill, 1984; Wanous & Hudy, 2001; Wanous et al., 1997).

One of the advantages of the PRS as a single-item measure is that it is relatively simple to administer. Even brief client-reported clinical outcome measures such as the four-item ORS (Miller & Duncan, 2004) and the three-item Rating of Outcome Scale (ROS; Seidel, 2011) assess general psychological functioning instead of specific clinical problem resolution and need to be administered before treatment and then subsequently (e.g., termination) to maximize their value in evaluating the degree of improvement through comparison (Seidel et al., 2017). Conversely, as an independent single-item measure, the PRS can be easily implemented by therapists and researchers to directly assess clinical progress and clinical outcomes either

through single administration or through repeated administration. Furthermore, the single-item PRS scaling of 0 to 10 provides an interpretable score that does not require the therapist to conduct any calculations. The PRS is also easy to use with family therapy and couple therapy cases because each family member is only having to respond to a single item, making comparisons between family member responses straightforward and useful for therapists (e.g., do family members agree or disagree on the degree to which the problem has been resolved?).

Although there is value in measuring clinical progress using instruments specific to clinical problems (e.g., a depression instrument to assess decreases in depression), one of the advantages to using the PRS to assess clinical progress is that it is not only brief but also generic and thus universally applicable for all clinical problems. The PRS is also applicable in different cultural contexts since the generic "problem" is defined idiographically. A major benefit of the PRS is that, as a single-item measure, it is straightforward and time efficient for clinicians to implement.

In addition to improving treatment, efficiency criteria are crucial for public policy and investment choices and in evaluating the cost of mental illness to society at a broader level (such as the economics of mental illness and unemployment). Desjardins (2008), for example, recommended that public policy should be based on the choice of a conceptual model of mental health promotion and mental disorder prevention developed from a review of the scientific literature on effective measures.

Limitations and recommendations

The current study had several limitations. Because of the evolving nature of SYPRENE, the addition of instruments over time required the exclusion of many cases from analysis and varying numbers of cases included across the analyses. The single-item nature of the PRS prevented the implementation of standard analyses for evaluating measure validity, such as confirmatory factor analysis. In terms of reliability indicators, internal consistency of a single-item scale cannot be calculated, and consistency-based reliability of a single-item scale could not be calculated without data from a multi-item measure of problem resolution (Matthews et al., 2022; Zhang, 2020), which was not available. In addition, test-retest reliability analysis was not possible to calculate because therapy has already begun and the PRS uses the starting point of therapy as the reference point for measurement. Test-retest reliability could be tested in a subsequent study using a modified version of the PRS (e.g., *On a scale from 0 to 10, where 0 is the worst your problem has ever been, and 10 is when you can say, "My problem is resolved," where do you stand today?*) administered to potential clients at the initial request for therapy and again before the first session (e.g., 1-week interval without intervening treatment).

Furthermore, research is needed to determine if the repeated administration of the PRS is associated with improved clinical outcomes and decreased treatment duration (i.e., does routine feedback on client perception of problem resolution over the course of therapy aid therapists in making adjustments to therapy that improve its effectiveness and efficiency?). Research has shown that clinical outcomes improve when therapists use instruments to routinely solicit feedback from clients about the process of therapy (Miller et al., 2006).

Another limitation of the PRS is that it does not attempt to identify external factors outside of therapy that may have facilitated change (e.g., new job decreasing work-related stress and divorce decreasing couple conflict). The PRS does not ask clients and therapists to indicate the level of clinical improvement directly attributable to therapy because this would not assess

actual causation but perception of causation that may or may not be accurate. Determining the role of therapy in promoting clinical improvement compared with the impact of external factors is a complex endeavor that is rarely assessed in clinical outcome measures. Therefore, the PRS is one form of assessment for gauging clinical progress and not a replacement for discussions with clients about how change occurred, especially if such conversations are relevant in the selected therapy approach.

The PRS may not be as helpful with therapeutic approaches that do not focus on problem resolution and instead focus on aspects such as personal growth, differentiation, and insight. Research is needed to establish the validity of the PRS with other therapeutic approaches focused on problem resolution, such as behavioral therapies (e.g., cognitive behavioral therapy, dialectical behavior therapy, and integrative behavioral couple therapy), solution-focused therapy, and structural family therapy. Additionally, research is needed to establish the validity of the PRS with different client populations (e.g., client demographics, focus of therapy, and voluntary/involuntary treatment) and in different clinical settings (e.g., inpatient and outpatient). For example, because the validation of the PRS was based on clients from Western Europe whose race and ethnicity were not collected, an additional potential limitation is that the PRS validity might be limited to this region and not necessarily equally valid for clients in other parts of the world or for all racial and ethnic identities. As such, further measure validation of the PRS based on client geographic region, race, and ethnicity is recommended. Relatedly, research is needed to determine the utility of using the PRS when the focus of clinical work is a complex issue that is not easily resolved, such as disenfranchised grief, poverty, racial trauma, and work stress.

CONCLUSION

Assessing clients' progress in therapy is an important aspect of therapy. The purpose of the present study was to develop and evaluate the validity of the single-item Problem Resolution Scale (PRS) by following a structured approach that involved a clear conceptual understanding of the construct, careful selection of response scales, and triangulation validation techniques. The PRS has its origins in strategic systemic therapy and solution-focused therapy, both of which involve the therapist working with clients to define the problem contextually and behaviorally, subsequently setting specific measurable goals. The PRS can be used to assess the extent of problem resolution, with scores ranging from 0 (problem not resolved) to 10 (problem resolved). Both client and therapist perspectives are considered to provide a more comprehensive evaluation. The PRS assesses therapeutic change, guiding treatment tasks, accommodating the nonlinear nature of the change process, and allowing clients to define their desired problem resolution in a way that suits their unique needs.

Research indicates that single-item measures can be valuable for both clinical and research purposes, showing strong validity and reliability, as well as offering advantages in terms of efficiency, accuracy, and respondent satisfaction. Using multi-item clinical progress measures can be challenging due to the required training, time, and complex scoring processes, especially in family therapy. In contrast, a universal single-item measure like the PRS simplifies the process, as it requires no training, is quick for clients to complete, promotes more thoughtful responses, and offers an easily interpretable score. The PRS is in line with the growing advocacy for using single-item measures generated by clients or in collaboration with therapists for outcome assessment.

The PRS holds promise for assessing therapeutic improvement within the strategic systemic tradition. In addition to expert-determined face validity, the PRS demonstrated strong construct and criterion validity, evidenced by robust correlations between therapists' and clients' PRS scores and established questionnaires used in therapy outcome evaluation. The PRS's simplicity of administration, easy interpretability, and adaptability for various clinical problems make it a valuable tool for clinicians and researchers. Unlike more specific instruments, the PRS offers a brief and universally applicable assessment of clinical progress. Further research is needed to explore its applicability in different client and clinician populations and therapeutic approaches.

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ENDNOTES

[1] The anchor points of the scale may be culturally influenced. As de Shazer indicated: "If I'm doing consultation interviews, the first thing I will do is ask the client on a scale from 0 to 10 (or -10 to 0, if we're in Germany), 'You started off therapy here, and here is where you want to get. Where are you now?' I do this not only to give the client the idea that he is making progress, but to give the therapist the idea that he's doing something right." (Hoyt, 2001, p. 178) SYPRENE adapted this question as follows: "*On a scale from 0 to 10, where 0 is when you started therapy, and 10 is when you can say, "My problem is resolved," where do you stand today*"*?*

[2] SYPRENE practitioners indicated that difficulties with using the multiple questionnaires included coding time deemed too long (56%, $n = 14$), difficulty using it (16%, $n = 4$), too many details (16%, $n = 4$; Vitry, 2021).

[3] Since SYPRENE is evolving, different outcome measures were introduced at different times: therapist PRS was introduced as soon as the database was created (2014), GHQ-12 was added in 2018, client PRS and ORS in 2019. No differences between client groups with and without outcome data were found in regard to gender, age, relationship status or initial therapists' and clients' PRS as well as initial GHQ-12 scores.

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